सत्यमेव जयते

Ministry of Ayush

Government of India

STANDARD TREATMENT GUIDELINES ON **MANAGEMENT OF COMMON MUSCULOSKELETAL DISORDERS** IN UNANI SYSTEM OF MEDICINE

AYUSH VERTICAL

DIRECTORATE GENERAL OF HEALTH SERVICES

Government of India

STANDARD TREATMENT GUIDELINES
ON
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IN
UNANI SYSTEM OF MEDICINE

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सत्यमेव जयते

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स्वास्थ्य सेवा महानिदेशालय
Government of India
Ministry of Health & Family Welfare
Directorate General of Health Services

Foreword

In the past two decades, there has been a resurgence of traditional medicine globally, including the Ayush system in India. Advocates of the Ayush system of medicine, including practitioners and scientists, have consistently highlighted its personalized predictive approach and diversity of Ayush formulations and therapies. As we traverse the terrain of healthcare, necessity of a holistic treatment approach becomes increasingly important. Ayush system of medicine, with its centuries-old wisdom and emphasis on natural healing modalities, offers a distinct perspective on managing musculo-skeletal disorders. Its approach, centered on restoring an equilibrium of mind, body, and spirit, complements modern medicine, thereby widening the care available to patients.

Publication of Standard Treatment Guidelines (STGs) on Management of Musculo-skeletal Disorders by Ayush system of medicine represents a significant footstep towards our commitment to comprehensive healthcare for our citizens. These guidelines, curated by experts in the field, are a testament to efficacy and relevance of Ayush in addressing public health. In order to ensure clarity and accessibility for all stakeholders, conventional terminology has been seamlessly integrated throughout the document. Each disease condition is introduced alongside its corresponding ICD classification, providing a clear clinical narrative that enhances understanding for all stakeholders.

I appreciate the Ayush vertical of this directorate, as well as contributions of various experts from National Institutes and Research Councils under the Ministry of Ayush, in bringing forth this initiative. Additionally, my gratitude to experts from orthopedics department of ABVIMS and LHMC for their invaluable support in incorporating modern perspective on musculo-skeletal disease conditions into the STGs. By bridging gaps between traditional and modern medicine, we attempt to foster inclusivity and collaboration between various systems of medicine for benefitting patients.

I sincerely hope that these guidelines will serve as a valuable resource for Ayush healthcare practitioners, empowering them to deliver optimal care to individuals afflicted with musculo-skeletal disorders.

03 April 2024

(Atul Goel)

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FOREWORD

The Ministry of Ayush remains steadfast in its commitment to the promotion and propagation of the Ayush system of medicine. Over the past two decades, significant strides have been made in providing public health services through our extensive network, comprising approximately 3844 Ayush hospitals, 36848 Ayush dispensaries, and over 7.56 lakh registered practitioners nationwide. The increasing acceptance of the Ayush system among the populace underscores the necessity for mainstreaming and standardizing these traditional practices to ensure standardized and evidence-based care throughout India.

In pursuit of this goal, the Ministry of Ayush recently unveiled the Indian Public Health Standards for Ayush healthcare facilities, a crucial step towards ensuring the delivery of high-quality public healthcare services. Furthermore, the initiative undertaken by the Ayush vertical under the Directorate General of Health Services to publish a series of Standard Treatment Guidelines (STGs) for various disease conditions within the Ayush system represents a significant stride in our commitment to providing quality and standardized healthcare services.

I extend my sincere gratitude to Dr. Atul Goel, DG, Directorate General of Health Services, for spearheading this endeavor under his guidance. I also commend the dedicated efforts of the Ayush vertical under DGHS, as well as the contributions of various experts from National Institutes, Research Councils under this Ministry, and experts from the Orthopedics Department of RML Hospital and Lady Hardinge Medical College. Their invaluable support has been instrumental in incorporating modern perspectives on musculoskeletal disease conditions into the STGs, thus bringing forth this initiative.

I am hopeful that this series of Standard Treatment Guidelines, starting with the guidelines on Musculoskeletal Disorders, will serve as a valuable resource for Ayush healthcare providers. It will empower them to deliver optimal care to individuals suffering from musculoskeletal disorders and complement the Indian Public Health Standards for Ayush healthcare services.

(Rajesh Kotecha)

01st April, 2024.
New Delhi

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ABBREVIATIONS

ACPA	Anti-Citrullinated Peptide Antibody
ACR	American College of Rheumatology
ACS	Adhesive Capsulitis of Shoulder
AIDS	Acquired Immune Deficiency Syndrome
ANA	Anti-nuclear Antibody
Anti-CCP	Anti-cyclic Citrullinated Peptide
AP	Anterio-Posterior
ASES	American Shoulder and Elbow Society
BMI	Body Mass Index
CBT	Cognitive-Behavioral Therapy
CCR6	Chemokine Receptor 6
CHC	Community Health Center
CPPD	Calcium Pyrophosphate Dihydrate
CRP	C- Reactive Protein
CS	Cervical Spondylosis
CT	Computed Tomography
CTLA4	Cytotoxic T-lymphocyte associated Protein 4
CWP	Chronic Widespread Pain
DAS28	Disease Activity Score 28
DIP	Distal Interphalangeal Joints
DMARDs	Disease-modifying Antirheumatic Drugs
EMG	Electromyography
ESR	Erythrocyte Sedimentation Rate
ESWT	Extracorporeal Shock Wave Therapy
FBC	Full Blood Count
FM	Fibromyalgia
GI	Gastrointestinal
HLA	Human Leukocyte Antigen
HLA-B27	Human Leukocyte Antigen B27
HLA-DRB1	Human Leukocyte Antigen Class II Histocompatibility, D Related Beta Chain
HTLV-1	Human T-Lymphotropic Virus Type 1
IFT	Interferential Therapy
IL2RA	Interleukin-2 Receptor a
IRF5	Interferon Regulatory Factor 5
JSN	Joint Space Narrowing
LBP	Low Back Pain

LS	Lumbar Spondylosis
MCP	Metacarpophalangeal Joints
MMTP	Multidisciplinary Modal Treatment Plan
MRI	Magnetic Resonance Imaging
MSG	Monosodium Glutamate
NCV	Nerve Conduction Velocity
OA	Osteoarthritis
PADI4	Protein-arginine Deiminase Type-4
PHC	Primary Health Center
PIP	Proximal Interphalangeal joints
PTPN22	Protein Tyrosine Phosphatase Non-Receptor Type 22
RA	Rheumatoid Arthritis
RF	Rheumatoid Factor
ROM	Range of Motion
SLR	Straight Leg Raise
SS	Symptom Severity
STAT4	Signal Transducer and Activator of Transcription 4
TENS	Transcutaneous Electrical Nerve Stimulation
TFT	Thyroid Function Test
TRAF1	TNF receptor-associated Factor 1
USG	Ultrasound
WPI	Widespread Pain Index

GLOSSARY

S. No.	Term	Description
1.	*Ābzan*	Method of treatment (regimen) in which patient sits in warm water or medicated liquid obtained by boiling drugs in water.
2.	*Aghdhiya Bārida*	Dietary substances which produce coldness in body.
3.	*Aghdhiya Ghalīẓa/ Ghidhā' Ghalīẓ*	Dietary substances which produce blood of thick consistency.
4.	*Aghdhiya Ḥārra*	Dietary substances which produce heat in body.
5.	*Aghdhiya Laṭīfa*	Dietary substances which produce blood of thin consistency.
6.	*Aghdhiya Muraṭṭiba*	Dietary substances which produce wetness in body.
7.	*Aghdhiya Musakhkhina*	Dietary substances which increase heat in the body due to their hot temperament or heat-producing property.
8.	*Akhlāṭ*	Primary fluids of the body which is an initial product of digestion and transformation of food.
9.	*Āsh-i-Jav/ Mā' al-Sha'īr*	Liquid dietary preparation obtained by boiling dehusked barley in water; the water is then drained and used.
10.	*Badraqa*	A drug or substance which helps main drug in absorption and reaching target; it may be an inert substance or of therapeutic value in potentiating effect of main drug.
11.	*Balgham/ Khilṭ Balghamī/Khilṭ Balgham*	One of the four humours, which is white in colour, bears cold and moist temperament and is next to sanguine humour in excellence.
12.	*Balgham Ghayr Ṭabī'ī*	Phlegm devoid of basic characters of normal phlegm.
13.	*Balgham Khām*	*Balgham* (phlegm) which is immature and not capable of either being part of the body or providing nourishment to it.
14.	*Balghamī Mādda*	Matter which is phlegmatic in nature.
15.	*Bārid*	Anything cold in nature/temperament.
16.	*Burūdat*	One of the two active properties naturally associated with matter.
17.	*Burūdat-i-Mafṣal*	Coldness of joint as compared to other parts of the body.
18.	*Dalk*	Massage (regimen) with techniques ranging from light, moderate, and deep pressure; regimen involving manual manipulation of muscles.
19.	*Dalk Layyin*	Soft-handed light and gentle-pressure massage (regimen).
20.	*Dam/ Khilṭ Damawī*	Red-coloured, odourless and sweet in taste sanguine humour.
21.	*Ḍimād*	Semi-solid preparation of crude drugs meant for local application.

S. No.	Term	Description
22.	*Ḍu'f-i-'Uḍw*	Decreased powers of any organ.
23.	*Farṭ-i- Ḥarārat*	Excess of heat in any organ/whole body.
24.	*Faṣd*	Bloodletting through venesection (regimen) for complete evacuation of morbid matter, leading to moderation of all humours.
25.	*Faṣd-i-Bāsalīq*	Blood-letting from basilic vein (regimen).
26.	*Ghalaba'-i-Dam*	Quantitative increase in volume of sanguine humour exerting pressure on the vessels.
27.	*Ghalaba'-i-Balgham*	Qualitative imperfection or quantitative excess of phlegmatic humour in the body.
28.	*Ghalaba'-i-Balgham-o-Ṣafrā'*	Qualitative imperfection or quantitative excess of phlegmatic and bilious humours in the body.
29.	*Ghalaba'-i-Ṣafrā'*	Qualitative imperfection or quantitative excess of bilious humour in the body.
30.	*Ghalaba'-i-Sawdā'*	Qualitative imperfection or quantitative excess of melancholic humour.
31.	*Ghayr Ṭabī'ī Balghamī Khilṭ*	Phlegm devoid of basic characters of normal phlegm.
32.	*Gulqand*	Semi-solid medicinal preparation of flower petals; a form of semi-solid drug in which rose or other flower petals are preserved in thick sugar-based syrup.
33.	*Ḥammām*	Turkish bath (regimen), constructed as per specific guidelines, where temperatures of different rooms are different for therapeutic purposes like cleansing, reducing viscosity of matter and elimination and diversion of morbid matter.
34.	*Ḥarārat*	One of the two active properties naturally associated with matter.
35.	*Ḥārr*	Anything hot in nature/temperament.
36.	*Ḥijāma*	Mode of regimenal therapy in which horns (nowadays cups) are used with or without scarification for diversion and evacuation of morbid matter from blood.
37.	*Ḥijāma bi'l Sharṭ*	*Ḥijāma* (cupping therapy) with scarification for bloodletting to achieve local evacuation of morbid matter.
38.	*Ḥijāma bilā Sharṭ*	*Ḥijāma* (cupping therapy) without scarification; only application of cup with vacuum creation within it for diversion of morbid matter.
39.	*Ifrāṭ-i-Istiḥmām*	Excessive use of Turkish bath.
40.	*'Ilāj bi'l Dawā'*	Treatment of disease with help of medicines/drugs.
41.	*'Ilāj bi'l Tadbīr*	Application of regimens for maintenance of health as well as for management of diseases.
42.	*Imtilā'*	Quantitative or qualitative repletion of blood vessels.

S. No.	Term	Description
43.	*Inkibāb*	Exposure of a part of body or whole body to vapours obtained from decoction of drugs or boiled simple water.
44.	*Inṣibāb-i-Akhlāṭ*	Infiltration or effusion of humours from one organ to another.
45.	*Inṣibāb-i-Mādda*	Infiltration or effusion of matter from one organ to another.
46.	*Ishāl*	Evacuation of morbid matter from body through intestines as a regimen (inducing purgation); the term is also used for diarrhea.
47.	*Istifrāgh-i-Mādda*	Induced elimination of morbid material from the body, usually done after proper concoction.
48.	*Kasl*	Laziness
49.	*Kayfiyāt*	Physical properties or qualities i.e., hotness, coldness, moistness/wetness and dryness, associated with matter.
50.	*Khilṭ*	Primary fluid of the body which is an initial product of digestion and transformation of food.
51.	*Ma'jūn*	Semi-solid dosage form prepared by mixing powdered drug in base of sugar syrup or honey.
52.	*Marham*	Semi-solid medicine prepared by mixing fine powder of drugs with wax or other suitable base, meant for local application.
53.	*Mizāj*	Uniform quality of a compound present in its all particles in equal proportion, developed due to the interaction of opposite qualities of the four primary components in such a manner that most of the particles of each of the primary components/elements may come into contact with most of the others.
54.	*Mizāj Balghamī*	A type of temperament caused by the predominance of *Balgham* (phlegm) in the body, which is cold and moist; individuals with this type of temperament have fatty body, excessive sleep disposition, whitish colour of skin, etc.
55.	*Mizāj Damawī*	A type of temperament caused by the predominance of *Dam* (sanguine) in the body, which is hot and moist; individuals with this type of temperament have strong build, full pulse, pinkish colour of skin, etc.
56.	*Munḍij*	Drug which modifies and prepares morbid humours for evacuation from body.
57.	*Munḍij-o-Mushil*	Drug which modifies and prepares morbid humours for evacuation from body is called *Munḍij* and drug which helps in expulsion of morbid humours in the form of loose motions is called *Mushil*.
58.	*Muraṭṭib-o-Mubarrid Tadbīr*	Regimen producing moistness and coldness in the body.
59.	*Nabḍ Baṭī'*	Pulse whose movement is completed in a longer time.

S. No.	Term	Description
60.	*Nabḍ Baṭī' Mukhtalif*	Slow unequal pulse; pulse whose movement is completed in a longer time and is unequal in its five features, i.e., largeness and smallness, strength and weakness, swiftness and sluggishness, rapidness and slowness, and hardness and softness.
61.	*Nabḍ Sarī'*	Pulse whose movement is completed in a shorter time.
62.	*Naṭūl*	Medicinal liquid preparation poured on affected part with force (as a regimen).
63.	*Nuḍj*	Process by which morbid matter/humour matures and is made easily evacuable from body.
64.	*Qay'*	To induce vomiting (as a regimen) in order to evacuate gastric contents; the term also covers morbid condition known as vomiting.
65.	*Rīḥ*	Gaseous matter
66.	*Rīḥ Ghalīẓ*	Thick gaseous matter
67.	*Riyāḍat*	Activity involving physical effort, to maintain or improve health; frequently advocated as regimen.
68.	*Ṣafrā'*	One of the four humours, which is yellow in colour, has hot and dry temperament and is next to phlegm in excellence.
69.	*Ṣafrāwī al-Mizāj*	A type of temperament caused by the predominance of *Ṣafrā'* (yellow bile) in the body, which is hot and dry; individuals with this type of temperament have thin build, yellowish colour of the skin, rapid pulse, etc.
70.	*Sawdā'*	One of the four humours, which is black in colour and has cold and dry temperament.
71.	*Sū'-i-Mizāj*	Derangement or imbalance of temperament either in terms of four physical properties or qualitative or quantitative predominance of humours.
72.	*Sū'-i-Mizāj Balghamī*	Morbid temperament caused by the predominance of phlegm.
73.	*Sū'-i-Mizāj Bārid*	Morbid cold temperament; when cold dominates abnormally in the body.
74.	*Sū'-i-Mizāj Damawī*	Morbid temperament caused by the predominance of sanguine.
75.	*Sū'-i-Mizāj Māddī*	Morbid temperament in which change in four physical properties, i.e., hotness, coldness, dryness and wetness/ moistness takes place with the involvement of substance.
76.	*Sū'-i-Mizāj Mustaḥkam*	Morbid temperament which persists indefinitely.
77.	*Sū'-i-Mizāj Sādhij/ Sū'-i-Mizāj Sāda*	Morbid temperament in which only change in four physical properties, i.e. hotness, coldness, dryness and wetness/moistness takes place.
78.	*Tabrīd*	Cooling of body/part of body; a method of treatment in which coldness is produced/ generated or heat is reduced in body by drugs or regimen.

S. No.	Term	Description
79.	*Tadākhul-i-Ṭa'ām*	Intake of diet after diet without proper gap/ interval.
80.	*Tadhīn*	Application of hot or cold oil on body part.
81.	*Taḥajjur-i-Mafṣal/ Taḥajjur*	*Taḥajjur* when used in context of joints; fixation or restricted mobility of joints leading to locking of joints due to degenerative changes in the articular surface.
82.	*Taḥlīl-i-Awrām*	Process of resolving swellings.
83.	*Taḥlīl-o-Talyīn*	*Taḥlīl* (when used in context of swelling) is the dispersion of disease-causing matter accumulated in an organ or body part and *Talyīn* (when used in context of swelling) is the process of softening inflammation of hard organ/ inflammation.
84.	*Takmīd Ḥārr*	A procedure/regimen in which powder of drugs is tied in a piece of cloth (bag) and used for local fomentation after heating it.
85.	*Ta'līq al-'Alaq*	Application of leech as a regimen for evacuation of morbid matter.
86.	*Tamrīkh*	Act of moistening and rubbing a part of body with a liniment or lotion.
87.	*Tanqiya/ Tanqiya'-i-Badan*	Induced elimination of morbid material from the body, usually done after proper concoction.
88.	*Tanqiya'-i-Mawād*	Elimination of morbid material.
89.	*Taqwiyat-i-A'ṣāb*	Process which provides strength to nerves.
90.	*Taqwiyat-i-Mafāṣil*	Process which provides strength to joints.
91.	*Tark-i-Riyāḍat*	Avoiding activity involving physical effort.
92.	*Taskhīn*	A method of treatment in which heat is produced/ generated in body by drugs or regimens.
93.	*Taskīn-i-Alam*	Relieving any type of pain.
94.	*Ṭilā'*	A kind of medicated oil or a thin medicinal preparation applied locally.
95.	*Yābis*	Anything dry in nature/temperament.
96.	*Yubūsat*	One of the two passive physical properties naturally associated with matter.

1 OSTEOARTHRITIS

1

OSTEOARTHRITIS

(ICD 10 code: M15- M19)
(ICD 11 code: FA00-FA05)

Waja' al-Mafāṣil Balghamī (**WMB**) (Phlegmatic arthritis) **(NUMC:** L-4.3) http://namstp.ayush.gov.in/#/index

CASE DEFINITION

Osteoarthritis (OA) is a degenerative joint disease mainly affecting the articular cartilage. It is mostly associated with ageing and will most likely affect the joints continually stressed throughout the years, including the knees, hips, fingers, and lower spine region.

INTRODUCTION (*incidence/ prevalence, morbidity/mortality)*

- In India, nearly 80% of the population shows OA among the patients who claimed knee pain, of which approximately 20% reported incapability in daily activities.
- 80% of those with osteoarthritis have limitations in movement, and 25% cannot perform their major daily activities.

Unani Medicine's Perspective:

Waja' al-Mafāṣil Balghamī (**WMB**) (Phlegmatic arthritis)/Osteoarthritis: It occurs due to the accumulation of *Balgham Ghayr Ṭabī'ī* (abnormal phlegm) in the affected joint and when this condition becomes chronic, it may lead to hardening of the joints resulting in stiffness and decreased mobility.[4,5]

DIAGNOSTIC CRITERIA

Osteoarthritis is of two types:

- **Primary OA** refers to cases where the disease is not related to any prior condition or event affecting that joint but occurs due to wear and tear of the joints and relates to ageing.
- **Secondary OA** includes causes such as congenital, trauma, metabolic, endocrine, joint disease, neurological, vascular, and bone disease.

  Causes of Secondary OA:

Congenital	Localized diseases (e.g., congenital hip dislocation, Legg-Calve-Perthes disease, slipped femoral epiphysis), bone dysplasias (e.g., multiple epiphyseal dysplasia, spondyloepiphyseal dysplasia, malposition (varus/ valgus)

Trauma	Both acute and chronic involving the joint or nearby bone causing mal-alignment
Metabolic	Ochronosis, haemochromatosis, Wilson's disease (hepato-lenticular degeneration), calcium pyrophosphate deposition disease (CPPD), rickets
Endocrine	Acromegaly, diabetes mellitus, obesity
Joint diseases	Septic arthritis, rheumatoid arthritis, gout
Neurological	Charcot's arthropathy (Tabesdorsales, diabetes, syringomyelia and Charcot-Marie-Tooth disease)
Vascular	Avascular necrosis
Bone	Paget's disease of bone (osteitis deformans)

Unani Medicine's Perspective:

Etiology

- Accumulation/infiltration of abnormal phlegmatic humour in the joint[4]
- Weakness of joints making them vulnerable to the condition[4]
- Retention of immature *Khilṭ* (humour) in the body[4]
- Withdrawal of regular regimen for evacuation of body wastes[4]
- Sedentary lifestyle[4,5]
- Withdrawal of regular physical activity regimen[4,5]
- History of joint injury[4]
- Obesity[4,5,]
- Defective digestion[4]
- *Tadākhul-i-Ṭa'ām* (diet after diet without proper gap/ interval)[4]
- History of excessive intake of diets of cold and wet/moist temperament[4]
- History of prolonged intake of thick *Khilṭ* (humour) producing diets[4]
- Excessive intake of alcohol[4,5]
- Excessive emotional disturbances[4,5]
- Old age (generally)[4,5]

Pathology

According to Unani medicine, arthritis in general is caused by *Sū'-i-Mizāj* (morbid temperament) of the whole body or any of the vital organs of the body *Ḥārr* (hot), *Bārid* (cold) or *Yābis* (dry). This *Sū'-i-Mizāj* (morbid temperament) happens to be either *Sādhij* (simple) (i.e. imbalance of *Kayfiyāt* (qualities) without involvement of matter/substance; *Ḥarārat* (hotness), *Burūdat* (coldness), *Yubūsat* (dryness) or with the involvement of matter/substance, *Akhlāṭ* (humours) of *Ḥārr* (hot), *Bārid* (cold) or *Yābis* (dry) *Mizāj* (temperament) and *Rīḥ* (gaseous matter).[4]

Waja' al-Mafāṣil Balghamī (**WMB**) (Phlegmatic arthritis), which is similar to osteoarthritis, is caused by accumulation/infiltration of *Balgham Khām* (immature phlegmatic humour) in the joints leading to their swelling.[4]

Sū'-i-Mizāj Bārid Mustaḥkam (persistent cold morbid temperament) of joints or their weakness due to trauma or excessive exertion causes the accumulation/infiltration of morbid matter within the joint spaces. The infiltration of morbid *Khilṭ* (humour) is also aided by sedentary lifestyle, stopping a regular physical activity regimen, stopping a regular regimen for evacuation of body wastes, etc.[4]

In this condition, the temperature of the affected joint will be colder than other parts of the body due to abnormal predominance of *Burūdat* (coldness) and *Yubūsat* (dryness) in it, the colour of the affected joint will be similar to other parts of the body and there will be more heaviness in the joint with the least degree of burning sensation, moderate, regular and deep-seated pain. Moreover, *Mizāj* (temperament) of bones and joints being *Bārid* (cold) and ample space in joint cavities increases the susceptibility of accumulation of morbid matter in the joints. The characteristics of the disease include relief of pain on usage of hot regimens, appearance of translucent urine of thick consistency and slow and unequal pulse.[4,7] When this ailment proceeds to a chronic stage, which usually happens by thick, viscous matter of cold temperament, the thinner portion of the matter resolves and the thicker portion solidifies (*Taḥajjur*). The mismanagement of acute condition of *Waja' al-Mafāṣil* i.e., administering the procedures of *Tanqiya* (evacuation) before complete *Nuḍj* (concoction) of morbid matter also results in *Taḥajjural-Mafāṣil* (stiffness, hardness, and restricted joint motion).[4,8]

Risk Factors– Old age, obesity, sedentary lifestyle, those who have chronic illnesses, individuals in the convalescent period and those with phlegmatic temperament.[4]

The diagnosis of OA is clinico-radiological and is made after a complete medical history and physical examination.

ACR Diagnostic Guidelines for Osteoarthritis of Knee, Hip, and Hand[9]

Items required for the presence of OA	
HAND	
Clinical 1. Hand pain, aching, or stiffness for most days of the prior month 2. Hard tissue enlargement of ≥ 2 of 10 selected hand joints 3. MCP swelling in ≤ 2 joints 4. Hard tissue enlargement of ≥ 2 DIP joints 5. Deformity of ≥ 1 of 10 selected hand joints	1, 2, 3, 4 or 1, 2, 3, 5
HIP	
Clinical and radiographic 1. Hip pain for most days of the prior month 2. ESR ≤ 20mm/h (laboratory) 3. Radiograph femoral and/or acetabular osteophytes 4. Radiograph hip joint- space narrowing	1, 2, 3 or 1, 2, 4 or 1, 3, 4

Items required for the presence of OA	
KNEE	
Clinical 1. Knee pain for most days of the prior month 2. Crepitus on active joint motion 3. Morning stiffness ≤ 30min in duration 4. Age ≥ 38 years 5. Bony enlargement of the knee on examination	1, 2, 3, 4 or 1, 2, 5 or 1, 4, 5
Clinical and radiographic 1. Knee pain for most days of the prior month 2. Osteophytes at joint margins (radiograph) 3. Synovial fluid typical of OA (laboratory) 4. Age ≥ 40 years 5. Morning stiffness ≤ 30min 6. Crepitus on active joint motion	1, 2 or 1, 3, 5, 6 or 1, 4, 5, 6

DIP: distal interphalangeal, MCP: metacarpophalangeal

Unani Medicine's Perspective:

Clinical presentation:

- Swelling[4]
- The temperature of the affected joint will be colder than other parts of body[4]
- The colour of the affected joint will be similar to other parts of the body[4]
- More heaviness in the joint with a least degree of burning sensation[4,7]
- Moderate, regular and deep seated pain[4,7]
- Decreased joint mobility[4,8]
- The usage of hot regimens relieves the pain[4]
- Translucent urine of thick consistency[4]
- *Nabḍ Baṭī' Mukhtalif* (slow and unequal pulse)[4]

CLINICAL EXAMINATION

During the physical examination, the examiner should look at the following points: Look, feel, and move each joint, evaluating it for swelling, warmth, or tenderness; the range of motion; the pattern of affected joints (such as one knee, both knees, knuckles, wrists, or shoulders). Often, the pattern of joints affected can help to tell the difference between osteoarthritis and other types of arthritis; any bony knobs (osteophytic changes) on joints (especially the fingers).

During physical findings in osteoarthritic joints, the examiner should look at joint line tenderness, bony enlargement, crepitus, effusions, and decreased range of motion. Pain on passive

motion is also common. Erythema (unusual except in DIP and PIP joints), and effusion (unusual except in the knee joints), suggest active inflammation. If hands are involved, particularly the distal and proximal interphalangeal joints, the examiner should look at bony enlargements such as Heberden's and Bouchard's nodes.

Figures[10]

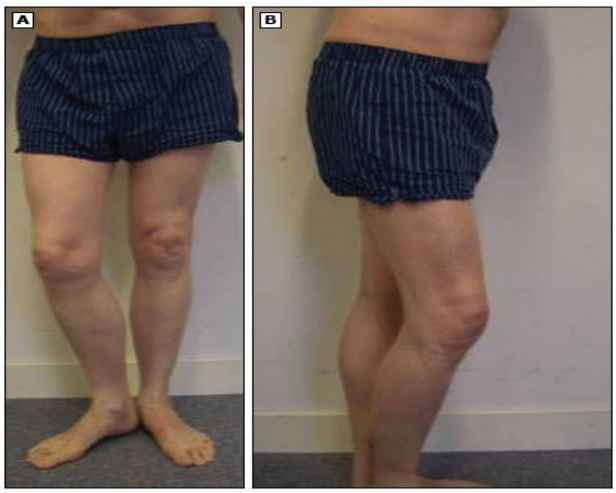


Figure 1: Patient with right hip OA, showing fixed flexion and external rotation deformity.

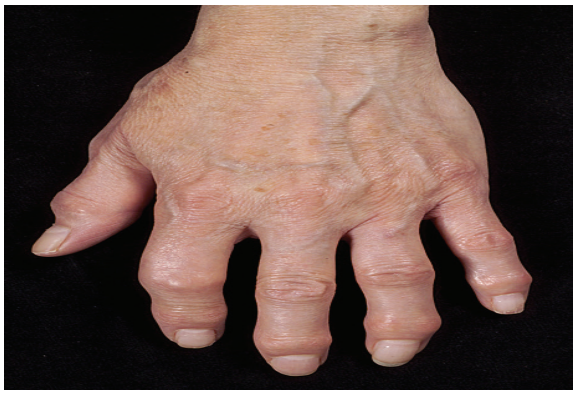


Figure 2: Heberden's nodes (thumb, middle, ring, and little finger DIP joints), Bouchard's nodes (index finger PIP joint), and lateral radial/ulnar deviation (index PIP joint, ring DIP joint) in the left hand of a person with nodal OA.

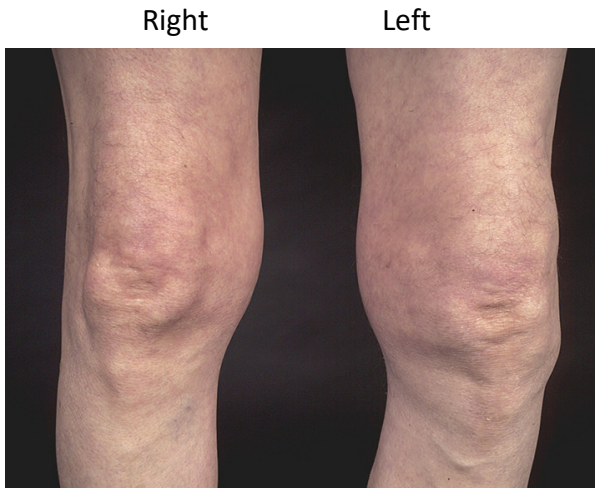
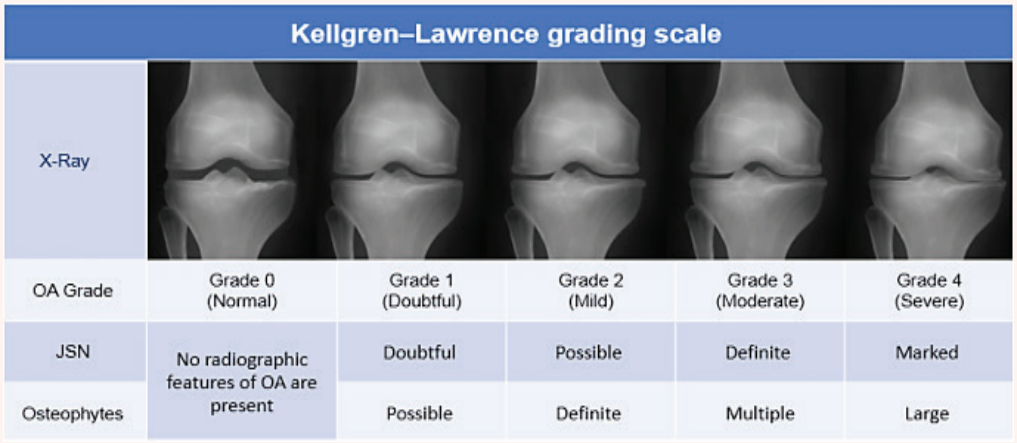


Figure 3: Unilateral knee OA: swollen left knee with varus and fixed flexion deformity in a 63-year-old man with a prior history of knee trauma. On palpation, there was marked crepitus, restricted flexion, bony swelling, and a small effusion. The cruciates were intact, but there was minor varus/valgus instability on stress testing.

SUPPORTIVE INVESTIGATIONS

Osteoarthritis is a diagnosis made on clinical and radiological grounds. A plain X-ray is usually the only helpful investigation. Furthermore, radiographic changes of OA are commonly

present but often asymptomatic. OA does not trigger the acute phase response and therefore has no impact on the FBC, ESR or CRP[11]. However, some investigations may be necessary to exclude alternative diagnoses or predisposing diseases.

<table>
<tr><th>Investigation</th><th>Findings</th></tr>
<tr><td>X-ray</td><td>Osteophyte formation and joint space narrowing (JSN). The classification[12] of X-ray findings is as follows:
<table><tr><td>Grade 0</td><td>no radiographic features of OA are present</td></tr><tr><td>Grade 1</td><td>doubtful joint space narrowing (JSN) and possible osteophytic lipping</td></tr><tr><td>Grade 2</td><td>definite osteophytes and possible JSN on the antero-posterior weight-bearing radiograph</td></tr><tr><td>Grade 3</td><td>multiple osteophytes, definite JSN, sclerosis, possible bony deformity</td></tr><tr><td>Grade 4</td><td>large osteophytes marked JSN, severe sclerosis, and definite bony deformity</td></tr></table>Figure[13]:
 
</td></tr>
<tr><td>Magnetic resonance imaging</td><td>It is more expensive than X-rays but will provide a view that offers better images of cartilage and other structures to detect early abnormalities typical of osteoarthritis. The MRI is required only in selected cases.</td></tr>
<tr><td>Joint aspiration</td><td>It is not mandatory due to the danger of possible infection. However, if done, the fluid is examined for evidence of crystals or joint deterioration. This test helps rule out other medical conditions or other forms of arthritis.</td></tr>
<tr><td>Synovial fluid</td><td>Synovial fluid examination usually shows mild leucocytosis (< 2000/mm^3) with mononuclear cell predominance to predict disease progression.</td></tr>
</table>

DIFFERENTIAL DIAGNOSIS[12,13,14]

Condition	Differential Features
Bursitis	• Tenderness directly over the bursa with pain elicited by any active motion that employs muscles adjacent to the involved bursa
Rheumatoid arthritis	• Arthritis of three or more joint areas • Symmetrical arthritis • Morning stiffness (> 1 hour) • Positive rheumatoid factor • Positive anti-CCP antibody • Elevated ESR and CRP
Psoriatic arthritis	• Onset usually between 25 and 40 years of age • Most commonly in patients with current or previous skin psoriasis (70%) • Affection of the DIP joints of the hands. However, unlike hand OA, psoriatic arthritis may target just one finger, often as dactylitis, and characteristic nail changes are usually present. • HLA-B27 Positive.
Gout	• Most commonly affects the first metatarsophalangeal joint in over 50% of cases-'podagra' • Typical attacks of pain with an extremely rapid onset, reaching maximum severity in just 2-6 hours, often waking the patient in the early morning with florid inflammation and erythema. • Large MSUM crystal deposits as irregular firm nodules ('tophi') at the usual sites for nodules around extensor surfaces of fingers, hands, forearm, elbows, achilles tendons and sometimes the helix of the ear, unlike OA. • Elevated serum uric acid levels (>0.42 mmol/l or 7.1 mg/dl) • Monosodium urate crystals in synovial fluid
Calcium pyrophosphate crystal deposition (CPPD) disease	• Involves multiple joints, frequently involving peripheral joints of the upper and lower extremities, including the wrists and metacarpophalangeal (MCP) joints, as well as the knees and elbows • Nearly symmetrical arthritis • Radiographic articular chondrocalcinosis. • CPPD crystals in synovial fluid
Hemochromatosis	• Affects mainly the MCP joints and wrists • Men are most affected. • Characteristic radiologic findings are squared-off bone ends and hook-like osteophytes in the MCP joints, particularly the second and third MCP joints • Increased plasma iron levels (normal value- 60 to 150 mcg/dL) • Increased serum ferritin levels (40 to 200ng/mL)

Condition	Differential Features
Infectious arthritis	• Joint pain that progresses from day to day with inflammatory signs (eg, effusion, increased warmth, erythema) • Diagnosis is established by culturing the pathogen from the synovial fluid or from the blood. • Elevated ESR and CRP
Soft tissue trauma and peri-articular disorders	• History of overuse, typically involving sports with jumping or sudden direction change • Pain increases with activity and decreases with rest
Neurological disorders (e.g., radiculopathy or neuropathic pain)	• Often associated with paresthesias or an "electric" sensation • Typically radiates along the course of the nerve

Differential Diagnosis (Unani Medicine's Perspective)[15]:

Characters	*Waja' al-Mafāṣil Balghamī*	*Waja' al-Mafāṣil Ṣafrāwī*	*Waja' al-Mafāṣil Damawī*
Onset	Gradual	Sudden	Abrupt
Nature of pain	Dull pain	Excruciating	Severe
Swelling	Marked	Marked	More marked
Touch	Soft & cold	Hard & warm	Soft & warm
The skin over the joint	Whitish	Red tinge to yellowish	Reddish
Aggravatingfactors	Cold	Heat	Heat
Relieving factors	Heat	Cold	Cold

PRINCIPLES OF MANAGEMENT

Red Flag Signs of OA:

These signs should be assessed before initiating treatment for need of management/ consultation through modern medicine.

- Sudden severe pain
- Buckling of the knee
- Swelling and warmth
- Knee locking
- Persistent pain
- Consistent knee pain even after surgery

Patients should be educated on their diagnosis. Misconceptions exist about OA. Patients are concerned about possible progression to disability. There should be an emphasis on

the natural history of OA. Therapeutic options need to be discussed that emphasise lifestyle changes such as exercise and weight control that might be helpful. Lifestyle changes should be individualised, minimising limitations in activities of daily living.

Unani Medicine's Perspective:

The general line of treatment as mentioned in classics:

- *Taskīn-i-Alam* (analgesia)[4]
- *Tanqiya* (evacuation of causative matter)[4]
- *Taḥlīl-o-Talyīn* (to resolve the inflammation and soften the joints)[4]
- *Taqwiyat-i-Mafāṣil* (strengthening of joints)[4]

A comprehensive plan for the management of WMB/Osteoarthritis in an individual patient may include educational, behavioural, psychosocial, and physical interventions, as well as Unani topical, and oral medications (single and compound formulations).

A single physical, psychosocial, or pharmacologic intervention may be adequate to control symptoms in some patients. While in severe and chronic cases, multiple interventions may be used in sequence or in combination to treat the patients.

'Ilāj bi'l Dawā' (pharmacotherapy) [IUMT-7.1.10] and *'Ilāj bi'l Tadbīr* (regimenal therapy) [IUMT-7.2.0] are considered the mainstay of treatment in case of osteoarthritis of joints. *'Ilāj bi'l Tadbīr* (regimenal therapy) includes *Qay'* (inducing emesis) [IUMT-7.2.3][4], *Riyāḍat* (Exercise) [IUMT-7.2.80][16,17] *Ḥijāma* (cupping) [IUMT-7.2.30] *Ḥijāma bilā Sharṭ* (dry cupping) [IUMT-7.2.32][18,19,20] and *Ḥijāma bi'l Sharṭ* (wet cupping) [IUMT-7.2.31][15], *Ta'līq al-'Alaq* (leech therapy) [IUMT-7.2.68][21,22,23,24] *Faṣd* (venesection) [IUMT-7.2.6][15] especially of *Ṣāfin* (saphenous vein) and *Bāslīq* (basilic vein), *Ḥammām* (therapeutic bath) [IUMT-7.2.70][12], *Takmīd Ḥārr* (hot fomentation)[15], *Naṭūl* (douche) [IUMT-6.2.95][15], *Dalk Layyin* (massage with light/gentle pressure) [IUMT-7.2.94][25] *Tadhīn* (oiling/application of oil on affected body part) [IUMT-6.2.116][26] *Tamrīkh* (embrocation/anointing) [IUMT-6.2.106][26], *Ābzan* (sitz bath) [IUMT-6.2.96][4], *Ḍimād* (poultice) [IUMT-6.2.52][4] and *Munḍij-o-Mushil* therapy [MM Therapy] (concoctive and purgative therapy) [IUMT-6.1.134] &[IUMT- 6.1.146]4 etc[4].

(A) Prevention management[11,27]

Primary, secondary, and tertiary prevention strategies are necessary to prevent increasing rates of OA resulting from an ageing population and increasing rates of obesity and physical inactivity. These include non-pharmacological approaches such as changes in *diet* and *lifestyle, weight management, yoga, exercise,* patient education, psychosocial measures, support devices, thermal modalities, and alterations in activities of daily living. Reassurance, counselling, and education may minimise the influence of psychosocial factors. Thermal modalities are potentially helpful in decreasing joint stiffness, alleviating pain, relieving muscle spasms, and preventing contractures.

Unani Medicine's Perspective:

- **Avoiding the causes** that may lead to WMB, e.g., intake of phlegm-producing diet, sedentary lifestyle, obesity, excessive anger, mental stress, etc.
- **Correction of humoural and temperamental derangement:** WMB is caused by cold morbid temperament that involves phlegmatic matter. The basis of correction of WMB is food and lifestyle modification, along with causative phlegmatic humour evacuation and the administration of WMB-specific medications.

(B) Interventions

At Level 1- Solo Physician Clinic/Health Clinic/PHC (Optimal standard of treatment where technology and resources are limited)

Clinical Diagnosis: The diagnosis of OA is primarily clinical and made after a complete medical history and physical examination. However, some investigations, like a complete haemogram and X-ray, may be done.

Recommended Diet and Lifestyle[28,29,30,31,32]

Exercise- Advise people with osteoarthritis to exercise as a core treatment irrespective of age, co-morbidity, pain severity or disability. It covers both muscle strengthening and aerobic exercises[33].

S.No.	*Exercises*	
1.	**Knee flexion and Extension** Lying on your back with your knee straight. Slowly bend the affected knee as far as comfortable. Hold the position for 10 seconds and then slowly return to a straightened position. Repeat 10 times.	
2.	**Inner Range Quadriceps** Place a small rolled-up towel under your knee. Tighten your thigh muscles and straighten your knee (keep the knee on the towel and lift your foot off the floor). Hold for 5-10 seconds and slowly relax. Repeat 10 times.	
3	**Quadriceps Strengthening—Sit to stand** Sit on a chair with your arms folded. Slowly stand up without using your arms. When upright, return slowly to the chair again without using your arms. Repeat 10 times.	

S.No.	Exercises	
4.	**Quadriceps Strengthening—Mini Squat** Using a chair for balance, squat down bending both knees but keeping the back straight. The squat should be no more than 45 degrees. Repeat 10 times.	
5.	**Calf strengthening - Heel Raises** Using a chair for balance, push up onto your tip toes and back down again. You can do this just on your affected leg if you are able to balance. Repeat 10 times.	
6.	**Step up** Stand in front of a step. Step up 10 times with one leg leading and then repeat with the other leg leading.	
7.	**Clam** Lie on your side with your knees bent. Tighten your buttocks. Lift your top knee as far as you can, without letting your pelvis rotate forward or back. Keep your feet together and back straight during the exercise. Lower slowly back down. Repeat 10 times.	
8.	**Hamstring Stretch** Stand upright and place the foot of your affected leg on a step. Slowly lean forward at your hips until you feel a stretch at the back of your thigh. Keep your back straight. Hold for 20—30 seconds, repeat 5 times.	

S.No.	Exercises	
9.	**Quadriceps Stretch** Stand upright, holding on to a firm support. Loop a towel around the ankle of your affected leg. Keeping your back straight, use the towel to pull your heel towards your bottom to feel a stretch at the front of your thigh. Hold for 20-30 seconds. Repeat 5 times.	
10.	**Calf Stretch** Stand in a walking position with the affected leg straight behind you and the other leg bent in front of you. Take support from a wall or chair. Lean forwards until you feel the stretching in the calf of the straight leg. Hold for 30 seconds, repeat 5 times.	

Yoga:[34] Various yoga practices are helpful for the management of patients with OA. These include *kriyas (kunjal and kapalbhati), simple joint movements, practices of sukshmavyayama, yogasanas (tadasana, katichakrasana, konasana, urdhwahastottanasana, uttanapadasana, vaksana, gomukhasana, marjari asana, ushtrasana, bhadrasana, bhujangasana, makarasana, shavasana), pranayama (nadishodana pranayama, suryabhedi pranayama, bhramari), yoga nidra practice and meditation.*

Weight loss- Each kg increases the loading across the knee three to six-fold. Thus, weight loss, if substantial, may lessen the symptoms of knee and hip OA.

Nutrition- Adequate nutrition should be taken. A diet rich in vitamins A, C, E, and K helps reduce the risk of osteoarthritis. Consumption of long-chain n-3 fatty acids (oily fish/fish oil supplements), should be increased, which may improve pain and function in OA patients.

Restricted Diet and Lifestyle

- Don't overeat. Avoid foods that worsen the signs and symptoms of OA, such as sugar, deep-fried foods, saturated fats, full-fat dairy, trans fats, refined carbohydrates, alcohol, and preservatives like monosodium glutamate (MSG).
- Don't smoke[35]. Smoking speeds up the process of general wear and tear of our bones and muscles. This might increase your risk of developing osteoarthritis or other chronic diseases. Men with knee osteoarthritis who smoke sustain more significant cartilage loss and have more severe knee pain than men who do not smoke.
- Don't do vigorous and repetitive exercises.

- Avoid exercising during flare up or acute pain.
- Avoid jobs requiring knee bending and carrying heavy loads

Unani Medicine's Perspective:

Dos	Don'ts (Disease aggravating factors)
• Intake of Decanted water of black gram[36] • Intake of *Aghdhiya Laṭīfa*8 (Food stuffs which are easy to digest but have little nutritional value, and produce such a sanguine which is normal in viscosity. e.g. meat of small birds, small fishes, etc). • Intake of *Aghdhiya Musakhkhina*[4] (Food stuffs which increase the metabolism of the body due to their hot temperament or heat-producing properties e.g. spices).	• Alcohol consumption[4] • Non-vegetarian food[4] • Sexual indulgence especially after having food[4] • Sedentary lifestyle[4] • Sour diets[4] • Cold water intake[4] • Juicy fruits[4] • Milk and dairy products[4] • Excessive supper food consumption[4] • Extreme emotional disturbances[4] • Use of strong purgatives during the initial phase of disease[26]

OPD level management – If the patient shows mild features of *Waja' al-Mafāṣil Balghamī* (WMB) and slight restriction of joint movement, two or more of the following forms of medications may be given along with diet restriction:

Single drugs and Compound Formulations for internal/external use

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration and Frequency	*Badraqa* (vehicle)
1.	*Chobchīnī* (*Smilax china* L.)[37]	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water
2.	*Kalonjī*[37] (*Nigella sativa* L.)	Powder	1-2 g. in two divided doses	After meal	15 days to 1 month	water
3.	*Zanjabīl*[37] (*Zingiber officinale* Rosc.)	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water
4.	*Ushaq*[4] (*Dorema ammoniacum* D. Don)	Powder	5.5 g. in two divided doses	After meal	15 days to 1 month	water
5.	*Ḥabb-i-Asgand*[37]	Pills	500 mg- 1 g.	After meal	15 days to 1 month	water

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration and Frequency	*Badraqa* (vehicle)
6.	*Ḥabb-i-Sūranjān* [37]	Pills	1-3 g in two divided doses	After meal	15 days to 1 month	water
7.	*Ma'jūn-i-Chob Chīnī* [37]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	water
8.	*Ma'jūn-i-Sūranjān*[37]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	water
9.	*Roghan-i-Bābūna Sāda*[37]	Oil for local application	Quantity sufficient (Q.S.) for external use	As directed by the physician	15 days to 1 month	--
10.	*Roghan Surkh*[37]	Oil for local application	Q.S. for external use	As directed by the physician	15 days to 1 month	--
11.	*Roghan-i-Zaytūn*[37]	Oil for local application	Q.S. for external use	As directed by the physician	15 days to 1 month	--
12.	*Ḍimād Muḥallil*[37]	Poultice	Q.S. for external use	As directed by the physician	15 days to 1 month	--

Note: Out of the drugs mentioned above, any one or a combination of two or more may be prescribed by the physician. *'Ilāj bi'l Tadbīr* (Regimenal Therapy) described under principles of management may be recommended as per assessment of physician about the condition of the patient and stage of disease. The duration of the treatment may vary from patient to patient. The physician should decide the dosage and duration of the therapy based on the clinical findings and response to the therapy.

Follow Up (every 15 days or earlier as per the need)

Reviews[38]should include:

- Monitoring the person's symptoms and the ongoing impact of the condition on their everyday activities and quality of life.
- Monitoring the long-term course of the condition.
- Management of osteoarthritis in terms of exercise, and physiotherapy.
- Discussing the person's knowledge of the condition, any concerns they have, their personal preferences, and their ability to access services.
- Reviewing the effectiveness and tolerability of all treatments.
- Self-management support.

Referral Criteria

- Nonresponse to treatment
- Evidence of an increase in severity/complications
- Substantial impact on their quality of life and activities of daily living
- Diagnostic uncertainty
- Uncontrolled co-morbidities, such as diabetes, hypertension or associated cardiac disease.

At Level 2 (CHC/Small hospitals (10-20 bedded hospitals with basic facilities such as routine investigation, X-ray)

Clinical Diagnosis: Same as level 1. The case referred from Level 1, or a fresh case must be evaluated thoroughly for any complications.

Investigations: The diagnosis would be primarily clinical. However, some investigations may be necessary to investigate complications or exclude other differential diagnoses as follows:

- Haemogram
- X-ray
- Magnetic resonance imaging
- Joint aspiration
- C-reactive protein
- Synovial fluid examination
- Serum uric acid
- RA Factor
- S. alkaline phosphatase

Management: Same as level 1 and/or treatments mentioned at this level.

Other procedures:

- Physiotherapy including exercises, massage, transcutaneous electrical nerve stimulation (TENS), thermotherapy, and braces may be done as per the case's need under a physiotherapist's guidance.
- Occupational Therapy: Therapeutic activities and exercises to promote gross and fine motor control, range of motion, endurance, and strength, thereby improving functional abilities with daily tasks such as self-care, home management, and work and leisure activities under the guidance of an occupational therapist.
- Orthosis/mechanical aids- These protect joints and help reduce pain by statically holding the joint(s) in place. They decrease the load by positioning the affected joint(s) and by supporting the joint(s) to prevent distortion from deforming forces. In knee osteoarthritis, shock-absorbing footwear reduces the impact of a load on the

knee. Heel wedging improves proprioception and reduces pain in osteoarthritis of the knee.

Management: Same as level 1 and/or the following treatment:

Single and compound Unani drugs for internal use

S. No.	Single herb	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Sūranjān* (*Colchicum autumnale* L.)[39,40]	Powder	2-3 g in two divided doses	After meal	15 days	Water	Nothing specific (NS)
2.	*Sanā* (*Cassia angustifolia* Vahl.)[41,42]	Powder/ Decoction	5-10 g in two divided doses	After meal	15 days	Water	Pregnancy
3.	*Tukhm-i-Khaṭmī* (*Althaea officinalis* L.)[41,42]	Decoction	5-7 g in two divided doses	After meal	15-30 days	Water	NS
4.	*Zard Chob* (*Curcuma longa* L.)[42]	Powder/ Decoction	5-7 g in two divided doses	After meal	15-30 days	Water	NS
5.	*Būzīdān* (*Tanacetum umbelliferum*- Boiss.)[39,]	Powder	3-5 g in two divided doses	After meal	15-30 days	Water	NS
6.	*Asgand* (*Withania somnifera* (L.) Dun.[42]	Powder	5-10 g in three divided doses	After meal	15-30 days	Water	NS
7.	*Muqil* (*Commiphoramukul* (Hook. ex Stocks) Engl.)[42]	Powder/ Decoction	1-1.5 g in two divided doses	After meal	15-30 days	Water	NS
8.	*Khūlanjān* (*Alpinea galanga* Willd.)[44]	Powder	2-3 g in two divided doses	After meal	15-30 days	Water	NS
9.	*Qusṭ* (*Saussurea lappa* C. B. Clarke)[42]	Powder/ Decoction	2-3 g in two divided doses	After meal	15-30 days	Water	NS
10.	*Ḥabb-i-Muqil*[41,45]	Pills	0.5-1 g	After meal	15-30 days	Water	NS
11.	*Awjā'iyya*[46]	Tablet	1-2 g in two divided doses	After meal	15-30 days	Water	NS

S. No.	Single herb	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicle)	Precaution/ Contraindication
12.	*Ma'jūn Jograj Gūgal* [41,45]	Semisolid	5-10 g in two divided doses	After meal	15-30 days	Water	Diabetes Mellitus Type I&II
13.	*Ma'jūn-i-Ghīkvār*[47]	Semisolid	10 g in two divided doses	After meal	15-30 days	Water	Diabetes Mellitus Type I&II
14.	*Sufūf-i-Sūranjān*[41,45]	Powder	5-10 g in two divided doses	After meal	15-30 days	Water	NS
15.	*Kushta-i-Ga'odantī* [41, 45]	Powder	60-120 mg in two or three divided doses	After meal	15-30 days	Water	NS
16.	*Ḥalwa-i-Ghīkvār*[41,48]	Semisolid	12-25 g in two divided doses	After meal	1-2 months	Milk	Diabetes Mellitus Type 1 &II

Oil for external application

S. No.	Formulation	Dosage form	Dose per day	Time	Duration & Frequency	Precaution/ Contraindication
1.	*Roghan-i-Dārchīnī*[45]	Oil	Q.S. for external use	Morning and night	1-2 months	NS
2.	*Roghan-i-Mālkanganī*[45]	Oil	Q.S. for external use	Morning and night	1-2 months	NS
3.	*Roghan-i-Ḥinnā*[49]	Oil	Q.S. for external use	Morning and night	1-2 months	NS
4.	*Roghan-i-Shibit*[49]	Oil	Q.S. for external use	Morning and night	1-2 months	NS
5.	*Roghan-i-Maṣṭagī*[49]	Oil	Q.S. for external use	Morning and night	1-2 months	NS

***Ḍimād* (Poultice) [IUMT – 6.2.52]:**

- *Ḍimād* prepared with *Bābūna* (*Matricaria chamomilla* L.) 58.5 g, *Khaṭmī* (*Althaea officinalis* L.) 58.5 g, *Iklīl al-Malik* (pods of *Astragallus homosus* L.) 58.5 g, *Roghan-i-Soyā*

58.5 ml, *Ushaq* (*Dorema ammoniacum* D. Don.) 34.4 g, *Jā'oshīr* (*Ferula galbaniflua* Boiss. ex Buhse.) 34.4 g, *Muqil* (*Commiphora mukul* (Hook. ex Stocks) Engl.) 34.4 g, *Mom* (Bee Wax) 17.2 g, *Sirka* (Vinegar) 17.2 g, is applied on the affected joints.[39]

***Ṭilā'* (Liniment) [IUMT – 6.2.53]:**

- The Tila prepared with *Sūranjān* (*Colchicum autumnale* L.) and fresh Coriander leaves (*Coriandrum sativum* L.), as local application on the affected joints is beneficial.[39]

Munḍij-o-Mushil therapy [MM Therapy] (concoctive and purgative therapy) [IUMT-6.1.134] & [IUMT- 6.1.146]

In case of accumulation of excessive *Balghamī Mādda* (phlegmatic morbid matters) in the joints, the following formulations may be given:

MM therapy

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Gul-i-Banafsha* (*Viola odorata* L. flowers) 7 g, *Chirā'ita* (*Swertia chirayita* (Roxb. ex Flem.) Karst.) 7 g, *Shāhtara* (*Fumaria officinalis* L.) 7 g, *Mako Khushk* (dried *Solanum nigrum* L.) 5 g, *Bādiyān* (*Foeniculum vulgare* Mill.) 7 g, *Bekh-i-Bādiyān* (*Foeniculum vulgare* Mill. root) 7 g, *Sūranjān* (*Colchicum autumnale* L.) 5 g, *Mawīz Munaqqā* (Deseeded dried fruit of *Vitis vinifera* L.) 9 No.	Decoction (*Munḍij*)	100 ml	Morning before the meal	10-15 days	Water	Pregnancy
2.	**Note:** After completion of course of above *Munḍij* and appearance of signs of *Nuḍj* in urine, following *Mushil* will be given						
	Gul Surkh (Flower of *Rosa damascena* Mill.) 7 g, *Sanā* (Leaves of *Cassia angustifolia*- Vahl.) 7 g, *Maghz-i-Falūs Khayārshambar* (Pulp of fruit devoid of seeds *Cassia fistula* L.) 46.8 g, *Turanjbīn* (*Alhagi pseudalhagi* (Bieb.) Desv.) 46.8 g, *Maghz-i-Bādām* (Seed kernel of *Amygdalus communis* L.) 5 g[50]	Decoction (*Mushil*)	100 ml	Early morning before the meal	2-3 days (after *Munḍij*)	Water	Pregnancy

***'Ilaj bi'l Tadbīr* (Regimenal therapy):**

Ḥijāma bilā Sharṭ (dry cupping) [IUMT-7.2.32]:

- To divert the accumulated morbid humours from the affected joints.

***Naṭūl* (Douche)[IUMT-6.2.95]:**

- *Naṭūl* with a decoction of *Karnab* (cabbage)[4]
- *Naṭūl* with a decoction of *Kathūth* (seed of *Cuscuta reflexa* Roxb.)[4]
- *Naṭūl* with a decoction of *Zīra* (seed of *Carum carvi* L.)[4]
- *Naṭūl* with Sulphur water[4]

***Inkibāb* (Vapour bath)[IUMT-6.2.115]:**

Fomentation with vapours of the decoction of *Tukhm-i-Shibit* (seed of *Anethum sowa* Roxb. ex Fleming) on the affected joints.

Recommended Diet and Lifestyle: Same as level 1

Restricted Diet and Lifestyle: Same as level 1

Follow Up (every 15 days or earlier as per the need)

Referral Criteria

- Same as mentioned earlier at level 1, plus
- Failure of acute exacerbation to respond to initial medical management
- Advanced stages of disease like severe effusion, contractures, osteoporosis, or deformities.

At Level 3 (Ayush hospitals attached with teaching institution, District Level/Integrated/ State Ayush Hospitals, Tertiary care allopathic hospitals having Ayush facilities), multiple departments/facilities for diagnosis and interventions. Must provide additional facilities like dieticians, counselling, and physiotherapy unit.

Clinical Diagnosis: Same as levels 1& 2.

Confirm diagnosis and severity with the help of investigations like magnetic resonance imaging, joint aspiration, and synovial fluid examination.

Management: Same as levels 1&2 and/or treatment mentioned at this level.

In addition to the level 1 and level 2 management strategies, Unani Medicine has a number of specific remedies that can ease pain and other symptoms in patients with end-stage osteoarthritis or in those who have not responded to treatment due to a lack of symptoms, co-morbid conditions, or the use of other immune-suppressives, oral hypoglycaemic agents, or antihypertensives. Palliative care medications can therefore be provided based on

the sphere of action or keynote prescription in these disorders as well as other advanced pathological states.

Single and compound Unani drugs for internal use

S. No.	Single herb	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Turbud* (*Operculina turpethum* (L.) Silva Manso)	Powder	3-5 g in two divided doses	After meal	15-30 days	Water	Pregnancy
2.	*Ṣibr* (*Aloe barbadensis* Mill.)[42]	Powder/ Decoction	1-4 g in two divided doses	After meal	15-30 days	Water	Pregnancy
3.	*Sufūf-i-Sūranjān Za'farānī*[45]	Powder	3-5 g in two divided doses	After meal	15-30 days	Water	NS
4.	*Ḥabb-i-Muntin Akbar*[45]	Pills	5g in divided dose	After meal	15-30 days	Water	NS
5.	*Ḥabb-i-Mafāṣil*[47]	Pills	3-5 g	After meal	1-2 months	Water	NS
6.	*Ḥabb-i-Chobchīnī*	Pills	10 g	After meal	1-2 months	Water	NS
7.	*Ma'jūn-i-'Ushba*[41,45,50]	Semisolid	7 g	After meal	1-2 months	Water	Diabetes Mellitus Type I&II
8.	*Ma'jūn-i-Adhrāqī* [41,45,50]	Semisolid	3-5 g	After meal	15-30 days	Water	Hypertension & Diabetes Mellitus Type I&II
9.	*Ma'jūn-i-Flāsifa* [41,45]	Semisolid	5-10 g	After meal	1-2 months	Water	Diabetes Mellitus Type I&II
10.	*Ma'jūn Talkh*[45]	Semisolid	5-10 g	After meal	1-2 months	Water	Diabetes Mellitus Type I&II

Oil for external application

S. No.	Formulation	Dosage form	Dose per day	Time	Duration & Frequency	Precaution/ Contraindication
1.	*Roghan-i-Sūranjān*[41,45]	Oil	Q.S. for external use	Morning and night	1-3 months	NS
2.	*Roghan-i-Haft Barg*[45]	Oil	Q.S. for external use	Morning and night	1-3 month	NS
3.	*Roghan-i-Bābūna Qawī*[45]	Oil	Q.S. for external use	Morning and night	1-3 months	NS

4.	*Roghan-i-Chahār Barg*[45]	Oil	Q.S. for external use	Morning and night	1-3 months	NS
5.	*Roghan-i-Aw-rāq*[49]	Oil	Q.S. for external use	Morning and night	1-3 months	NS

***Ḍimād* (Poultice):**

Ḍimād Muḥallil:

It is prepared as paste with the powder of *Iklīl al-Malik* (pods of *Astragallus homosus* L.) 1 part, *Bābūna* (*Matricaria chamomilla* L.) 1 part, *Asgand Nagorī* (*Withania somnifera* (L.) Dun.) 1 part, *Mako* (*Solanum nigrum* L.) 1 part, *Tukhm-i-Khaṭmī* (*Althaea officinalis* L.) 1 part, *Rewand Chīnī* (*Rheum emodi* Wall. ex Meissn.)1 part, *Muqil* (*Commiphora mukul* (Hook. ex Stocks) Engl.) ¼ part, and *Āb-i-Mako Sabz* (fresh juice of *Solanum nigrum* L.) or *Āb-i-Barg-i-Sambhālū* (fresh juice of *Vitex negundo* L.), Q. S. which is beneficial on topical application over the affected joints.[45]

Ḍimād-i-Waja' al-Mafāṣil:

The paste is prepared with *Ṣibr Zard* (*Aloe barbadensis* Mill.) 5 parts, *Za'farān* (*Crocus sativus* L.) 1 part, *Murr* (*Commiphora myrrha* (Nees) Engl.) 5 parts, and *Āb-i-Kāsnī* (fresh juice of *Cichorium intybus* L.) Q. S. and applied on the affected joints.[49]

***Marham* (Ointment) [**IUMT-6.2.51]**:**

The ointment is prepared with *Kunjad Muqashshar* (de-husked seeds of *Sesamum indicum* L.), *Muqil* (*Commiphora mukul* (Hook. Ex Stocks) Engl.), *Roghan-i-Bābūna* and *Āb-i-Marzanjosh* (fresh juice of *Origanum vulgare* L.) and applied on the affected joints.

The ointment prepared with *Tukhm-i-Ḥulba* (*Trigonella foenum-graeceum* L.), *Tukhm-i-Katān* (*Linum usatissimum* L.), and *Roghan-i-Sosan* is beneficial in painful joints.[52]

- Use of *Munḍij-o-Mushil* therapy in case of accumulation of excessive *Balghamī Mādda* (phlegmatic morbid matters) in the joints with ankylosis.

***Munḍij-o-Mushil* therapy (concoctive and purgative therapy)**

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindi-cation
1.	*Sūranjān* (*Colchicum autumnale* L.) 5 g, *Chira'ita* (*Swertia chi-rayita*	Decoc-tion (*Munḍij*)	100 ml	Morning before the meal	15-21 days	Water	Pregnancy

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindi-cation
	(Roxb. ex Flem.) Karst.) 7 g, *Shāhtra* (*Fumaria officinalis* L.) 7 g, *Aftīmūn* (*Cuscuta reflexa* Roxb.) 5 g, *Bisfā'i j Fustaqī* (*Polypodium vulgare* L.) 5g, *'Unnāb* (*Zizyphus jujuba* Mill.) 5 No., *Bādiyān* (*Foeniculum-vulgare* Mill.) 7 g, *Bekh-i-Bādiyān* (*Foeniculum vulgare* Mill. root) 7 g[50]						
2.	**Note:** After completion of course of above *Munḍij* and appearance of signs of *Nuḍj* in urine, following *Mushil* will be given						
	Ayārij-i- Fayqrā[45]	Powder (*Mushil*)	3-5 g	Early morning before the meal	2-3 days (after *Munḍij*)	Water	Pregnancy
3.	*Ma'jūn-i-Chobchīnī*[50]	Semisolid	7 g	After the meal at bedtime	15 days (after *Mushil* therapy)		Diabetes Mellitus Type I&II

***'Ilāj bi'l Tadbīr* (Regimenal therapy):**

- *Ḥijāma bi'l Sharṭ* (wet cupping) [IUMT-7.2.31]:

  It is advised to evacuate the viscid humours accumulated in the joints. *Ḥijāma bi'l Sharṭ* is performed over the lower end of the femur in case of knee osteoarthritis.[51]

- *Ta'līq al-'Alaq* (leech therapy) [IUMT-7.2.68]:

- It is advised in case of osteoarthritis.
  Inkibāb (vapour bath) [IUMT-6.2.115]:

Fomentation with the decoction of *Tukhm-i-Soyā* (*Anethum sowa* Roxb. ex Flem. seeds) in case of node formation on the affected joints.[39]

Fomentation with vapours of the decoction of the crushed *Harmal* (*Peganum hermala* L.) 1 part and *Sirka* (vinegar) 6 parts on the affected joints.

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2 RHEUMATOID ARTHRITIS

2

RHEUMATOID ARTHRITIS

(ICD-10 code: M06.9)
(ICD-11 code: FA20.0)

***Waja' al-Mafāṣil Murakkab* (NUMC: L-4.5) https://namstp.ayush.gov.in/#/Unani**

CASE DEFINITION[1,2]

Rheumatoid Arthritis (RA) is a progressive, disabling, chronic multi system disease which is characterized by pain, swelling and stiffness of the synovial joints, often worse in the morning and after periods of inactivity. It exhibits symmetrical, destructive, and deforming polyarthritis affecting small and large synovial joints with extra articular manifestations, including fatigue, subcutaneous nodules, lung involvement, pericarditis, peripheral neuropathy, vasculitis, and hematologic abnormalities. It is associated with systemic disturbance and presence of circulating antiglobulin antibodies.

INTRODUCTION (*incidence/prevalence, morbidity/mortality, risk factors)*[3]

- The reported prevalence of RA in Indian population as per criteria of revised American College of Rheumatology (ACR) is 0.75%.
- RA affects approximately 0.3–1% of the adult population worldwide with a peak onset of the disease between 40 years and 70 years of age and the prevalence rises with age.[4] In 2019, 18 million people worldwide were suffering from rheumatoid arthritis[5].
- It occurs more commonly in females than in males with a ratio of 3:1.[2] About 70% of people living with rheumatoid arthritis are women, and 55% are older than 55 years.[4]
- Risk factors include female sex, genetic factors (HLA-DRB1, PADI4, PTPN22, CTLA4, IL2RA, STAT4, TRAF1, CCR6, IRF5), environmental factors such as exposure to tobacco smoke, air pollution, occupational dust (silica), asbestos, textile dust, P. Gingivalis, high sodium, red meat and iron consumption, obesity, low vitamin D intake and levels.[6,7]

Unani Medicine's Perspective

Waja' al-Mafāṣil Murakab (WMM) is frequently induced by material composed of mixture of *Balgham* (phlegm) and *Ṣafrā'* (yellow bile) or *Sawdā'* (black bile) and *Ṣafrā'* (yellow bile). It arises due to abnormalities in the qualitative, quantitative, or both aspects of the above mentioned humours and its clinical findings closely resemble the findings of rheumatoid arthritis (RA).[8]

Etiology:

- Infiltration /Accumulation of mixture of *Balgham* (phlegm) and *Ṣafrā'* (yellow bile)[8,9 or] *Sawdā'* (black bile) and *Ṣafrā'* (yellow bile)[8]
- Usage of *Muraṭṭib-o-Mubarrid Tadbīr* (cooling and moistness-producing regimen) and intake of raw phlegm producing food items by a person of bilious hot temperament[8]
- Movement while there is *Imtilā'* (plethora) in the body[8]
- Weakness of joints making them vulnerable[8,9]
- Withdrawal of regular physical activity regimen[8,10]
- Withdrawal of regular regimens of evacuation such as *Qay'* (emesis), *Ishāl* (purgation), etc.[8]
- Sedentary lifestyle[8]
- Dietary irregularities, such as intake of *Ghidhā' Ghalīẓ* (diet producing thick humours)[8]
- Defective digestion[8,10]
- Excessive intake of alcohol[8,10]

Pathology:

According to Unani medicine, arthritis in general is caused primarily due to *Sū'-i-Mizāj* (morbid temperament) of the whole body or any of the vital organs of the body. This *Sū'-i-Mizāj* (morbid temperament) happens to be either *Sādhij* (simple) (i.e. imbalance of *Kayfiyāt* (qualities) without involvement of matter/substance; *Ḥarārat* (hotness), *Burūdat* (coldness), *Yubūsat* (dryness) or with the involvement of matter/substance i.e. *Akhlāṭ* (humours) of *Ḥārr* (hot), *Bārid* (cold) or *Yābis* (dry) *Mizāj* (temperament) and *Rīḥ* (gaseous matter).[8]

In WMM accumulation of mixture of *Balgham* (phlegm) and *Ṣafrā'* (yellow bile)[8,9] or *Sawdā'* (black bile) and *Ṣafrā'* (yellow bile) in the joints occurs due to their weakness. Weakness of joints usually occurs due to their *Sū'-i-Mizāj Mustaḥkam* (persistent morbid temperament), specially of *Bārid* (cold) type.[8]

It is clearly mentioned in Unani literature that the diseased matter is discarded as a result of defective absorption in the second or third stage of digestion. This discarded matter leads to production of *Ḥāmiḍ Labanī* that accumulates in the joints. The metabolism is deranged and vitiated or viscid humour is not eliminated through the kidneys which in turn permeates entire system or stagnates in the interstitial spaces. Sometimes, if the causative factor is *Ajsām Khabītha* (virulent bodies) it affects *A'ḍā' Ra'īsa* (vital organs) and reaches the joints through circulation to cause this disease.

The mechanism of accumulation of excessive matter within the joints is also mentioned in Unani literature. The synovial fluid of the joints functions as a lubricant during the excessive physical movements preventing from friction and destruction to bony ends. Movements in the joints cause heat which has the property of absorbing and attracting fluids/matter.

The excessive matter which is already stagnated in the interstitial spaces starts migrating and gets accumulated in the joints because they have adequate space. Furthermore, the temperament of the contents of the joints is *Bārid-Yābis* (cold and dry) which results in poor digestion at the site. Thus, the morbid matter accumulated in the joint spaces is not eliminated properly and gradually affects the synovial membrane, ligaments, tendons, articular cartilages and bony ends causing severe inflammatory and destructive changes in the joints that may be seen in radiological findings.[11]

Risk Factors:

Ṣafrāwī al-Mizāj (bilious temperament) persons, usage of *Muraṭṭib-o-Mubarrid Tadbīr* (cooling and moistness-producing regimen) and intake of raw phlegm producing food items by *Ṣafrāwī al-Mizāj* (bilious temperament) persons, spring and autumn season, genetic predisposition, etc.[8]

DIAGNOSTIC CRITERIA[1,2,5]

The clinical diagnosis of RA is largely based on signs and symptoms of a chronic inflammatory arthritis, with laboratory and radiographic results. 2010 American College of Rheumatology criteria (ACR) is used for early diagnosis of RA.

2010 ACR/ EULAR DIAGNOSTIC CRITERIA FOR RA*

Criterion	Score
Joint affected	
1 Large joint	0
2-10 large joint	1
1-3 small joints	2
4-10 small joint	3
>10 joints including at least one small joint	5
Serology	
Negative RF and ACPA	0
Low positive RF and ACPA	2
High positive RF and ACPA	3
Duration of symptoms	
<6 weeks	0
>6 weeks	1
Acute phase reactants	
Normal CRP and ESR	0
Abnormal CRP or ESR	1
Patients with a score ≥ 6 are considered to have definite RA	

*European League Against Rheumatism/ 2010 American College of Rheumatology criteria (RF= Rheumatoid factor, ACPA= Anti-Citrullinated Peptide Antibody; CRP= C- Reactive protein; ESR = Erythrocyte Sedimentation Rate)

The presence of radiographic joint erosions or subcutaneous nodules may confirm the diagnosis in the later stages of the disease.

This criterion does not take into account whether the patient has rheumatoid nodules or radiographic joint damage because these findings occur rarely in early RA.

CLINICAL EXAMINATION[1,2,5]

The typical presentation is with pain, swelling and morning stiffness affecting the small joints of hands, feet, and wrists. The most frequently involved joints are wrists, Metacarpophalangeal (MCP) and Proximal Interphalangeal (PIP) joints. However, Distal interphalangeal (DIP) joint involvement may occur in RA, but it usually is a manifestation of co existent osteoarthritis[5.] Flexor tendon tenosynovitis is a frequent hallmark of RA and leads to decreased range of motion, reduced grip strength, and 'trigger' fingers.[1]

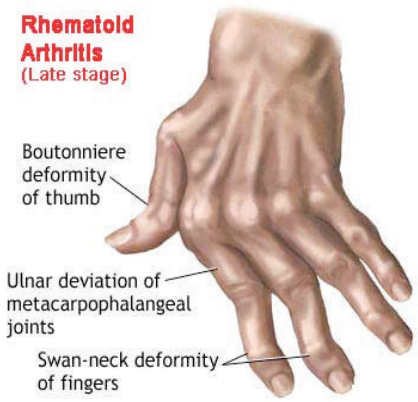
Clinical Presentation (Unani Medicine's Perspective):

In WMM, following clinical signs and symptoms can be seen:

- Pain[8]
- Swelling of the affected joint[8]
- Relief in pain with gentle massage[8]
- Relief with application of oil-based liniments having moderate hot temperament[8]
- Relief in pain with rest; pain aggravated by movement[8]
- The skin over the affected joint yellowish white (indicating the causative matter is composed of *Balgham* (phlegm) and *Ṣafrā'* (yellow bile)) or blackish yellow (indicating the causative matter is composed of *Sawdā'* (black bile) and *Ṣafrā'* (yellow bile)[8]

During the physical exam, the examiner should look for following Signs/ Symptoms:

- Joint pain
- Early morning joint stiffness lasting for more than 1 hour that eases with physical activity.
- Joint tenderness
- Swelling of joint
- Redness of joint
- Limited range of motion



The examiner should look for the deformities exhibited in RA, as follows:

- Ulnar drift of the hand,

- Boutonniere deformity,
- Swan neck deformity,
- Flexion deformity,
- Hallux valgus,
- Hammer toe etc.

RA may result in a variety of extra articular manifestations during its clinical course, even prior to the onset of arthritis. Some extra articular manifestations are as follows:[1,2,12]

EXTRA-ARTICULAR MANIFESTATIONS	
• **Systemic**	• Fever • Weight loss • Fatigue • Susceptibility to infection
• **Musculoskeletal**	• Muscle wasting • Tenosynovitis • Bursitis • Osteoporosis
• **Haematological**	• Anaemia • Thrombocytosis • Neutropenia • Eosinophilia • Lymphoma
• **Neurological**	• Cervical myelopathy • Peripheral neuropathy • Cervical cord compression
• **Occular**	• Keratoconjunctivitissica • Episcleritis • Scleritis
• **Lymphatic**	• Felty syndrome, • Splenomegaly
• **Cardiac**	• Pericarditis • Myocarditis • Endocarditis • Ischemic heart disease
• **Pulmonary**	• Nodules • Pleural effusion • Bronchiolitis • Interstitial lung disease
• **GI**	• Vasculitis
• **Endocrine**	• Hypoandrogenism
• **Skin**	• Rheumatoid nodules • Purpura • Pyodermagangrenosum

SUPPORTIVE INVESTIGATIONS[1,2,13]

Essential:

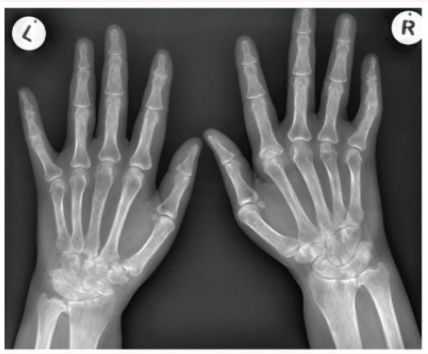
INVESTIGATION	FINDINGS
RF (Rheumatoid factor)	• Positive. • Nonspecific and may be positive in other conditions • RF is a relatively good biomarker for establishing the diagnosis of RA.
ACPA (Anti- Citrullinated Peptide Antibody)	• Positive. • It is highly sensitive and specific serological marker of RA
CRP (C- Reactive protein)	• Elevated
ESR (Erythrocyte Sedimentation Rate)	• Elevated

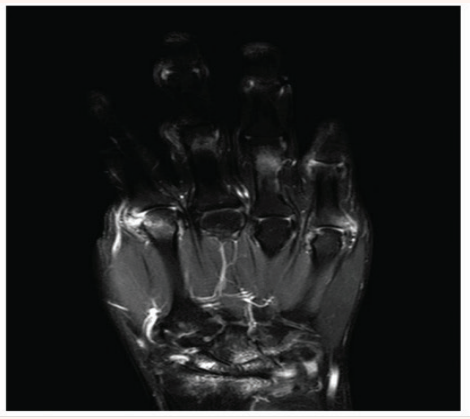
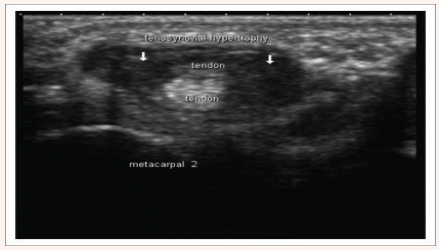
Advanced:

INVESTIGATION	• FINDINGS
X-ray	• It shows reduced joint space, erosion of articular margins, subchondral cysts, juxta-articular rarefaction, soft tissue shadow at the level of the joint because of joint effusion or synovial hypertrophy, deformities of hand and fingers.
MRI It may not be required in every case.	• Detect erosions earlier than an X-ray.
Ultrasound Sonography (USG)	• USG is able to provide high resolution multiplanar images of soft tissue, cartilage, and bone profiles. • Ultrasound is not done for routine monitoring of disease activity in adults with RA.

Radiographic features of Rheumatoid Arthritis[14]

Fontal radiograph of both hands demonstrating bilateral symmetrical disease, marked periarticular osteopenia; widespread joint space narrowing; erosions of the radius, ulnar and carpal bones (worse on left hand); and subluxation of the second metacarpophalangeal joint on the right.



Proton density-weighted fat-saturated coronal magnetic resonance imaging showing multiple areas of enhancement of the bones corresponding to the regions of bone oedema and synovial enhancement in the second metacarpophalangeal joint.	
Transverse ultrasound image at the level of the second metacarpal demonstrating tenosynovitis of the extensor tendons of the hand.	

DIFFERENTIAL DIAGNOSIS[1,2,15,16]

Condition	Differential Features
Systemic Lupus Erythematosus	• Arthralgia, often associated with early morning stiffness. • A butterfly-shaped facial (malar)rash • Photosensitivity • Oral ulcers
Chronic Lyme disease	• Joint and muscle pain • Fever and headache, night sweats • Irregular red rash • Sensitivity to light
Osteoarthritis	• Insidious onset over months or years begins later in life i.e., over the age of 45, but more often over 60 years. • It commonly affects large weight bearing joints such as hip and knee joint. • Symptoms tend to improve substantially after 30 minutes of moving around. • Joint pain is mainly related to movement and relieved by rest
Septic Arthritis	• Fever in the range of 101-102° F and sometimes higher is common. • Acute or sub-acute monoarthritis, especially knee and hip joints • The joint is usually swollen, hot and red, with pain at rest and on movement. • Decreased range of motion

Condition	Differential Features
Psoriatic Arthritis	• Inflammatory arthritis that characteristically occurring in individuals with psoriasis. • Inflammation of DIP (distal interphalangeal) joint • Asymmetric oligoarthritis and Symmetric polyarthritis • Nail changes in the fingers or toes
Sjogren syndrome	• Joint pain, swelling and stiffness with onset between 40 and 50years. • Dry mouth, dry eyes; Sandy or gritty feeling under the eyelids • Fatigue
Sarcoidosis	• Arthralgia • Erythema nodosum • Photophobia, blurred vision, dry eyes, and increased lacrimation
Fibromyalgia	• Fibromyalgia usually causes pain, stiffness, and tenderness in muscles and connective tissues throughout the body. • A person feels pain when the doctor applies pressure to the 18-24 tender joints associated with the condition. • Symptoms impact all four quadrants of the body. • Symptoms have lasted for at least 3 months without a break.
Viral arthritis	• Very acute, self-limiting pain and other symptoms associated with the particular virus involved.
Crystalline arthritis (gout and pseudogout)	• Patient over the age of 50 presenting with an inflammatory mono- or oligoarthritis. • Urate or calcium pyrophosphate crystals, in synovial fluids. • The hallmark of a crystalline arthritis is its self-limited nature.[17]
Reactive arthritis	• Monoarthritis or oligoarthritis following a recent infection (e.g., urethritis, enteric). • Asymmetric pattern of joint involvement • Symptoms or signs of enthesopathy, Keratoderma blennorrhagicum or circinate balanitis • Radiologic evidence of sacroiliitis and/or spondylitis • The presence of human leukocyte antigen (HLA-B27)
Carpal tunnel syndrome	• Symptoms of hand swelling, burning, or numbness, typically at night or in the morning. • A positive Tinel or Phalen sign, thenar wasting, and/ or demonstrate poor hand dexterity or weakness in the "pinch test."[18]

Differential Diagnosis (Unani Medicine's Perspective)[8,9,10,19]

Characters	*Waja' al-Mafāṣil Balghamī*	*Waja' al-Mafāṣil Ṣafrāwī*	*Waja' al-Mafāṣil Damawī*	*Waja' al-Mafāṣil Sawdawī*	*Waja' al-Mafāṣil Murakkab*
Built of the patient	Obese	Thin built	Obese and muscular	Thin built	Thin built
Type	Most common	Less common	Common	Rare	Common
Onset	Slow	Insidious	Insidious	Very slow	Insidious
Symptoms	Moderate	Severe	Severe	Mild to moderate	Moderate to severe
Skin colour of affected joints	No any alteration in colour occurs or lead colouration of skin occurs	Slight yellow discoloration	Reddish	Dry and blackish blue	Yellowish white (indicating the causative matter is composed of *Balgham* (phlegm) and *Ṣafrā'* (yellow bile)) or blackish yellow (indicating the causative matter is composed of *Sawdā'* (black bile) and *Ṣafrā'* (yellow bile))
Swelling	Less than that of *Damawī* type	Less than that of *Damawī* type	Visibly marked	Joint swelling is hard	Less than that of *Damawī* type
Pain	Deep seated continuous	Pain and burning sensation	Severe	Hidden mild pain Increases on movement	Moderate to severe
Touch	Soft & Cold	Hard & warm	Soft & warm	Cold & dry	Warm
Aggravating Factors	Cold	Heat	Heat	Cold	Cold and wetness
Relieving factors	-	Cold	-	-	
Humoural Symptoms	Other symptoms of *Ghalaba'-i-Balgham* (phlegm preponderance)	Other symptoms of *Ghalaba'-i-Ṣafrā'* (yellow bile preponderance)	Other symptoms of *Ghalaba'-i- Dam* (blood preponderance)	Other symptoms of Other symptoms of *Ghalaba'-i-Sawdā'* (black bile preponderance)	Mixed symptoms of *Ghalaba'-i-Balgham-o-Ṣafrā'* (phlegm and yellow bile preponderance) or *Ghalaba'-i Sawdā'-o-Ṣafrā'* (black bile and yellow bile preponderance)

PRINCIPLES OF MANAGEMENT[1,2,5]

Red Flag Signs:

These signs should be assessed before initiating treatment for need for management/ consultation through modern medicine.

- More visible swollen and tender joints
- Symmetrical pain
- More frequent flares
- Increased stiffness and difficulty bending joints
- Less range of motion
- Rheumatoid nodules
- Elevated inflammation markers
- Feeling more fatigued or weaker
- Having more trouble with daily activities
- Numbness/ tingling in fingers
- Extra-articular manifestations

The main goal is to control inflammation, relieve pain and reduce disability associated with Rheumatoid arthritis. Patients should be educated on their diagnosis, eating a well-balanced diet, achieving, and maintaining a healthy body weight and regular physical activity. In patients with established RA or those in whom remission can't be achieved, an alternative target of therapy would be low disease activity. If the patient is already under standard care, the physician may advice to continue the same along with add-on Unani Medicine and can be assessed for the same in the follow ups for tapering or discontinue the treatment in consultation with conventional physician.

Unani Medicine's Perspective:

The general line of treatment as mentioned in classics:

- *Taskīn-i-Alam* (analgesia)[8]
- *Tanqiya'-i-Mawād* (evacuation of morbid matter)[8]
- *Taḥlīl-i-Awrām* (to resolve swelling)[8]
- *Taqwiyat-i-Mafāṣil* (strengthening of joints)[8]

The main line of treatment is *Ilāj bi'l Dawā'* (Pharmacotherapy) [IUMT-7.1.10] and*'Ilāj bi'l Tadbīr* (Regimenal Therapy) [IUMT-7.2.0]. *'Ilāj bi'l Tadbīr* (Regimenal Therapy) includes *Qay'* (emesis) [IUMT-7.2.3][8,] *Ḥijāma* (Cupping)IUMT-7.2.30 dry [IUMT-7.2.32][8,920,21] and wet [IUMT-7.2.31][8,9] *Dalk Layyin* (Gentle massage) [IUMT-7.2.94][8] and *Munḍij-o-Mushil* (Concoctive and purgative)[IUMT-6.1.134 & IUMT-6.1.146] therapy (MMTherapy)[8,9,10,18]

(A) Prevention management[22]

1. Patient education: Educating Patient about the disease condition and its prevention.
2. Rest
3. Exercise: Exercises can improve and maintain range of motion of the joints.
4. Physiotherapy: This consists of:
   (i) Splintage of the joints in proper position during the acute phase
   (ii) The application of heat or cold can relieve pain or stiffness.
   (iii) Joint mobilization exercises to maintain joint to maintain joint functions.
   (iv) Muscle building exercises to gain strength.
5. Occupational therapy: Role of occupational therapy is to help the patient cope with his occupational requirements in the most comfortable way, by modifying them.
6. **Nutrition and dietary therapy:** Weight loss may be recommended for overweight and obese people to reduce stress on inflamed joints. Obesity is a risk factor for more rapid progression of joint damage. This should be explained to obese patients and strategies must be offered on how to lose and maintain an appropriate weight.

Unani Medicine's Perspective:

- **For prevention of progression –**Avoiding the causes that may lead to WMM e.g. excessive exercise and mental stress, sedentary lifestyle.
- **Correction of humoral and temperamental derangement:**

  WMM is caused by accumulation of mixture of *Balgham* (phlegm) and *Ṣafrā'* (yellow bile)[8,9] or *Sawdā'* (black bile) and *Ṣafrā'* (yellow bile) in the joints occurs due to their weakness. Weakness of joints usually occurs due to their *Sū'-i-Mizāj Mustaḥkam* (persistent morbid temperament), specially of *Bārid* (Cold) type.8 The basis of correction of WMM is food and lifestyle modification, along with evacuation of morbid humour from the affected parts and alteration of the temperament and the administration of WMM-specific medications as mentioned in classical Unani literature.[8]

(B) Interventions

At Level 1- Solo Physician Clinic/Health Clinic/PHC (optimal standard of treatment where technology and resources are limited)

Clinical Diagnosis: The clinical diagnosis of RA is largely based on signs and symptoms of chronic inflammatory arthritis, with laboratory and radiographic results. Physicians must do a physical examination to check all the joints for swelling and to assess their movement. Also, look for any nodules on the skin. Some blood tests like ESR and CRP can be done to assess levels of inflammation in the body.

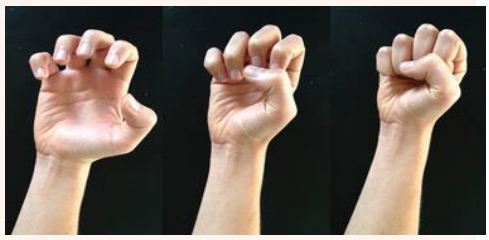
Recommended Diet and Lifestyle[23,24]

- ***Rest and exercise:*** Rest helps to decrease active joint inflammation, pain, and fatigue. In general, shorter rest breaks every now and then are more helpful than long times spent in bed. Exercise is important for maintaining healthy and strong muscles, preserving joint mobility, and maintaining flexibility. Exercise can help improve your sleep, decrease pain and maintain a healthy weight.

THE EXERCISE PROGRAM[25]

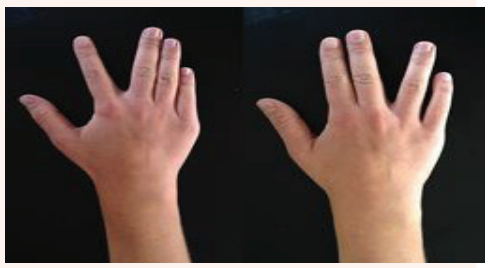
A: Knout the hand in three stages

Description: sitting with the arms resting on a table at elbow level with the palms turned upwards slowly bent each joint until a fist is formed. Strength all joint and repeated once more until full dosage has been achieved.



B: "walk" the finger 2 to 5 against the first finger one by one with the palmar side of the hand lying on a table

Description: Place the palm on a flat surface, levelled with the elbow. Move the thumb as far away from the hand as possible (abduction), then move the rest of the fingers one at a time towards the thumb. When all fingers are as fare to one side as possible, they are moved back one finger at the time starting with the little finger.

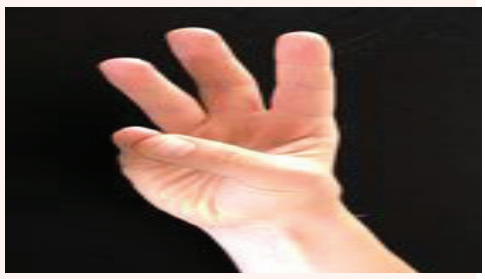


C: Spread the finger with the palmar side of the hand lying on a table

Description: Place the palm on a flat surface, levelled with the elbow. Spread all fingers out at the same time and draw then together again.

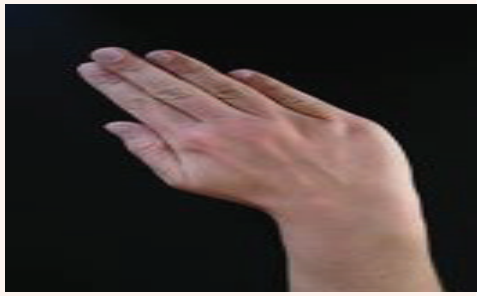
D: Put the tip of the first finger to the tip of the other 4 finger one by one

Description: Open your hand and lead thumb meet the little finger so to make a circle, repeat with the thumb and 4. finger, then thumb and middle finger and last thumb and the index finger. Remember to make a circle each time.



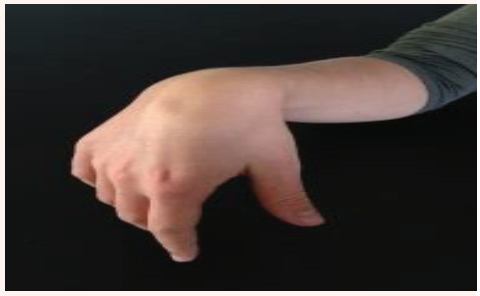
E: Bend the stretched hand from side to side

Description: place your palm and lower arm on a flat surface levelled with the elbow. Without moving the lower arm, bent the wrist to the left and then right, use approximately 2. Seconds to complete the movement.



F: Make circles in the wrist joint

Description: The lower arm should be free of any support, now rotate the wrist around, change direction regularly.



G: Make circles with the shoulders

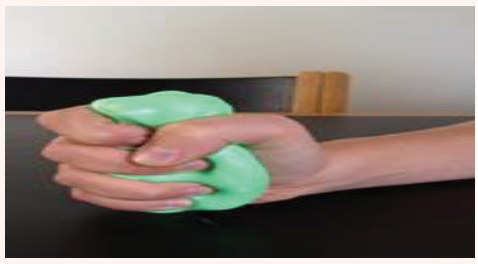
Description: Sit in a chair, with the back free of the chair and your hands placed in your lap. Look straight ahead and then lift your shoulders back, up and forward in a circle motion, after 8 repetitions go the other way around by starting with protraction of the shoulder than lift and then retraction.

H: Put alternating from back of the head and the loin

Description: Sit in a chair with the back free of the chair, move one arm up and place the palm of your hand on the back of the head. The other arm is moved to the back and the back of the hand is placed at the loin. Simulations (If possible) shift the arms so the one that was placed on the loin now is at the back of the head and vice versa. Remember to keep the back straight. This exercise can also be done standing if this is deemed convenient.

I: Gross grip

Description: Form the theraputty as a ball and place it in the palm of your hand; now flex all fingers simultaneous and hold for 2-3 seconds. Then release the grip, reassemble the theraputty into a ball and repeat until desired sets and repetitions are reached.

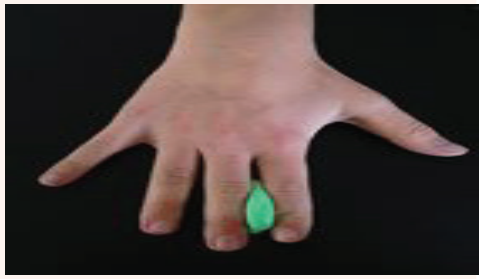


J: Finger pinch

Description: Place the theraputting on a table, pinch thumb, index and middle finger together in a flexion patter for 2-3 seconds. Then release and repeat once more until desired sets and repetitions are completed. Then perform with the other hand. Remember to flex all joints in the three fingers during the exercise.

K: Finger adduction

Description: Make a ball of the theraputting (the size of a table-tennis ball) and place it between the index and middle finger. Place your hand on a table and squeezed the middle and index finger together around the theraputting for 2 seconds. Release move the theraputting to the middle and fourth finger and repeat the squeezed. Finish with a squeezed of the theraputting between the little finger and fourth finger. Repeat until the desired number of sets and repetitions has been reached.



L: Wrist extension

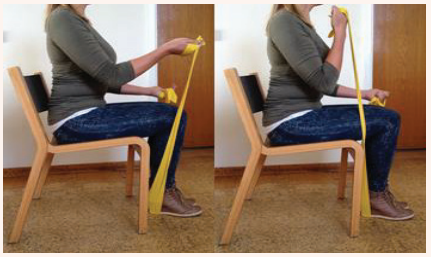
Description: Place the forearm at a horizontal level and elbow into the waist. Wrap the rubber band around both hands and tighten until there is tension when the hands are approximately 30 centimetres apart. While holding this position the wrist is extended on wrist at a time until desired numbers of sets and repetitions have been reached.

M: Wrist flexions

Description: Find a heavy table with a smoot surface underneath. Sit in a chair with the hands placed under the table. Lift the hands up and try to lift the table, hold for 5 seconds. Remember to keep the back straight and elbow at the waist to decrease stress on the shoulder joint.

N: Biceps

Description: sit in a chair with the back free. Place both feet in the middle of the rubber band end wrap each end around the hands. Sit with a straight back and shorten the rubber band until there is tension when the hands are besides the knees. Keep the elbows fixed to the waist and flex in the elbow joint until the palm of the hand reached the shoulder. You can do it with one hand or both at the same time. This exercise can also be done standing if desired.



O: Triceps

Description: Sit in a chair, as far out on the edge as possible. Place your feet in the middle of the rubber band and wrap each end of the rubber band around the hands. Straighten the back and bend forward, hold the back straight until 450 flexion of the hip is reached (if possible); stay in this position during each set. Let your arm fall to the ground and tighten the rubber band until there is a small tension. Pull the elbow joint to the waist, then extend the elbow joint and move the arm forward again. This is repeated with one arm at a time until the desired sets and repetitions are reached. Remember to rest the back between sets. This exercise can be performed in a standing position by placing one foot in front of the other. The foot in front stands on the middle of the rubber band and each end is wrapped around the hands. Slightly bend the knee to get a stable stand and straighten your back and ben in the hip joint until a 450 flexion of the hip joint, keep this position during each set. Stretch the arms and tighten the rubber band. Move the elbow to the waist and then straighten the elbow joint to full extension.

- *Yoga*[26]: Various yoga practices are helpful for the management of patients with arthritis. These include *kriyas (kunjal and kapalbhati), simple joint movements, practices of sukshma vyayama, yogasanas (tadasana, katichakrasana, konasana, urdhwahastottan asana ,uttanapadasana, vaksana, gomukhasana, marjariasana, ushtrasana,bhadrasana, bhujangasana, makarasana, shavasana), pranayama (nadishodana pranayama, suryabhedi pranayama, bhramari), yoga nidra practice and meditation.*
- ***Joint care:*** Using tools or devices that help with activities of daily living, using devices to help you get on and off chairs, toilet seats, and beds. Choosing activities that put less stress on your joints, such as limiting the use of the stairs or taking rest periods when walking longer distances and swimming can be adopted. Maintaining a healthy weight helps lower the stress on your joints.
- ***Stress management:*** Stress can make living with the disease more difficult. Stress also may affect the amount of pain one feels. Regular rest periods, Relaxation techniques such as deep breathing, meditating, or listening to quiet sounds or music, Movement exercise programs, such as yoga, swimming can help cope stress.
- ***Healthy diet:*** A healthy and nutritious diet that includes a balance of calories, protein, and calcium is important for maintaining overall health. A low-fat low-sodium Mediterranean diet rich in fruits, vegetables, whole grains, and nuts and poor in sugar-sweetened beverages, red and processed meat and trans fats, and the supplementation with omega-3 fatty acids, olive oil, non-essential amino acids, and probiotics[27] is recommended for RA.
- *Physical therapy:* can help regain and maintain overall strength and target specific joints.
- *Occupational therapy:* can help develop, recover, and improve, as well as maintain the skills needed for daily living and working.

Restricted Diet and Lifestyle

- Smoking reduction/cessation seems to have positive effects in terms of disease progression and related outcomes.
- Avoid activities causing a flare-up, find an alternative for them.
- High-impact activities, such as running or contact sports like rugby and football, are more likely to cause problems, they must be avoided.
- Avoid activities that cause your joints to become warm and swollen, or it causes severe pain.
- Overweight: losing weight is suggested as it puts extra strain on joints.

Unani Medicine's Perspective:

Dos[8]	Don'ts (disease aggravating factors)[8]
• Rest • Special care during cold weather • Special care during rainy season • Intake of easily digestible diets • Intake of bird's meat	• Alcohol consumption • Excessive movement • *Ghidhā' Ghalīẓ* (diet producing humour of thick consistency) • Regimens producing coldness and moistness in the body • Diets producing raw phlegm

Single drugs and compound Unani formulations for internal/external use

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration and Frequency	*Badraqa* (vehicle)	*Contraindication*
A	**Compound Formulations (Oral)**						
1.	*Ma'jūn-i-'Ushba*[28]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	water	Diabetes Mellitus Type I&II
2.	*Ḥabb-i-Sūranjān*[29]	Pills	500-1500 mg in two divided doses	After meal	15 days to 1 month	water	Nothing specific (NS)
B.	**Compound formulation for local application**						
1.	*Roghan-i-Bābūna Sāda*[29]	Oil for local application	Quantity Sufficient (Q.S.) /for external use	As directed by the physician	15 days to 1 month	-	NS
2.	*Roghan-i-Gul*[29]	Oil for local application	Q.S./ for external use	As directed by the physician	15 days to 1 month	-	NS
C.	***Mufrad* (single) drugs**						
1.	*Kalonjī* (*Nigella sativa*L.)[29]	Seeds	1-2 g. in two divided doses	After meal	15 days to 1 month	water	NS
2.	*Zard Chob* (*Curcuma longa* L.)[29]	Rhizome Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS

Note: Out of the drugs mentioned above, any one oral combination of two or more may be prescribed by the physician. *'Ilāj bi'l Tadbīr* (Regimenal Therapy) described under principles of management may be recommended as per assessment of physician about the condition of the patient and stage of disease. The duration of the treatment may vary from patient to patient. The physician should decide the dosage (per dose) and duration of the therapy based on the clinical findings and response to the therapy.

Follow Up (every 15 days or earlier as per the need)

Reviews should include:[30,31]

- Monitoring the person's symptoms and impact of the disease on their daily activities and quality of life.
- Improving understanding of the patient about the condition and its management through verbal and written information and counter any misconceptions they may have.
- Explaining patients', the importance of monitoring their condition, and seeking rapid access to specialist care if disease worsens or they have a flare.
- Participation in existing educational activities, including self-management programmes.
- Regularly measure C reactive protein to inform decision making about increasing treatment to control disease or cautiously decreasing treatment when disease is controlled. If the disease is of recent onset and active, measure these variables monthly until control reaches a level previously agreed with the individual.
- Assess disease activity, damage, and overall impact and to measure functional ability.
- Check for comorbidities such as hypertension, ischemic heart disease, osteoporosis, and depression.
- Assess symptoms that suggest complications, such as vasculitis and disease of the cervical spine, lung, or eyes.
- Assess the need for referral for surgery.

Referral Criteria[32]

- Non response to treatment
- Evidence of an increase in severity/complications
- Substantial impact on their quality of life and activities of daily living
- Diagnostic uncertainty
- Uncontrolled co-morbidities, such as cardiovascular disease, lung disease, gastrointestinal disease, osteoporosis or osteopenia, malignancy.

At Level 2 (CHC/Small hospitals (10-20 bedded hospitals with basic facilities such as routine, investigation, X-ray**)**

Clinical Diagnosis: Same as level 1. The case referred from Level 1, or a fresh case must be evaluated thoroughly for any complications.

Investigations: The diagnosis would be primarily clinical. However, some investigations may be necessary to confirm the diagnosis and investigate complications or exclude other differential diagnoses as follows:

- Haemogram
- X-ray
- Magnetic resonance imaging
- RA Factor
- ACPA (Anti- Citrullinated Peptide Antibody)
- C-reactive protein
- Synovial fluid examination
- Serum uric acid
- USG

Management: Same as level 1 and/or the following treatment:

Single drugs and compound Unani formulations for internal/external use

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration and Frequency	*Badraqa* (vehicle)	*Contraindication*
A	**Compound Formulations (Oral)**						
1.	*Ḥabb-i-Asgand*[29]	Pills	500 mg- 1 g.	After meal	15 days to 1 month	water	NS
2.	*Ma'jūn-i-Sūranjān*[29]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	water	Diabetes Mellitus TI&II
B.	**Compound Formulation for local application**						
1.	*Roghan Surkh*[29]	Oil for local application	Q. S./ for external use	As directed by the physician	15 days to 1 month	-	NS
2.	*Roghan-i-Sūranjān*[29]	Oil for local application	Q. S./ for external use	As directed by the physician	15 days to 1 month	-	NS
3.	*Roghan-i-ChahārBarg*[29]	Oil for local application	Q. S./ for external use	Morning and night	1-3 months	-	NS
4.	*Roghan-i-Zaytūn*[29]	Oil for local application	Q. S./ for external use	As directed by the physician	15 days to 1 month	-	NS
C.	***Mufrad* (single) drugs**						
1.	*Tukhm-i-Khaṭmī* (*Althea officinalis* L.) [29]	Seeds	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS
2.	*Zanjabīl* (*Zingiberofficinale*Rosc.)[29]	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS

Management with *Munḍij-o-Mushil* therapy (Concoctive and Purgative therapy)[8]

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Gul-i-Banafsha* (flower of *Voila odorata* L.) 7 g, *Tukhm-i-Kāsnī Kofta* (pounded seed of *Cichorium intybus* L.) 6 g, *Gul Surkh* (*Rosa damascena* Mill.) 6 g., *Khār Khask* (*Tribulus terristris* L.) 6 g., *'Inab al-Tha'lab* (*Solanum nigrum* L.) 6 g., *Gāozabān* (*Borago officinalis* L.) 6 g., *Parshiāoshān* (*Adiantum capillus-veneris* L. &Bedd.)6 g, *Tukhm-i-Kharpaza* (seed of *Cucumis melo* L.) 6 g, *Bādiyān* (*Foeniculum vulgare* Gaertn.) 4 g, *MawīzMunaqqā* (*Vitisvinefera* L.) 24 g.[8]	Decoction (for *Nuḍj*) after mixing *Gulqand*	100 ml	Morning before the meal	15-21 days	-	Pregnancy
2.	**Note:** After completion of course of above *Munḍij* and appearance of signs of *Nuḍj* in urine, following purgative drugs has to be added to the above formulation used for *Nuḍj*						
	*Sanā Makkī (Cassia angustifolia*Vahl.)9 g, *Post-i-Halayla Zard* (fruit rind of *Terminalia chebula* Retz.) 9 g, *Ḥabb-i-Qurṭum* (Seed of *Carthamus tinctorius* L.) 9 g[8]	Decoction after mixing *Falūs-i Khayār-Shambar* (fruit pulp of *Cassia fistula* L.) 72 g, *Gulqand*48 g, clarified butter 3 ml	100 ml	Early morning before the meal	For 2-3 days (after *Munḍij*)	-	Pregnancy

Management with *'Ilāj bi'l Tadbīr* (Regimenal Therapy): described under principles of Management as per assessment of physician about the condition of the patient and stage of disease.

***Ḥijāma bi'l Sharṭ* (Wet Cupping):**

It is advised to evacuate the humours accumulated in the joints[33].

***Naṭūl* (Douche):**

- *Naṭūl* with a decoction of *Karnab*(cabbage)[8]
- *Naṭūl* with a decoction of *Kathūth* (seed of *Cuscuta reflexa* Roxb.)[8]
- *Naṭūl* with a decoction of *Zīra* (seed of *Carum carvi* L.)[8]
- *Naṭūl* with Sulphur water[8]

***Ḍimād* (Poultice):**

- Application of lukewarm *Ḍimād Muḥallil* prepared with *Gul-i-Bābūna* (flower of *Matricaria chamomilla* L.), *Gul-i-Khaṭmī* (flower of *Althaea officinalis* L.), *Sūranjān* (*Colchicum autumnale* L.), *Bīkh-i-Nay* (root of *Tripidium bengalense* (Retz.) H. Scholz.), *Iklīl al-Malik* (pods of *Astragallus homosus* L.), *Rasavt* (*Berberis aristata* DC.), juice of *'Inab al-Tha'lab* (*Solanum nigrum* L.) and *Roghan-i-Ḥinnā*[8].
- Application of *Ḍimād* prepared with *Āb-i-Kāsnī* (juice of plant of *Cichorium intybus* L.), *Roghan-i-Gul* and *Ārd-i-Jav* (flour of seed of *Hordeum vulgare* L.).[8]
- Application of *Ḍimād* prepared after boiling and pounding of *Bīkh-i-Qinnab* (root of *Cannabis sativa* L.).[8]

Other procedures:

- **Physiotherapy:** Adults with RA should have access to specialist physiotherapy, with periodic review to improve general fitness and encourage regular exercise, learn exercises for enhancing joint flexibility, muscle strength and managing other functional impairments, learn about the short-term pain relief provided by methods such as transcutaneous electrical nerve stimulators (TENS) and wax baths.
- **Occupational therapy:** Adults with RA should have access to specialist occupational therapy to overcome difficulties with any of their everyday activities, or problems with hand function.
- **Hand exercise programmes**: Consider a tailored strengthening and stretching hand exercise programme for adults with RA with pain and dysfunction of the hands or wrists.
- **Podiatry**: All adults with RA and foot problems should have access to a podiatrist for assessment and periodic review of their foot health needs. Functional insoles and therapeutic footwear can be used if indicated.
- **Psychological interventions:** Offer psychological interventions (for example, relaxation, stress management and cognitive coping skills [such as managing negative thinking] to help adults with RA adjust to living with their condition.

Recommended Diet and Lifestyle: Same as level 1

Restricted Diet and Lifestyle: Same as level 1

Follow Up (every 15 days or earlier as per the need)

Referral Criteria

- Same as mentioned earlier at level 1, plus
- Failure of acute exacerbation to respond to initial medical management.
- Suspected persistent synovitis of undetermined cause.
- If any symptoms or signs suggesting cervical myelopathy develop (for example, paranesthesia, weakness, unsteadiness, or extensor plantar)
- Advanced stages of disease like deformities etc.

At Level 3 (Ayush hospitals attached with teaching institution, District Level/Integrated/ State Ayush Hospitals, Tertiary care allopathic hospitals having Ayush facilities), multiple departments/facilities for diagnosis and interventions. Must provide additional facilities like dieticians, counselling, and physiotherapy unit.

Clinical Diagnosis: Same as levels 1&2.

Confirm diagnosis and severity with the help of investigations like magnetic resonance imaging, Ultrasound, joint aspiration, and synovial fluid examination.

Management: Same as level 1&2 and/or the following treatment:

Single drugs and compound Unani formulations for internal/external use

S.No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration and Frequency	*Badraqa* (vehicle)	*Contraindication*
A	**Compound Formulations (oral)**						
1.	*Ḥabb-i-Muqil*[29]	Pills	500 mg- 1 g.	After meal	15 days to 1 month	water	NS
2.	*Ma'jūn-i-Chob Chīnī*[29]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	water	Diabetes Mellitus TI&II
3.	*Ma'jūn-i-Jogrā-jGugal*[29]	Semi-solid preparation	3-5g.	Twice a day, after meal	15 days to 1 month	Water	Diabetes Mellitus TI&II
4.	*Ma'jūn-i-Flāsfa*[29]	Semisolid	5-10 g	After meal	1-2 months	Water	Diabetes Mellitus TI&II
5.	*Quṛṣ-i-Mafāṣil*[32]	Tablet	2 g (4 tablet)	After meal	1-2 months	Water	NS
B.	**Compound formulation for local application**						
1.	*Roghan-i-Bābūn-aQawī*[29]	Oil	Q. S./ for external use	Morning and night	1-3 months	-	NS
2.	*Roghan-i-Bed-i-Anjīr*[8]	Oil	Q. S./ for external use	Morning and night	1-3 month	-	NS

S.No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration and Frequency	*Badraqa* (vehicle)	*Contraindication*
3.	*Roghan-i-Haft Barg*[29]	Oil	Q. S./ for external use	Morning and night	1-3 month	-	NS
4.	*Roghan-i-Aw-rāq*[29]	Oil	Q. S./ for external use	Morning and night	1-3 month	-	NS
5.	*Roghan-i-Ḥinnā*[8]	Oil	Q. S./ for external use	Morning and night	1-3 month	-	NS
C.	**Mufrad (single) drugs**						
1.	*Chob Chīnī* (*Smilax china* L.)[29]	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS
2.	*Sūranjān* (*Colchicum autumnale*L.)[29]	Powder	10.5 g with equal amount of sugar	In 2 divided doses	15 days to 1 month	water	NS
3.	*Sanā* (*Cassia angustifolia*Vahl.)[29]	Leaves Powder (oral)	5-10 g. in two divided doses	After meal	15 days to 1 month	water	pregnancy

Management with *Munḍij-o-Mushil* therapy (Concoctive and Purgative therapy)

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*niculum vulgare* Gaertn.), *Bekh-i-Bādiyān* (root of *Foeniculum vulgare* Gaertn.), *Mako* (*Solanum nigrum* L.), *Parshiāoshān* (*Adiantum capillus-veneris* L.), *Gāozabān* (*Borago officinalis* L.), *Gul-i-Bābūna* (flower of *Matricaria chamomilla* L.), *Bād Āvard* (*Centaurea bruguierana* (DC.) Hand.-Mazz. ssp. *belangerana* (DC.) Bornm.	Decoction (*Munḍij*)	100 ml	Morning before the meal	07 days	Water	Pregnancy

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Bādiyān* (Foe (CBB)), *Khaṭmī* (*Althaea officinalis* L.), *Khubbāzī* (*Malva sylvestris* L.), *Shāhtra* (*Fumaria parviflora* Lam.) 6 g each, *Gul Surkh* (*Rosa damascena* Mill.) 9 g, *Tukhm-i-Kāsnī* (seed of *Cichorium intybus* L.), *Bīkh-i-Kāsnī* (root of *Cichorium intybus* L.), *Aṣl al-Sūs* (root of *Glycyrrhiza glabra* L.) 7 g each, *Qanṭūriyūn Daqīq* (*Centaurium pulchellum* (Sw) Druce), *Anīsūn* (*Pimpinella anisum* L.), *Tukhm-i-Karafs* (seed of *Apium graveolens* L.), *Bekh-i-Karafs* (root of *Apium graveolens* L.), *Post-i-Bekh-i-Kabar* (root peel of *Capparis spinosa* L.), *Zanjabīl* (*Zingiber officinale* Roscoe.) 3 g each, *Mawīz Munaqqā* (deseeded dried fruit of *Vitis vinefera* L.) 20 No., *Ālū Bukhāra* (*Prunus domestica* L.) 7 No. Prepare the decoction and use it with 48 g of *Gulqand* for 7 days.[8]	Decoction (*Munḍij*)	100 ml	Morning before the meal	07 days	Water	Pregnancy
2.	**Note:** After completion of course of above *Munḍij* and appearance of signs of *Nuḍj* in urine, following *Mushil* will be given						

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindi-cation
	On 8th day add *Banafsha* (*Viola odorata* L.) 9 g and *Sanā Makkī* (*Cassia angustifolia* Vahl.) 12 g to the above formulation used for *Nuḍj*and on 9th day further add *Falūs-i Khayār Shambar* (fruit pulp of *Cassia fistula* L.) 72 g and Almond oil 6 ml.[8]	Decoction (*Mushil*)	100 ml.	Early morning before the meal	2 days (on 8th and 9th day after intake of above mentioned *Munḍij* for 7 days)	Water	Pregnancy

Management with *'Ilājbi'lTadbīr* (Regimenal Therapy): described under principles of management as per assessment of physician about the condition of the patient and stage of disease.

***Ḥijāma bi'l Sharṭ* (Wet Cupping):**

- It is advised to evacuate the humours accumulated in the joints.[32]
- ***Ḍimād* (Poultice):**

- Application of *Ḍimād* prepared with *Lobān* (gum benzoin) after grinding it with lukewarm water. After application of *Ḍimād* the affected joint is exposed to fire.[8]
- Application of *Ḍimād* prepared with *Ḥinnā* (*Lawsonia inermis* L.) and juice of *Barg-i-Bedi-i-Anjīr* (leaf of *Ricinus communis* L.).[8]
- Application of *Ḍimād* prepared with *Iklīl al-Malik* (*Astragallus homosus* L.), *Bābūna* (*Matricaria chamomilla* L.), *Shibit* (*Anethum sowa* Roxb.), *Ṣibr* (*Aloe barbadensis* Mill.) mucilaginous decanted liquid prepared from *Tukhm-i Ḥulba* (seed of *Trigonella foenum-graeceum* L.) and *Tukhm-i Katān* (seed of *Linum usitatissimum* L.).[8]

- ***Naṭūl* (Douche):**

  Naṭūl with decoction of *Amarbel* (*Cuscuta reflexa* Roxb.) and *'Inab al-Tha'lab* (*Solanum nigrum* L.) followed by massage with dried and powdered *Abhal* (*Juniperus communis* L.) mixed with *Roghan-i-Gul*.[8]

- ***Ṭilā'* (Liniment):**

Application of a liniment prepared with *Ṣibr* (*Aloe barbadensis* Mill.), *Za'farān* (*Crocus sativus* L.) and *Murr Makkī* (*Commiphora myrrha* (Nees) Engl.) in ***Āb-i-Kāsnī*** (juice of *Cichorium intybus* L.) on joints.

Application of a liniment prepared with ***Ārd-i-Jaw*** (flour of seed of *Hordeum vulgare* L.), *Khaṭmī* (*Althea officinalis* L.), *Gul-i-Banafsha* (flower of *Viola odorata* L.), *Ikīl al-Malik* (*Astragallus homosus* L.) (each in equal quantity)through boiling in water and *Roghan-i-Banafsha* on joints.[33]

Recommended Diet and Lifestyle: Same as levels 1&2

Restricted Diet and Lifestyle: Same as levels 1&2

Follow Up (every 15 days or earlier as per the need)

Referral Criteria

- Same as mentioned earlier at level 2, plus
- Other modalities can be considered depending on the case and to rehabilitate properly.

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3 CERVICAL SPONDYLOSIS

3

CERVICAL SPONDYLOSIS

(ICD-11 Code: FA80.0–FA80.3)

***Waja' al-'Unuq* (National Unani Morbidity Code: L-18)** http://namstp.ayush.gov.in/#/Unani

CASE DEFINITION

Cervical spondylosis is a common progressive degenerative disorder of the human spine often caused by natural ageing. It is defined as "vertebral osteophytosis secondary to degenerative disc disease".[1] Postural deviations, restricted movement in the affected joints, muscle issues, and neck pain characterize cervical spondylosis (CS).[2]

Unani Medicine's Perspective:

Cervical Spondylosis (***Waja' al-'Unuq)*** has been mentioned in Unani Medicine as a type of *Waja' al-Mafāṣil* (arthritris) and is named as ***Waja' al-'Unuq*** (neck pain) due to spasm of the muscles of the neck or diseases of adjoining structures. Neck pain is the most common symptom of ***Waja' al-'Unuq*.**

INTRODUCTION (incidence/ prevalence, morbidity/mortality):

- Cervical spondylosis (CS) typically manifests after an individual reaches their fifth decade of life.[4,5] Around 80-90% of individuals experience disc degeneration by the time they reach the age of 50.[6,7,8]
- Symptoms tend to occur more frequently in men than in women, with the highest incidence between the age of 40 and 60.[9,10, 11,12]
- In the adult population, the lifetime prevalence of CS is 48.5%.[13]
- In India, peak prevalence occurred in the 40-49 age group, with a male predominance.[14]

Unani Medicine's Perspective:

Etiology

- Accumulation of *Ghayr Ṭabī'ī Balghamī Khilṭ* (morbid phlegmatic humour) in the cervical intervertebral joint.
- Weakness of Cervical intervertebral joints.[15]
- Retention of immature *Khilṭ* (humour) in the body.[15]
- Withdrawal of regular regimen for evacuation of body wastes.[15]

- Cervical muscle spasm.[3]
- History of trauma in neck region[15]
- Excessive intake of food items having cold and wet/moist temperament[15]
- Use of thick *Khilṭ* (humour) producing diets[15]
- Excessive alcohol intake[15,]

Risk Factors

- Cold air: It is one of the important risk factors for *Waja' al-'Unuq*.[3,17]
- Abnormal posture: Maintaining neck posture in a no physiologic position for prolonged period during sleeping and working[17]
- Weak joints due to their *Sū'-i-Mizāj Mustaḥkam* (persistent morbid temperament)
- Elderly: it is generally common in >50 years of age.[15]
- Sedentary lifestyle: People who do not do neck exercises are prone to develop *Waja' al-'Unuq* (cervical spondylosis).[15]
- The people having phlegmatic temperament may be prone to develop *Waja' al-'Unuq*.[15]

Pathology

In Unani classical literature, *Sū'-i-Mizāj* (morbid temperament) of the whole body or any of the vital organs of the body may cause *Waja' al-Mafāṣil*. *Sū'-i-Mizāj* (morbid temperament) may be either *Sādhij/ Sāda* (simple), or *Māddī* (involving substance). *Sū'-i-Mizāj Sādhij/ Sū'-i-Mizāj Sāda* (simple morbid temperament) is defined as the imbalance of *Kayfiyāt* (qualities) without involvement of substance such as *Ḥarārat* (hotness), *Burūdat* (coldness), *Yubūsat* (dryness), whereas *Sū'-i-Mizāj Māddī* is the imbalance either in the quantity/quality of the substance or both. The substance may be any one of the humours and *Rīḥ* (gaseous matter).[15] Coldness or any other factor that causes the collection of *Balghamī Mādda* (phlegmatic matter) in the neck region may result in *Waja' al-'Unuq*. Cold exposure may also cause stiffness in the neck muscles.[3,17]

DIAGNOSTIC CRITERIA

CS is typically diagnosed based on clinical assessment alone. While it mainly causes neck pain, it can radiate to various areas and worsen with neck movements. Neurological changes should be checked in the limbs, but they usually only appear when spondylosis is complicated by myelopathy or radiculopathy. Other causes like disc protrusion, thoracic outlet issues, brachial plexus disorders, malignancies, or primary neurological diseases should also be considered when assessing these symptoms. Postural deviations, restricted movement in the affected joints, muscle issues, and neck pain characterize CS.

The changes in CS are primarily a result of the natural degeneration accompanying the ageing process. Other risk factors include continual occupational trauma, a family history of neck pain, spondylosis, and congenital bone irregularities like blocked vertebrae and malformed

laminae that stress nearby discs, smoking, anxiety, and depression.[22] The development of CS[23,24,25] follows a degenerative process that leads to biomechanical alterations within the cervical spine, resulting in the secondary compression of neural and vascular structures. CS primarily results from reduced disc height, which narrows the spinal canal due to herniated discs.These degenerative changes collectively lead to a loss of cervical lordosis and reduced mobility, along with a decrease in the diameter of the spinal canal.

CLINICAL EXAMINATION

CS is often diagnosed on clinical signs and symptoms alone. Neck pain radiating to the arm and fingers (based on affected dermatomes), accompanied by arm/hand tingling, numbness, muscle reflex reduction, sensory issues, and muscle weakness in corresponding dermatomes/myotomes.[24]

Signs:[25,26,27]

During the examination, the neck might appear slightly bent forward. The posterior neck muscles may be tender but not in spasm. There are often advanced degenerative changes with audible crepitation during movement.

- Poorly localised tenderness.
- Limited range of motion.
- Minor neurological changes (unless complicated by myelopathy or radiculopathy)

Symptoms:

- Cervical pain aggravated by movement
- Referred pain (occiput, between the shoulder blades, upper limbs)
- Retro-orbital or temporal pain
- Cervical stiffness
- Vague numbness, tingling or weakness in upper limbs.
- Dizziness or vertigo
- Poor balance
- Rarely, syncope triggers migraine

Unani Medicine's Perspective:

- The affected cervical vertebral joints may be colder than other parts of body[15]
- Pain may be continuous with moderate severity and deeply seated[15,29]
- Cervical intervertebral joint mobility may decrease[15,30]
- The pain may get relieved after usage of hot regimens[15]
- Urine may be translucent and thick in consistency[15]

Complications:

- Myelopathy: Myelopathy results in hand clumsiness, gait issues, or both due to sensory ataxia or spastic paraparesis in the lower limbs, with later bladder problems.

- Radiculopathy: Nerve root compression, known as radiculopathy in CS, often happens at C5 and C7 levels, although higher levels can also be affected. Neurological symptoms are localized in the upper limb, with sensory issues like shooting pains, numbness, and heightened sensitivity being more prevalent than weakness. Reflexes typically decrease at the corresponding levels: biceps (C5/6), supinator (C5/6), or triceps (C7).Top of Form

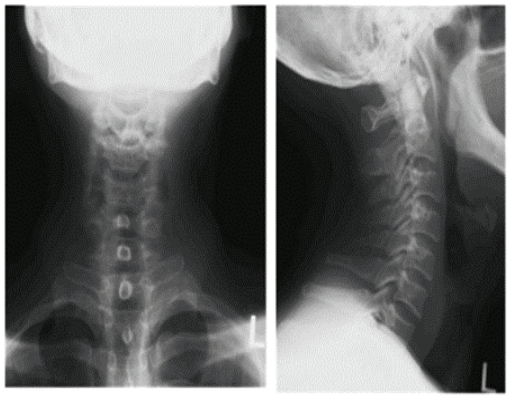
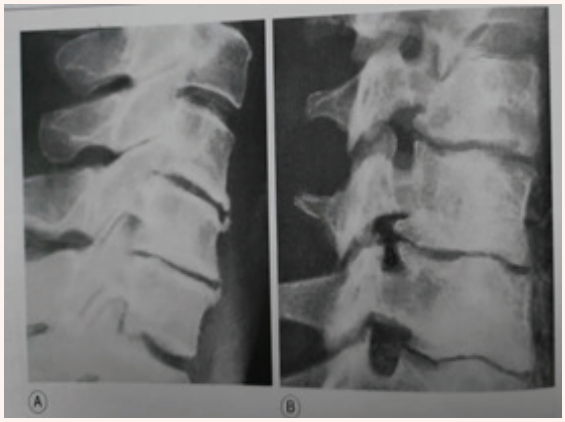
SUPPORTIVE INVESTIGATIONS:[32]

Essential Investigations:

Investigation	Findings
Plain or Digital x-ray CS (AP, Lat., Oblique)	• Narrowing of the disc height • Presence of osteophytes arising from the disc margins • Osteoarthritic changes in the posterior zygapophyseal joints etc. • For patients with nont-raumatic neck pain and no red flags, initial imaging typically starts with cervical spine radiographs. Recommended by ACR
Blood test: Full blood count, ESR, CRP	To exclude other pathologies or complications

Advanced Investigations:

Investigation	Findings
Magnetic resonance imaging (MRI)of the Cervical Spine	It's the preferred choice to rule out for myelopathy and radiculopathy

Normal Cervical Spine[33]	Cervical spondylosis[22]
	 (Note the lateral view (A) of the narrowed intervertebral space, with marginal osteophyte formation, at C5-C6 and C6-C7. The oblique view (B) shows severe encroachment of osteophytes upon an intervertebral foramen)

DIFFERENTIAL DIAGNOSIS

Clinical Syndromes Resembling CS:[34]

	Radiculopathy (Type I Syndrome)	Myelopathy (Type II Syndrome)	Axial Joint Pain (Type II Syndrome)
Acute	• Lateral Disc herniation • Brachial plexitis	• Central disc herniation • Pathologic fracture • Guillain-Barre Syndrome	• Cervical strain or sprain • Painful amphi-arthrodial joint (disc) • Painful Di-arthrodial joint (facet joint)
Chronic	• Lateral disc herniation • Focal Facet hypertrophy **Shoulder pathology:** • Adhesive capsulitis • Recurrent anterior Subluxation and impingement syndrome **Entrapment neuropathy:** • Carpal tunnel syndrome • Thoracic outlet syndrome	• Central disc herniation • Cervical cane stenosis: Congenital, Metabolic, and Acquired • Spinal instability • Multiple sclerosis • Normal pressure hydrocephalus • Vitamin B_{12} deficiency • Neoplasm: Vertebral metastasis and • Infection: Discitis/ Osteomyelitis, Epidural abscess, Neuro-syphilis and HTLV-1, • Syringomyelia • Arteriovenous malformation • Myopathies	• Fibromyalgia, • Nonorganic, Malingering and /or symptom magnification • Hypochondriasis and /or somatoform disorders, • Failed surgical fusion. • Referred visceral Pain: ➢ Angina pectoris ➢ Pancoast Tumour ➢ Sub-diaphragamatic pathologies.

- Other non-specific neck pain lesions-acute neck strain, postural neck ache or whiplash
- Fibromyalgia and psychogenic neck pain.
- Mechanical lesions-disc prolapse or diffused idiopathic skeletal hyperostosis.
- Inflammatory disease-Rheumatoid arthritis, Ankylosing spondylosis, or Polymyalgia rheumatica.
- Metabolic diseases- Paget's disease, osteoporosis, gout, or pseudo gout. Infections-osteomyelitis or tuberculosis.
- Malignancy-primary tumours, secondary deposits, or myeloma.

PRINCIPLES OF MANAGEMENT

Red Flag Signs of Cervical Spondylosis:

These signs should be assessed before initiating treatment for need for management/ consultation through modern medicine

- **Malignancy, infection, or inflammation**
    - Fever, night sweats

- Unexpected weight loss
- History of inflammatory arthritis, malignancy, infection, tuberculosis, HIV infection, drug dependency, or immunosuppression
- Excruciating pain
- Intractable night pain
- Cervical lymphadenopathy
- Exquisite tenderness over a vertebral body

- **Myelopathy**
  - Gait disturbance or clumsy hands, or both
  - Objective neurological deficit—upper motor neuron signs in the legs and lower motor neuron signs in the arms
  - Sudden onset in a young patient suggests disc prolapse
- **Other**
  - History of severe osteoporosis
  - History of neck surgery
  - Drop attacks, especially when moving the neck, suggest vascular disease
  - Intractable or increasing pain

Patients need education about their CS diagnosis, as there are common misconceptions and concerns about potential disability. It's important to emphasize the natural course of CS and discuss therapeutic options, which include lifestyle changes like exercise and maintaining good posture when sitting and standing. These changes should be tailored to the individual to minimize disruptions in daily activities.

Unani Medicine's Perspective:

The general line of treatment as mentioned in classics:

- *Taskīn-i-Alam* (analgesia)[15]
- *Tanqiya* (evacuation of causative matter)[15]
- *Taḥlīl o Talyīn* (to resolve the inflammation and soften the joints)[15]
- *Taqwiyat-i-Mafāṣil* (strengthening of joints)[15]

'Ilāj bi'l Dawā' (pharmacotherapy) [IUMT-7.1.10] and *'Ilāj bi'l Tadbīr* (regimenal therapy) [IUMT-7.2.0] are considered the mainstay of treatment in case of *Waja' al-'Unuq* (cervical spondylosis). *'Ilāj bi'l Tadbīr* (regimenal therapy) includes *Qay'* (inducing emesis) [IUMT-7.2.3], *Riyāḍat* (exercise) [IUMT-7.2.80][17,] *Ḥijāma* (cupping) [IUMT-7.2.30] - *Ḥijāma bilā Sharṭ* (dry cupping)[IUMT-7.2.32][17,35,36] and *Ḥijāma bi'l Sharṭ* (wet cupping) [IUMT-7.2.31], *Faṣd* (venesection) [IUMT-7.2.6], *Ḥammām* (therapeutic bath) [IUMT-7.2.70], *Takmīd Ḥārr* (hot fomentation), *Naṭūl* (douche) [IUMT-6.2.95], *Dalk Layyin* (massage with light/gentle pressure)

[IUMT-7.2.94][37,40] *Inkibāb* (vapour Bath) [IUMT-6.2.115][37,] *Tadhīn* (oiling/application of oil on affected body part) [IUMT-6.2.116][38,] *Tamrīkh* (embrocation/anointing) [IUMT-6.2.106], *Ḍimād* (Poultice) [IUMT-6.2.52][39,] and *Munḍij-o- Mushil* therapy [MM therapy] (concoctive and purgative therapy) [IUMT-6.1.134] & [IUMT- 6.1.146].[15]

(A)**Prevention management**

Prevention of CS is not possible, but lifestyle modification may help to reduce the risk of disease; these are as follows:

- Avoid excessive mental, emotional, and physical stress. Stress causes headache and worsens neck pain and stiffness.
- Keep the spine straight while sitting or standing.
- Avoid forward bending exercise and jogging, running, jerking vigorously and high pillows.
- Intake of a balanced diet and to be physically active.
- Avoid carrying heavy bags and lifting heavy weights.
- Avoid trauma to the neck.

Lifestyle modifications, particularly maintaining proper spinal alignment during sitting and standing activities can prevent the progression of CS.

Apart from this, preventative management of CS incorporates non-pharmacological strategies like lifestyle adjustments, weight control, yoga, exercise, patient education, psychosocial support, assistive devices, thermal treatments, and modifications in daily activities. Additionally, reassurance, counseling, and education can reduce the impact of psychosocial factors, while thermal modalities have the potential to alleviate joint stiffness, pain, and muscle spasms, and prevent contractures.

Unani Medicine's Perspective:

- Decreasing intake of phlegm-producing diet, regular exercise including neck exercises, avoiding use of pillow during sleep and proper posture of neck while working may be helpful in prevention of progression of *Waja' al-'Unuq* (cervical spondylosis).
- **Correction of Humoural and Temperamental Derangement:** *Waja' al-'Unuq* (cervical spondylosis) is caused by cold morbid temperament due to phlegmatic matter. The basis of correction of *Waja' al-'Unuq* (cervical spondylosis) is food and lifestyle modification, along with causative phlegmatic humour evacuation and the administration of *Waja' al-'Unuq* (cervical spondylosis)-specific medications.

(B) Interventions

At Level 1- Solo Physician Clinic/Health Clinic/PHC (Optimal Standard of treatment where technology and resources are limited)

Clinical Diagnosis: The diagnosis of CS relies primarily on clinical evaluation following a thorough medical history and physical examination. Occasionally, additional investigations such as a complete blood count and X-ray may be conducted.

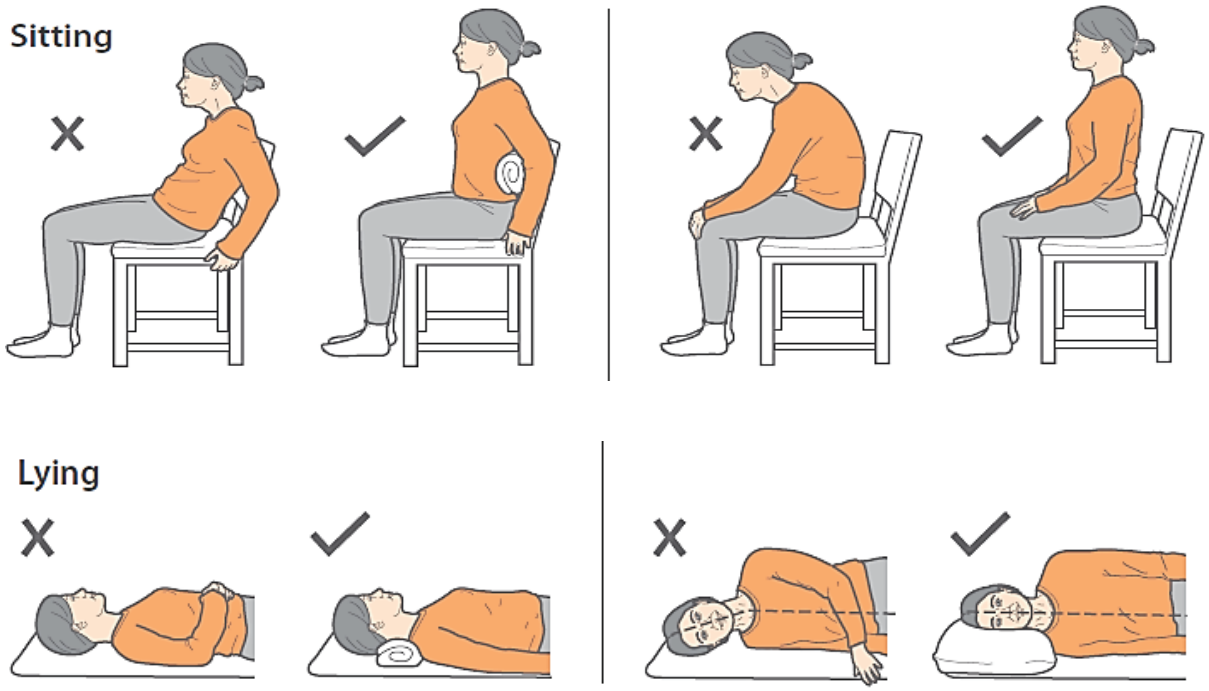
Recommended Diet and Lifestyle:

After a long period of inactivity, start a routine of gentle exercises, such as yoga, to stretch and strengthen your muscles and improve posture. Incorporate age-appropriate low-impact exercises to strengthen your upper back. Remember to always stretch before any strenuous physical activity.

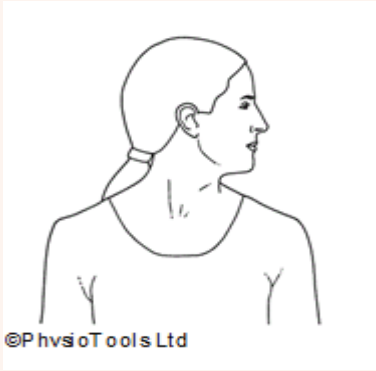
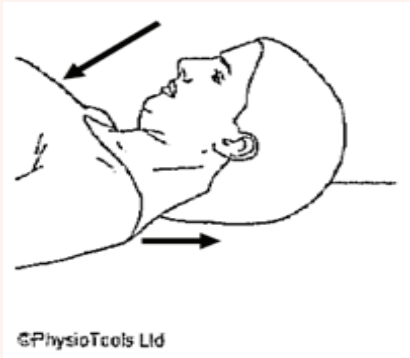
- Whether at home or at the workplace, ensure that the work surface is at a comfortable and appropriate height.
- Sit on a chair with proper lumbar support, ensuring it is at the right height for the task. Maintain proper posture with your shoulders back. Alternate your sitting positions regularly and take periodic breaks to walk around or gently stretch your muscles to relieve tension. Rest your feet on a low stool if you must sit for extended periods.
- Wear comfortable, low-heeled shoes.
- To minimize spinal curvature, sleep on your side. Always choose a firm and flat surface for sleeping.
- Ensure proper nutrition and diet to mitigate and prevent excessive weight gain. A diet with adequate daily amounts of calcium, phosphorus, and Vitamin D supports healthy bone growth.

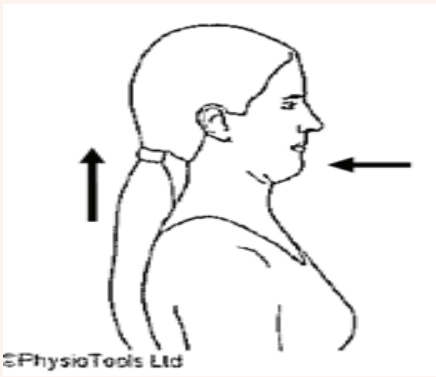
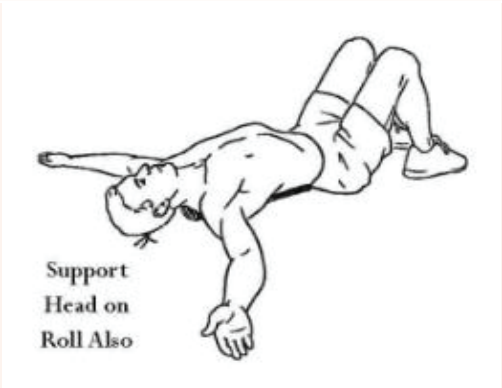
Posture[44]

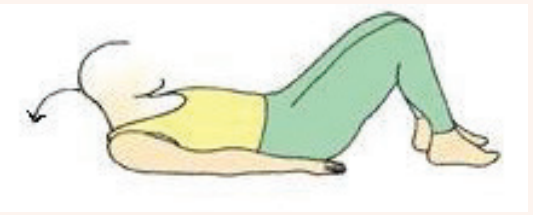
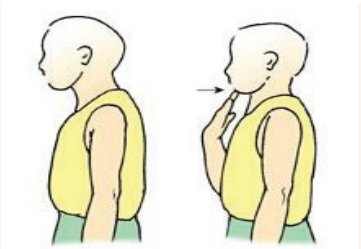
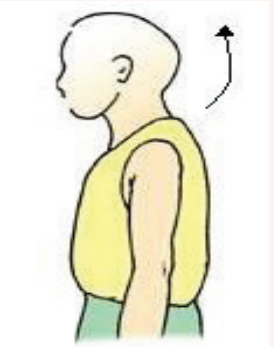
Posture is important when experiencing neck pain. Some examples of good and bad sitting and lying postures are as follows:



Exercises for CS:[44,45]

S.no.	Exercises	
1.	**Neck Rotation** • Sit on a chair or on the edge of the bed • Gently turn your head to look over your shoulder • Hold for 5-10 seconds • Turn your head back to the middle then turn to look over another shoulder • Hold for 5-10 seconds • Repetitions	
2.	**Lateral / Side Flexion** • Sit on a chair or on the edge of the bed • Tilt your head to lower your ear down towards your shoulder • Use your hand to gently pull your head further to the side • Feel a stretch on the opposite side • Hold for 5-10 seconds • Repetitions	
3.	**Flexion/extension** **Flexion:** Sitting upright in a good posture, bend your head forwards gently pulling your chin closer to your chest. Hold for a count of 5 then relax. **Extension:** Sitting upright in a good posture, take your head slowly back until you are looking at the ceiling. Hold for a count of 5 then relax.	
4.	**Deep neck flexion** • Lie on your back with a thin pillow to support your head or do it in sitting • Nod your head downwards so your chin comes towards your chest • Hold for 5-10 seconds • Repetitions	

S.no.	Exercises	
5.	**Chin Retraction** • Sit on a chair or on the edge of the bed • Pull your chin in towards you keeping your neck and back straight (make a double chin) • Hold the end position and feel a good stretch in your neck for 5-10 seconds • Repetitions	
6.	**Scapula Setting** • Sit on a chair or on the edge of the bed • Place your fingers on your shoulders • Roll your shoulders back • Glide your shoulder blades down and together at the back • Hold this posture for 5-10 Seconds • Repetitions • You can progress this by lying on your tummy with your arms by your side, palms facing up and lifting them off the bed.	
7.	**Scalene Stretch** • Sit on a chair or on the edge of the bed • Place your right hand on your left shoulder • Tilt your head to the right, bringing your right ear to your • right shoulder (make sure the shoulder is kept still). • Slowly rotate your head to the left keeping your right ear near your right shoulder to feel more of a stretch. • Hold stretch for 5-10 seconds • Repetitions	
8.	**Pectoralis Stretch** • Lie on your back with a rolled-up towel placed lengthways under your back • Slowly bring your arms out to the side into a Y-shape • Hold stretch for 5-10 seconds • Repetitions	

S.no.	Exercises	
9.	**Head lifts** • Lie on your back on a bed or on the floor (with a folded towel or pillow under your head, if more comfortable). • Gently press the back of your head towards the floor while pulling in your chin until you feel the stretch on your upper neck. • Hold in this position for 5 - 10 seconds then relax. • Repeat this 5 - 10 times. • Do not clench your teeth while doing this exercise.	
10.	**Chin tucks** • Sit or stand with good posture and tuck your chin in but don't look down. • Gently pull your head back as though nodding your head or trying to make a double chin. • You can put your hand on your chin for a guide if needed. • Hold in this position for 5 - 10 seconds then relax and repeat 5 - 10 times.	
11.	**Shoulder lifts** • Either sit or stand and lift your shoulder towards the back of your head in a shrugging motion then relax. • Repeat 5 times.	

Yoga practices for the management of CS:

Yoga can effectively manage CS patients through various practices. Some asanas/kriyasare: *Tadasana, Urdhwa Hastottanasana, Katichakrasana, Ardha Matsyendrasana, Tirkonasana, Vajrasana, Ustrasana, Gomukhasana, Makarasana, Bhujangasana, Dhunarasana, Bharamari, Shalabasana, Shavasana, Meditation, etc.*

Restricted diet and lifestyle:

- Refrain from lifting weights with improper posture.
- If driving, take regular breaks and avoid long hours behind the wheel.
- Use minimal pillows under your neck and shoulder while sleeping.
- Soft chair, bed should be avoided.

- Avoid leaning while standing or sitting. When standing, maintain balanced weight distribution on your feet. Reduced curvature in the back makes it better equipped to support weight.
- Stay clear of excessive stress and anxiety, as it amplifies pain intensity.
- Stop smoking. Smoking diminishes blood flow to the spine and leads to the degeneration of spinal discs.
- Avoid Fried foods, spicy, oily foods, excessive meats and refined foods like sweets, confectionery, bread, and other refined wheat products. These along with other factors contribute to the development of CS and bone de-mineralization.

Unani Medicine's Perspective:

Dos[15]	**Don'ts**[15] **(Disease Aggravating Factors)**
• Intake of *Aghdhiya Laṭīfa*[7] • Intake of *Aghdhiya Musakhkhina* (food stuffs which increase heat in the body due to their hot temperament or heat-producing properties e.g. spices)	• Intake of *Aghdhiya Bārida* • Alcohol consumption • Intake of non-vegetarian food • Sexual indulgence especially after having food • Sedentary lifestyle • Sour diets • Cold water intake • Juicy fruits

Single and Compound Unani Drugs for internal/external Use

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration and Frequency	*Badraqa* (vehicle)
1.	*Chob Chīnī* (*Smilax china* L.)[47]	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water
2.	*Kalonjī* (*Nigella sativa* L.)[47]	Powder	1-2 g. in two divided doses	After meal	15 days to 1 month	water
3.	*Zanjabīl*[47] (*Zingiber officinale* Rosc.)	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water
4.	*Ushaq*[15] (*Dorema ammoniacum* D. Don)	Powder	5.5 g. in two divided doses	After meal	15 days to 1 month	water
5.	*Ḥabb-i-Asgand*[47]	Pills	500 mg- 1 g.	After meal	15 days to 1 month	water

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration and Frequency	*Badraqa* (vehicle)
6.	*Ḥabb-i-Sūranjān* [47]	Pills	1-3 g in two divided doses	After meal	15 days to 1 month	water
7.	*Ma'jūn-i-Chob Chīnī*[47]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	Water
8.	*Ma'jūn-i-Sūranjān*[47]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	Water
9.	*Roghan-i-Bābūna Sāda*[47]	Oil for local application	Quantity sufficient (Q.S.) for external use	As directed by the physician	15 days to 1 month	--
10.	*Roghan Surkh*[47]	Oil for local application	Q.S. for external use	As directed by the physician	15 days to 1 month	--
11.	*Roghan-i-Zaytūn*[47]	Oil for local application	Q.S. for external use	As directed by the physician	15 days to 1 month	--
12.	*Ḍimād Muḥallil*[47]	Poultice	Q.S. for external use	As directed by the physician	15 days to 1 month	--

Note: The Physician may prescribe one drug or combination of two or more drugs. The physician may also recommend *'Ilāj bi'l Tadbīr* (regimenal therapy) as per the condition of the patient, underlying cause, and stage of disease. The duration of treatment may vary from patient to patient. The physician should decide the dosage (per dose) and duration of the therapy based on the clinical findings and response to the therapy.

Follow Up (every 15 days or earlier as per the need)

Reviews should include:

- Keep track of the individual's symptoms and how the condition affects their daily life and well-being.
- Continuously monitor the condition's long-term progression.
- Administer CS management through exercises and Yoga.
- Engage in discussions with the individual about their understanding of the condition, any worries or questions, personal choices, and access to necessary services.

- Regularly assess how well all treatments work and how well the individual can tolerate them.
- Provide guidance and support for self-management.

Referral Criteria:

- When treatment does not yield a positive response.
- When there is evidence of the condition worsening in severity or developing complications.
- When the condition significantly affects their quality of life and ability to perform daily activities.
- When there is uncertainty in making a diagnosis.
- When the condition remains uncontrolled despite efforts

At Level 2 (CHC/Small hospitals (10-20 bedded hospitals with basic facilities such as routine, investigation, X-ray)

Clinical Diagnosis: Same as level 1. The case referred from Level 1, or a fresh one, must be evaluated thoroughly for complications.

Investigations: The diagnosis would be primarily clinical. However, some investigations may be necessary to investigate complications or exclude other differential diagnoses as follows:

- Haemogram
- X-ray
- Magnetic resonance imaging
- C-reactive protein

Management: Same as Level-1and/or the following treatment:

Single and Compound Unani Drugs for internal Use

S. No.	Single Herb	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Sanā* (*Cassia angustifolia* Vahl.)[47,48,49]	Powder/ Decoction	5-10 g in two divided doses	After meal	15 days	Water	Pregnancy
2.	*Tukhm-i-Khaṭmī* (*Althaea officinalis* L.)[47,48,49]	Decoction	5-7 g in two divided doses	After meal	15-30 days	Water	Nothing specific (NS)
3.	*Zard Chob* (*Curcuma longa* L.)[48,49]	Powder/ Decoction	5-7 g in two divided doses	After meal	15-30 days	Water	NS

S. No.	Single Herb	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicle)	Precaution/ Contraindication
4.	*Būzīdān* (*Tanacetum umbelliferum* Boiss.)[18]	Powder	3-5 g in two divided doses	After meal	15-30 days	Water	NS
5.	*Asgand* (*Withania somnifera* L.) Dun.[49]	Powder	5-10 g in three divided doses	After meal	15-30 days	Water	NS
6.	*Muqil* (*Commiphora mukul* (Hook. ex Stocks) Engl.)[49]	Powder/ Decoction	1-1.5 g in two divided doses	After meal	15-30 days	Water	NS
7.	*Khūlanjān* (*Alpinea galangal* Willd.)[50]	Powder	2-3 g in two divided doses	After meal	15-30 days	Water	NS
8.	*Qusṭ* (*Saussurea lappa* C.B. Clarke)[49]	Powder/ Decoction	2-3 g in two divided doses	After meal	15-30 days	Water	NS
9.	*Ḥabb-i-Muqil* [48,49]	Pills	0.5-1 g	After meal	15-30 days	Water	NS
10.	*Awjā'iyya*[51]	Tablet	1-2 g in two divided doses	After meal	15-30 days	Water	NS
11.	*Ma'jūn-i-Jograj Gūgal* [47,48,52]	Semisolid	5-10 g in two divided doses	After meal	15-30 days	Water	Diabetes Mellitus Type I & II
12.	*Ma'jūn-i-Ghīkvār*[53]	Semisolid	10 g in two divided doses	After meal	15-30 days	Water	Diabetes Mellitus Type I & II
13.	*Safūf-i-Sūranjān* [48,52]	Powder	5-10 g in two divided doses	After meal	15-30 days	Water	NS
14.	*Kushta'-i-Ga'odantī* [48,52]	Powder	60-120 mg in two or three divided doses	After meal	15-30 days	Water	NS
15.	*Ḥalwa'-i-Ghīkvār* [48,54]	Semisolid	12-25 g in two divided doses	After meal	1-2 months	Milk	Diabetes Mellitus Type I & II

Oil for Local Application

S. No.	Formulation	Dosage form	Dose per day	Time	Duration & Frequency	Precaution/ Contraindication
1.	*Roghan-i-Dārchīnī*[52]	Oil	Q.S. for external use	Morning and night	1-2 months	NS
2.	*Roghan-i-Māl kanganī* [47, 52]	Oil	Q.S. for external use	Morning and night	1-2 months	NS
3.	*Roghan-i-Ḥinnā*	Oil	Q.S. for external use	Morning and night	1-2 months	NS
4.	*Roghan-i-Shibit*[55]	Oil	Q.S. for external use	Morning and night	1-2 months	NS
5.	*Roghan-i-Maṣṭagī*[55]	Oil	Q.S. for external use	Morning and night	1-1 months	NS

***Ḍimād* (Poultice)**

- *Ḍimād* prepared with *Bābūna* (*Matricaria chamomilla* L.) 58.5 g, *Khaṭmī* (*Althaea officinalis* L.) 58.5 g, *Ikīl al-Malik* (pods of *Astragallus homosus* L.) 58.5 g, *Roghan-i-Soyā* 58.5 ml, *Ushaq* (*Dorema ammoniacum* D. Don.) 34.4 g, *Jā'oshīr* (*Ferula galbaniflua* Boiss. ex Buhse.) 34.4 g, *Muqil* (*Commiphora mukul* (Hook. ex Stocks) Engl.) 34.4 g, *Mom* (bee wax) 17.2 g, *Sirka* (vinegar) 17.2 g, is applied on the affected spine.

***Ṭilā'* (Liniment) [IUMT – 6.2.53]**

- *Ṭilā'* (liniment) prepared with *Sūranjān* (*Colchicum autumnale* L.) and fresh coriander (*Coriandrum sativum* L.) leaves, is applied on the affected spine.[56]

Management with *Munḍij-o-Mushil* therapy [MM Therapy] (concoctive and purgative therapy)

In case of accumulation of excessive *Balghamī Mādda* (phlegmatic matter) in the joints, the following formulations may be given:

MM Therapy

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Gul-i-Banafsha* (*Viola odorata* L. flowers) 7 g, *Chirā'ita* (*Swertia chirayita* Roxb. ex Flem. Karst.) 7 g, *Shāhtara* (*Fumaria officinalis* L.)	Decoction (*Munḍij*)	100 ml	Morning before Breakfast	10-15 days	Water	Pregnancy

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
	7 g, *Mako Khushk* (dried *Solanum nigrum* L.) 5 g, *Bādiyān* (*Foeniculum vulgare* Mill.) 7 g, *Bekh-i-Bādiyān* (*Foeniculum vulgare* Mill. root) 7 g, *Sūranjān* (*Colchicum autumnale* L.) 5 g, *Mawīz Munaqqā* (De-seeded dried fruits of *Vitis vinifera* L.) 9 No.						
	Note: After completion of course of above *Munḍij* and appearance of signs of *Nuḍj* in urine, following *Mushil* may be given						
2.	*Gul Surkh* (Flower of *Rosa damascena* Mill) 7 g, *Sanā* (Leaves of *Cassia angustifolia* Vahl.) 7 g, *Maghz-i-Falūs Khayār Shambar* (Pulp of fruit devoid of seeds of *Cassia fistula* L.) 46.8 g, *Turanjbīn* (*Alhagi pseudalhagi* Bieb. Desv.) 46.8 g, *Maghz-i-Bādām* (Seed kernel of *Prunus amygdalus* Batsch.) 5 g	Decoction (*Mushil*)	100 ml	Early morning before Breakfast	2-3 days (after *Munḍij*)	Water	Pregnancy

Management with *'Ilāj bi'l Tadbīr* (regimenal therapy)

As described under principles of management as per assessment of the patient's condition and stage of disease by the physician

- ***Ḥijāma bilā Sharṭ* (dry cupping/ cupping without scarification)**
  - To divert the accumulated morbid humours from the cervical spine.[39,40]
- ***Naṭūl* (douche)**
  - *Naṭūl* with a decoction of *Karnab* (cabbage/ *Brassica oleracea* L.)
  - *Naṭūl* with a decoction of *Kathūth* (seeds of *Cuscuta reflexa* Roxb.)
  - *Naṭūl* with a decoction of *Zīra* (seeds of *Carum carvi* L.)
  - *Naṭūl* with Sulphur water[15]
- ***Inkibāb* (vapour bath)**

  Exposure of the affected spine to vapours of the decoction of *Tukhm-i-Shibit* (seeds of *Anethum sowa* Roxb. ex Fleming).

Other procedures:

Physiotherapy Management:

During acute painful episodes, prioritize rest, apply moist heat in cold weather, and use light massage to enhance para-spinal muscles' tone, circulation, and elasticity. Employ cervical traction with a 5-10-pound force, ensuring maximum comfort for the neck for 10-15 minutes. Consider ultrasonic treatment for painful trigger points in cervical and shoulder muscles and interferential therapy (IFT) for acute neck and back pain. For symptomatic relief, you can also use a removable soft cervical collar, back corset, or back belt. However, it's important to note that during acute painful situations, avoid exercise. In cases of chronic pain, focus on mobilization, strengthening exercises, moist heat, and cervical traction.

Cervical collar: Numerous authors affirm that utilizing a collar effectively reduces pain by minimizing motion and mitigating irritation of the nerve roots.

Recommended diet and Lifestyle: Same as Level 1

Follow Up: (every 15 days or earlier as per the need)

Referral Criteria:

- Same as mentioned earlier at level 1, Plus
- When the initial medical treatment does not produce improvement during an acute exacerbation.
- Advanced stages of disease like lateral or central disc herniation etc.

At Level 3 (Ayush hospitals attached to teaching institutions, District Level/Integrated/ State Ayush Hospitals, Tertiary care allopathic hospitals having Ayush facilities), multiple departments/facilities for diagnosis and interventions. Must provide additional facilities like dieticians, counselling, and physiotherapy unit.

Clinical Diagnosis: Same as levels 1& 2.

Confirm diagnosis and severity with the help of investigations like magnetic resonance imaging,

Management: Same as Level-1, 2 and/or the following treatment:

Single and Compound Unani Drugs for Internal Use

S. No.	Single Herb	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Turbud (Operculina turpethum* (L.) Silva Manso)[48]	Powder	3-5 g in two divided doses	After meal	15-30 days	Water	Pregnancy

S. No.	Single Herb	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicle)	Precaution/ Contraindication
2.	*Ṣibr* (*Aloe barbadensis* Mill.)[49]	Powder/ Decoction	1-4 g in two divided doses	After meal	15-30 days	Water	Pregnancy
3.	*Safūf-i-Sūranjān Za'farānī*[52]	Powder	3-5 g in two divided doses	After meal	15-30 days	Water	NS
4.	*Ḥabb-i-Muntin Akbar* [52]	Pills	5g in divided dose	After meal	15-30 days	Water	NS
5.	*Ḥabb-i-Mafāṣil*[53]	Pills	3-5 g	After meal	1-2 months	Water	NS
6.	*Ḥabb-i-Chobchīnī*	Pills	5-10 g	After meal	1-2 months	Water	NS
7.	*Ma'jūn-i-'Ushba* [47,48,52,57]	Semi-solid	7 g	After meal	1-2 months	Water	Diabetes Mellitus Type I & II
8.	*Ma'jūn-i- Adharāqī* [47,48,52]	Semi-solid	3-5 g	After meal	15-30 days	Water	Hypertension & Diabetes Mellitus Type I & II
9.	*Ma'jūn-i- Flāsifa* [47,48,52]	Semi-solid	5-10 g	After meal	1-2 months	Water	Diabetes Mellitus Type I & II
10.	*Ma'jūnTalkh*[52]	Semi-solid	5-10 g	After meal	1-2 months	Water	Diabetes Mellitus Type I & II

Oil for Local Application

S. No.	Formulation	Dosage Form	Dose per day	Time	Duration & Frequency	Precaution/ Contraindication
1.	*Roghan-i-Sūranjān* [47,48,52]	Oil	Q.S. for external use	Morning and night	1-3 months	NS
2.	*Roghan-i-Haft Barg*[47,52]	Oil	Q.S. for external use	Morning and night	1-3 month	NS

S. No.	Formulation	Dosage Form	Dose per day	Time	Duration & Frequency	Precaution/ Contraindication
3.	*Roghan-i-Bābūna Qawī*[52]	Oil	Q.S. for external use	Morning and night	1-3 months	NS
4.	*Roghan-i-ChahārBarg*[52]	Oil	Q.S. for external use	Morning and night	1-3 months	NS
5.	*Roghan-i-Awrāq*[55]	Oil	Q.S. for external use	Morning and night	1-3 months	NS

Ḍimād Muḥallil

- The paste prepared with the powder of *Iklīl al-Malik* (pods of *Astragallus homosus* L.) 1 part, *Bābūna* (*Matricaria chamomilla* L.) 1 part, *Asgand Nāgorī* (*Withania somnifera* (L.) Dunal) 1 part, *Mako* (*Solanum nigrum* L.) 1 part, *Tukhm-i-Khaṭmī* (*Althaea officinalis* L.) 1 part, *Rewand Chīnī* (*Rheum emodi* Wall. ex Meissn.) 1 part, *Muqil* (*Commiphora mukul* (Hook. ex Stocks) Engl.) ¼ part, and *Āb-i-Mako Sabz* (fresh juice of *Solanum nigrum* L.) or *Āb-i-Barg-i-Sambhālū* (fresh juice of *Vitex negundo* L.), is applied on the affected region of the neck.[52]

Ḍimād-i-Waja' al-Mafāṣil

- The paste prepared with *Ṣibr Zard* (*Aloe barbadensis* Mill.) 5 parts, *Za'farān* (*Crocus sativus* L.) 1 part, *Murr* (*Commiphora myrrha* (Nees) Engl.) 5 parts, and *Āb-i-Kāsnī* (fresh juice of *Cichorium intybus* L.) QS, is applied on the affected region of the neck.[55]

***Marham* (ointment)**:

- The ointment prepared with *Kunjad Muqashshar* (de-husked seeds of *Sesamum indicum* L.), *Muqil* (*Commiphora mukul* (Hook. Ex Stocks) Engl.), *Roghan-i-Bābūna* and *Āb-i-Marzanjosh* (fresh juice of *Origanum vulgare* L.), is applied on the affected region of the neck.
- The ointment prepared with *Tukhm-i-Ḥulba* (*Trigonella foenum-graecum* L.), *Tukhm-i-Katān* (*Linum usatissimum* L.), and *Roghan-i-Sosan*, is applied on the affected region of the neck.[58]

Management with *Munḍij o Mushil* therapy (concoctive and purgative therapy)

In case of accumulation of excessive *Balghamī Mādda* (phlegmatic matters) in the cervical intervertebral joints, the following Unani formulations may be given:

MM Therapy

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Sūranjān* (*Colchicum autumnale* L.) 5 g, *Chira'ita* (*Swertia chirayita* (Roxb. ex Flem.) Karst.) 7 g, *Shāhtra* (*Fumaria officinalis* L.) 7 g, *Aftīmūn* (*Cuscuta reflexa* Roxb.) 5 g, *Bisfā'ij Fustaqī* (*Polypodium vulgare* L.) 5 g, *'Unnāb* (*Zizyphus jujube* Mill.) 5 No., *Bādiyān* (*Foeniculum vulgare* Mill.) 7 g, *Bekh-i-Bādiyān* (*Foeniculum vulgare* Mill. root) 7 g[57]	Decoction (*Munḍij*)	100 ml	Morning before Breakfast	15-21 days	Water	Pregnancy
2.	**Note**: After completion of course of *Munḍij therapy* and appearance of signs of *Nuḍj* in urine, the following *Mushil* should be given:						
	Ayārij-i- Fayqrā[52]	Powder (*Mushil*)	3-5 g	Early Morning before Breakfast	2-3 days (after *Munḍij*)	Water	Pregnancy
3.	*Ma'jūn-i-Chobchīnī*[47,57]	Semisolid	7 g	Bedtime	15 days (after *Mushil*)		Diabetes Mellitus Type I & II

Management with *'Ilāj bi'l Tadbīr* (regimenal therapy): Described under principles of management as per assessment of the patient's condition and stage of disease by the physician

- ***Ḥijāma bi'l Sharṭ* (wet cupping / cupping with scarification)**
  - Viscid humours accumulated in the joints may be evacuated from the body.[36,39]
  - *Ḥijāma bi'l Sharṭ* may be performed for evacuation of humour.
- ***Inkibāb* (vapour bath)**

- Exposure of the affected spine to vapours of the decoction of *Tukhm-i-Soyā* (seeds of *Anethum sowa* Roxb. ex Flem.).[56]
- Decoction of the crushed *Harmal* (*Peganum hermala* L.) 1 part and *Sirka* (vinegar) 6 parts is also used for vapour bath.

Recommended Diet and Lifestyle: Same as levels 1& 2

Restricted Lifestyle: Same as levels 1& 2

Follow Up (every 15 days or earlier as per the need)

Referral Criteria

- Same as mentioned earlier at level 2, plus
- Other modalities can be considered depending on the case and to rehabilitate properly.

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4 LUMBAR SPONDYLOSIS

4

LUMBAR SPONDYLOSIS

(ICD-11code: FA80.0–FA8Z)

***Waja'al-Khāṣira* (National Unani Morbidity Code (NUMC):** L-2**)** http://namstp.ayush.gov.in/#/Unani

CASE DEFINITION

Lumbar spondylosis may be applied non-specifically to any and all degenerative conditions affecting the discs, vertebral bodies, and/or associated joints of the lumbar spine. Spondylosis is considered mechanistically, as the hypertrophic response of adjacent vertebral bone to disc degeneration creating clinical pain syndromes within the axial spine and associated nerves. The condition is said to be progressive and irreversible. [1,2,3]

Unani Medicine's perspective:

***Waja' al-Khāṣira* (lumbar spondylosis)**, arises in the form of pain from internal and external muscles and ligaments surrounding the lumbar and lumbosacral region due to *Sū'-i-Mizāj Bārid* (cold morbid temperament) and infiltration or accumulation of *Balgham Khām* (immature phlegm) or *Rīḥ Ghalīẓ* (thick gases) in this region. When this condition becomes chronic, it leads to hardening of the region resulting in stiffness and decreased mobility.[4]

INTRODUCTION (*incidence/ prevalence, morbidity/mortality*)

- Degenerative spine changes are remarkably common in population of aged 45–64 years to demonstrate osteophytes within the lumbar spine and as early as age of 39 and as late as age of 70 years.[1,5,6,7] Even younger persons are found with evidence of lumbar spondylosis. Degenerative changes have been found to be present in 3% of individuals aged 20–29 years.[2,3]
- Increased Body Mass Index (BMI), incident back trauma, daily spine loading (twisting, lifting, bending, and sustained non-neutral postures), and whole-body vibration (such as vehicular driving) to be factors which increase both the likelihood and severity of Spondylosis.[6,,]
- Genetic factors likely influence the formation of osteophytes and disc degeneration.[,,]

Unani Medicine's perspective:

Etiology

- *Sū'-i-Mizāj Bārid* (cold morbid temperament) occurring in lumbar region[4]

- Infiltration of *Balgham Khām* (immature phlegm) in lumbar region[4,]
- Accumulation of *Balgham Khām* (immature phlegm) in lumbar region[4,13]
- Accumulation of *Rīḥ Ghalīẓ* (thick gases) in lumbar region[4,13]

Pathology

According to Unani scholars, the lumbar region has a relatively lower temperature compared to the upper part of the back. This distinction is attributed to the lumbar region's anatomical placement, which is situated further away from the heart. Hence there is a high chance of accumulation of *Balgham Khām* (immature phlegm) and *Rīḥ Ghalīẓ* (thick gases). This leads to pain of lower back and hardening and stiffness of the region which result in occurrence of ***Waja' al-Khāṣira*** (lumbar spondylosis).

Risk Factors

- Bad posture while sitting[4]
- Excessive physical exertion[4]
- Lifting and pushing heavy objects[4]
- Strenuous movement[4]
- Excessive sexual indulgence[4]
- Cold weather[4]

DIAGNOSTIC CRITERIA

For the diagnosis of lumbar spondylosis previous history taking, physical examination, imaging studies are performed.[12] The initial evaluation for patients with low back pain begins with an accurate history and thorough physical exam with appropriate provocative testing. Pain within the axial spine at the site of these degenerate changes is due to nociceptive pain generators identified within facet joints, intervertebral discs, sacroiliac joints, nerve root dura, and myofascial structures within the axial spine.

A constellation of pain symptoms encompassed in the term *neurogenic claudication* which include to varying extents lower back pain, leg pain, as well as numbness and motor weakness to lower extremities that worsen with upright stance and walking, and improve with sitting and supine positioning.

Radiographic studies, whether plain X-ray film, CT or MRI, may provide useful confirmatory evidence to support an exam finding and localize a degenerative lesion or area of nerve compression.[1,16, 17,18]

CLINICAL EXAMINATION

All physical examinations will include the evaluation of the neurologic function for strength, sensation and reflexes of the arms, legs, bladder, and bowels.[17,18,,]

Symptoms:[15,17,18]

- Lower back pain
- Stiffness after prolonged periods of inactivity
- Radiating pain from the lower back to legs or buttock region
- Reduced flexibility and movement in the lower back
- Abnormal sensations of tingling and numbness
- Weakness of leg muscles.
- Changes in sphincter capacity such as neurogenic bladder or neurologic loss can be the after-effect of spinal cord compression from extreme degeneration of lumbar spine.

Unani Medicine's perspective:

- Gradually increasing pain[4]
- Gradually increasing heaviness[4]
- Pain relieved by movement, massage and hot objects[4]
- Increased pain during night and at rest[4]
- Morning stiffness[4]
- Affected site comparatively whitish[4]
- *Nabḍ Baṭī'* (slow pulse)[4]
- Whitish urine[4]

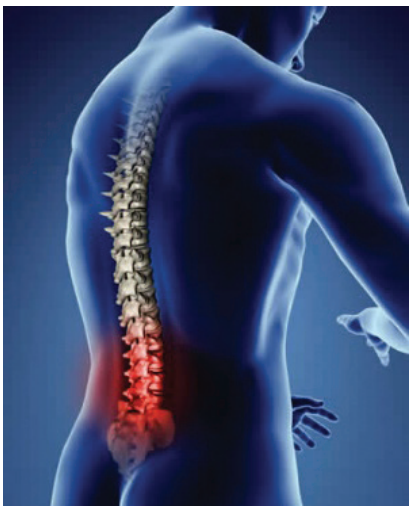
Signs:

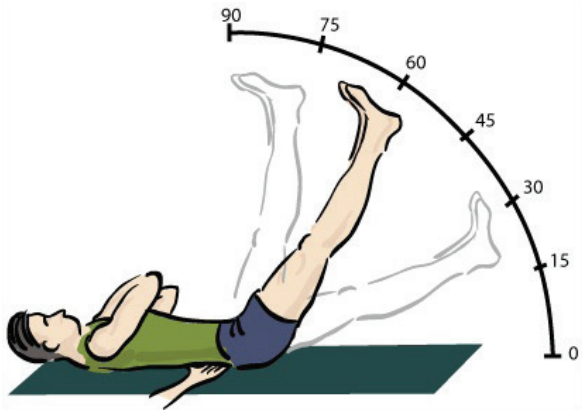
The Straight Leg Raise (SLR) test is commonly used to identify disc pathology or nerve root irritation, as it mechanically stresses lumbosacral nerve roots, hence useful for ruling out lumbo-sacral radiculopathy. It also has specific importance in detecting disc herniation and neural compression. It is also classified as a neurodynamic evaluation test as it can detect excessive nerve root tension or compression. The SLR test is more sensitive than specific. Adding structural differentiation (e.g., neck flexion, ankle dorsiflexion, hip adduction) improves the reliability of the SLR test in clinical practice.

- Inclusion of neck flexion in the SLR is documented as Hyndman's sign, Brudzinski's Sign, Linder's Sign, or the Soto-Hall test.
- Inclusion of ankle dorsiflexion in the SLR is documented as Lasegue's test or Bragard's test. Lasègue's sign is said to be positive if the angle to which the leg can be raised (upon straight leg raising) before eliciting pain is <45°.
- Inclusion of great toe extension in the SLR (instead of ankle dorsiflexion) is documented as Sicard's Test.

A true positive SLR test should include:

- Radicular leg pain (symptoms below the knee).
- Pain occurs when hip is flexed at 30^0 and 600 or 700 from horizontal. Neurological pain which is reproduced in the leg and lower back between 300-700of hip flexion is suggestive of lumbar disc herniation at the L4-S1 nerve roots.[22]





Waddell Signs[25]

A comprehensive examination should also include ruling out non-organic causes of low back pain/symptoms. When the clinician suspects potential psychological causes, consideration should be given to the following:

- Nonspecific description of symptoms or inconsistency, including superficial/non-anatomic sites of tenderness on examination
- Pain with axial load/rotational movements
- Negative SLR with patient distraction (one approach includes having the patient sit in a chair and reproducing the SLR "environment")
- Non-dermatomal patterns of distribution of symptoms
- Pain out of proportion on examination

Complications[25]

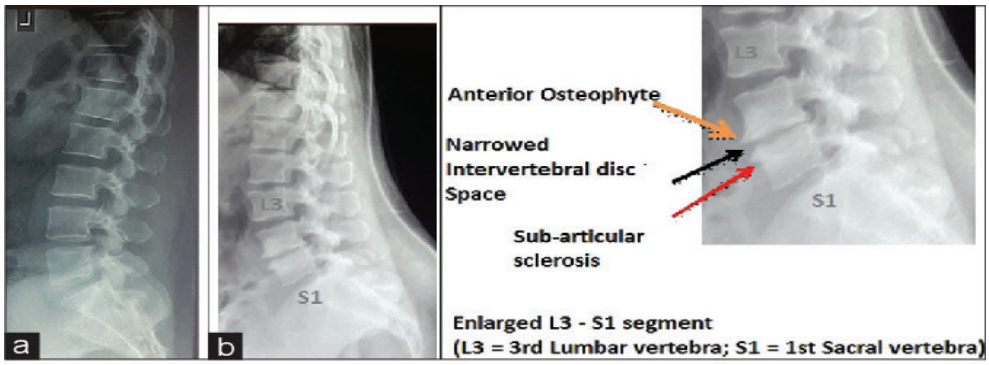
- Worsening symptoms of lumbar spondylosis
- Worsening neurological deficits
- Worsened intervertebral disc herniation
- Narrowing of spinal canal due to secondary osteophytes
- Affecting the patient's life in all aspects

SUPPORTIVE INVESTIGATIONS

Usually, clinical assessment is sufficient for diagnosis, but diagnostic imaging like X-rays, MRI, and EMG can confirm it, if necessary, demonstrating normal distal motor and sensory nerve conduction studies.[26] Radiographic studies, whether plain X-ray film, CT or MRI may provide useful confirmatory evidence to support an exam finding and localize a degenerative lesion or area of nerve compression.1 Plain X-rays are the first line of evaluation whereas CT and MRI are modalities for detailed investigation.

ssential Investigations:

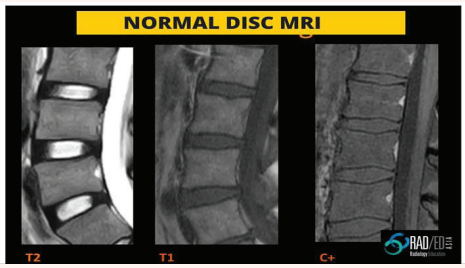
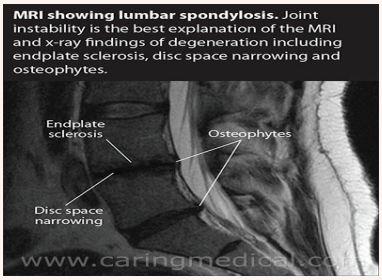
Investigation	Findings[2,3]
Plain or Digital x-ray Lumbar spine (AP, Lat.)	• Osteophytes • Thickening of facet joints • Narrowing of the intervertebral disc spaces.



Lateral radiograph of normal (a) and spondylotic (b) lumbo-sacral[27]

Advanced investigations:

Investigation	Findings[2,3]
Magnetic resonance imaging (MRI) of the Lumbar Spine	It's the preferred choice for suspected serious conditions. With advancement, MRI is now considered as an ideal, accurate and reliable modality for the assessment and evaluation of lumbar spondylosis which involves features of degenerative disc disease, degenerative endplate changes, disc herniation, spinal compression, and consequences of instability in degenerative lumbar spondylosis. CT does not give this direct evaluation. On MRI images, diagnosis of desiccated vertebral discs and lumbar spondylosis is made by changes in the signal intensity of vertebral body end plate.[15]
Blood tests	Generally, blood tests are not required for diagnosis of lumbar spondylosis but to exclude other pathologies or complications, full blood count, ESR, CRP, protein electrophoresis and other necessary tests, e.g., HLA-B27.
Electromyography (EMG)	To exclude other pathologies or complications

MRI of Normal Lumbar Spine	MRI of Lumbar spondylosis[1]
	

DIFFERENTIAL DIAGNOSIS

Diagnosis with Specific Pathology	Differentiating features
Cauda equina syndrome	• Back pain and sciatica as in lumbar spondylosis • Weakness and changes in sensation in the lower extremities • Bowel and bladder dysfunction • Sexual dysfunction in males • Saddle anaesthesia: Absence of sensation in the second-fifth sacral nerve roots, the perianal region
Ankylosing spondylitis	• Back pain is common as in lumbar spondylosis • Onset of symptoms before the age of 40, gradual and insidious onset • Relief with exercise, lack of improvement with rest and nocturnal pain with improvement upon arising. • Spinal stiffness, limited mobility and postural changes, particularly hyperkyphosis. • Association of HLA-B27 • Elevated levels of acute phase reactants, such as erythrocyte sedimentation rate (ESR) and elevated C-reactive protein (CRP). • Radiographic features of squaring of vertebral bodies, bamboo spine sign.
Fibromyalgia / Muscle spasm	• Poorly localized pain, difficult to ignore, severe in its intensity, & associated with a reduced functional capacity. • Fatigue, stiffness, sleep disturbance, cognitive dysfunction, anxiety, and depression.
Spinal cord tumor	• Pain is the most common symptom which mimics lumbar spondylosis. • Common symptoms of spinal cord compression include muscle weakness, sensory loss, numbness in hands and legs, and rapid onset paralysis. • Bowel or bladder incontinence often occurs in the later stages of the disease.
Spinal infection	• Back pain is the most common presenting symptom as in lumbar spondylosis • Neurologic impairment including sensory loss, weakness, or radiculopathy • Fever is common in viral infections • Pain may be elicited through palpation or percussion of spinous processes overlaying spinal epidural abscess. • Vertebral osteomyelitis, spinal epidural abscess, etc.

Diagnosis with Specific Pathology	Differentiating features
Lumbar Spondylolisthesis	• Typically have intermittent and localized low back pain • Pain is exacerbated by flexing and extending at the affected segment, improve in certain positions such as lying in supine position. • Other symptoms like buttock pain, numbness, or weakness in the leg(s), difficulty walking, and rarely loss of bowel or bladder control.
Lumbar Spondylolysis	• Manifest symptoms constituting insidious onset of recurrent axial low back pain that increases with activity and exacerbated by lumbar hyperextension. • Increased lumbar lordosis, tight hamstrings, reduced trunk range of motion (particularly with extension), tenderness to palpation overlying the pars fracture site • A positive stork test (single leg hyperextension and rotation of the spine which reproduces the patient pain • Characteristic absence of any radiculopathy.
Intervertebral disc prolapse	• Low back pain, sensory abnormalities, weakness at the lumbosacral nerve roots distribution as in lumbar spondylosis • Limited trunk flexion • Pain exacerbation with straining, coughing, and sneezing • Pain intensified in a seated position, as the pressure applied to the nerve root is increased by approximately 40% • Narrowed intervertebral space, traction osteophytes, and compensatory scoliosis on X-ray • Over 85 to 90% of patients with an acute herniated disc experience relief of symptoms within 6 to 12 weeks without any treatments

Unani Medicine's perspective

Differential diagnosis:[4]

Character	***'Irq al-Nasā*** (sciatica)	***Waja' al-Khāṣira*** (lumbar spondylosis)	***Waja' al-Ẓahr*** (backache)
• Onset	• Gradual	• Abrupt/gradual	• Abrupt/gradual
• Pain	• Pain originates in the spine and radiates down the back of the leg	• Gradually increasing pain in lumbar region	• Gradually increasing pain in upper portion of back
• Nature of pain	• Pain radiates down the back of the leg	• Pain may or may not radiate down	• Pain does not radiate down
• Heaviness	• Heaviness along the course of pain	• Gradually increasing heaviness	• Gradually increasing heaviness

PRINCIPLES OF MANAGEMENT

Red Flag signs of Lumbar Spondylosis:

These signs should be assessed before initiating treatment for management through modern medicine.

- Widespread weaknesses or loss of sensation (more than one myotome or dermatome)
- Anything that suggests myelopathy and these include: slow onset, neurological symptoms, difficulty during walking, weak hand or foot movement, loss of bowel bladder or bowel function.
- Any lower motor neuron signs
- Any symptoms that suggest cancer
- History of cancer, AIDS, or infection
- Tenderness of low back vertebrae suggesting trauma or fracture
- History of violent trauma, before the low back pain
- Recent surgery of the low back
- Risk of osteoporosis (not exclusive to the low back)
- Vascular signs and symptoms such as dizziness, black outs and drop attacks.

Patients need education about their LS diagnosis, as there are common misconceptions and concerns about potential disability. Patients over-emphasize the value of radiological studies and have mixed perceptions of the relative risk and effectiveness of surgical intervention and conservative management. It's important to emphasize the natural course of LS and discuss therapeutic options, which include lifestyle changes like exercise and maintaining good posture when sitting and standing. The treatment is required for back pain and radicular pain rather than lumbar spondylosis. Simple first line care like advice, reassurance, and self-management with a review at 1-2 weeks is required and should be given non-pharmacologic treatments for pain relief such as lifestyle adjustments, weight control, yoga, exercise, patient education, psychosocial support, assistive devices, thermal treatments, and modifications in daily activities, etc. If patients need second line care, non-pharmacological treatments (e.g., physical, and psychological therapies) should be tried before pharmacological therapies. If pharmacological therapies are used, they should be used at the lowest effective dose and for the shortest period of time possible. Exercise and/or cognitive behavioral therapy, with multidisciplinary treatment may be required for more complex presentations.[38,39,40,] If the patient is already under standard care (anti-inflammatory/analgesics/steroids), the physician may advise to taper the same gradually along with add-on Unani therapy and can be re-assessed in the follow-ups for discontinuing the standard treatment in consultation with a conventional physician.

Prevention management

While lumbar spondylosis is often associated with aging, there are some lifestyle modifications which can help to reduce the risk of disease:

- Avoid excessive psychological and physical stress. Stress may cause exacerbation of pain and stiffness.

- Maintain healthy body weight through balanced diet along with regular physical activity and exercises. Excess weight can place added stress on the spine.
- Maintain good posture, both while sitting and standing which can reduce strain on the lower back.
- Avoid forward bending exercise and jogging, running, jerking vigorously.
- Avoid carrying heavy bags and lifting heavy weights.
- Avoid trauma to the back.
- Avoid smoking. Smoking can contribute to disc degeneration.
- Proper ergonomics in the workplace and at home can reduce the risk of developing lumbar spondylosis.

Unani Medicine's perspective:

Principles of Management

General line of treatment as mentioned in Classics:

- *Taskīn-i-Alam* (analgesia)[13,14]
- *Tanqiya* (evacuation of morbid matter)[4]
- *Ta'dīl-i-Mizāj* (moderation of morbid temperament)[4]
- *Taskhīn* (calefaction) of the body and the affected part[4]

A comprehensive plan for the management of Lumbar spondylosis in an individual patient may be needed. A single physical, psycho-social, or pharmacologic intervention (Unani topical, and oral medications; single and compound formulation) may be adequate to control symptoms in some patients. While in severe and chronic cases, multiple interventions may be used in sequence or in combination to treat the patients.

'Ilāj bi'l Dawā' (pharmacotherapy) [IUMT-7.1.10] and *'Ilāj bi'l Tadbīr* (regimenal therapy) [IUMT-7.2.0] are considered the mainstay of treatment in case of back pain of all types. *'Ilāj bi'l Tadbīr* (regimenal therapy) includes [IUMT-7.2.30] *Ḥijāma bilā Sharṭ* (dry cupping) [IUMT-7.2.32][43,44,45,46] and *Ḥijāma bi'l Sharṭ* (wet cupping) [IUMT-7.2.31][46], *Qay'* (inducing emesis) [IUMT-7.2.3], *Ḥammām* (therapeutic bath) [IUMT-7.2.70][47], *Munḍi-o-Mushil* therapy (concoctive and purgative therapy) [IUMT-6.1.134] &[IUMT- 6.1.146][4], *Dalk* (therapeutic massage) [IUMT-7.2.92][4], *Ḍimād* (Poultice) [IUMT-6.2.52][47], *Tamrīkh* (embrocation/anointing) [IUMT-6.2.106][47], *Naṭūl* (Douche) [IUMT-6.2.95][4], *Takmīd Ḥārr* (hot fomentation)[47etc.]

For prevention of progression

- Avoiding the causes that may lead to ***Waja' al-Khāṣira*** (lumbar spondylosis) e.g. intake of phlegm-producing diet, strenuous exercise, excessive sexual indulgence, etc.[4]

- **Correction of humoural and temperamental derangement:** Low backache is mostly caused by cold morbid temperament and accumulation of *Balgham Khām* (immature phlegm) in lumbar region. The basis of correction of ***Waja' al-Khāṣira*** (lumbar spondylosis) is food and lifestyle modification, along with correction of morbid temperament and evacuation of causative humour with the administration of ***Waja' al-Khāṣira*** (lumbar spondylosis) specific medications.[4]

Interventions

At Level 1- Solo Physician Clinic/Health Clinic/PHC (Optimal standard of treatment where technology and resources are limited)

Clinical Diagnosis: The diagnosis of LS relies primarily on clinical evaluation following a thorough medical history and physical examination. Occasionally, additional investigations such as X-ray /MRI and a complete blood count.

Recommended Diet and Lifestyle[48]:

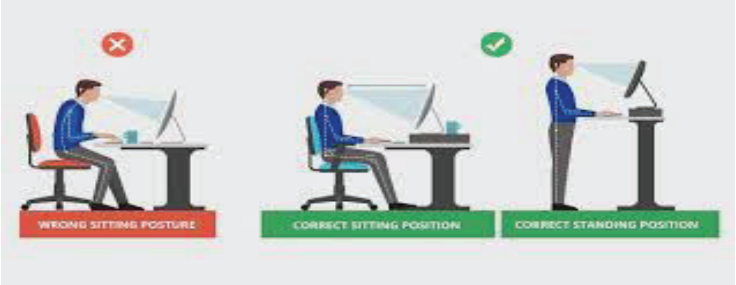
After a long period of inactivity, start a routine of gentle exercises, such as yoga, to stretch and strengthen muscles and improve posture. Incorporate age-appropriate low-impact exercises to strengthen the lower back. Remember to always stretch before any strenuous physical activity.

- Whether at home or in the workplace, ensure that the work surface is at a comfortable and appropriate height.
- Sit on a chair with proper lumbar support, ensuring it is at the right height for the task. Maintain proper posture with shoulders back. Alternate sitting positions regularly and take periodic breaks to walk around or gently stretch muscles to relieve tension. Rest feet on a low stool if one must sit for extended periods.
- Wear comfortable, low-heeled shoes.
- To minimize spinal curvature, sleep on the side. Always choose a firm and flat surface for sleeping.
- Ensure proper nutrition and diet to mitigate and prevent excessive weight gain. A diet with adequate daily amounts of calcium, phosphorus, and Vitamin D supports healthy bone growth.

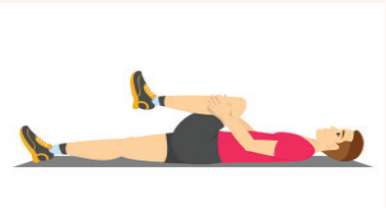
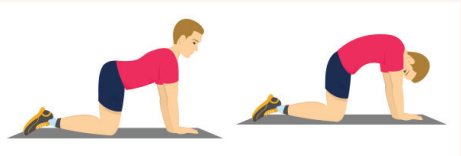
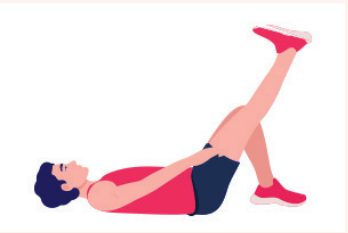
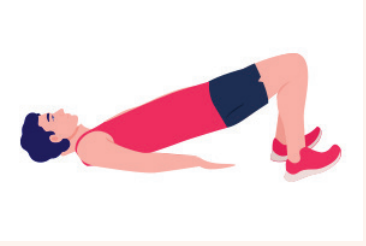
Posture[49]

Posture is important when experiencing neck pain. Some examples of good and bad sitting and lying postures are as follows:

Prolonged sitting is generally accepted as an important risk factor, and it is frequently suggested that a lordotic posture should be maintained in the lumbar spine while sitting.



Exercises recommended for LS:[50, 51]

Exercises	Procedure	Demonstration
Pelvic - tilt	• Lie on your back with your knees bent. • Tighten your stomach muscles and push your lower back towards the floor. • Hold for 5-10 seconds. • Relax. • Repeat 10 times.	
Knee-Chest	• Lie on your back with your knees bent • Bring one knee towards your chest • Hold for 5-10 seconds • Repeat with the other knee • Repeat 10 times for each knee	
Cat – cow Stretches	• Start on your hands and knees • Arch your back and look up (cow stretch) • Round your back and look down (cat stretch) • Repeat 10 times	
Hamstring Stretch	• Lie on your back with one leg straight and the other bent • Keep the straight leg raised and hold onto the back of your thigh • Hold for 10-15 seconds • Repeat with the other leg	
Bridging	• Lie on your back with your knees bent • Lift your hips up towards the ceiling • Hold for 5-10 seconds • Lower down • Repeat 10 times	

Yoga practices for the management of LS:[52,53,54]

Various yoga practices are helpful for the management of patients with low back pain. Some of the asanas are *Dhanurasana*, *Natarajasana*, *Setu Bandhasana*, *Matsyasana*, *Naukasana*, *Marjarisana, Ardha Setu Bandhasana, Shashankasana, Anahatasana, Paschimottanasana, Bhujangasana*, *Malasana*, *etc*. These asanas are helpful in strengthening lower back and abdominal muscles, increasing flexibility of the spine, enhancing the blood circulation in hip joints.

Restricted diet and lifestyle:[41,50,]

- Do not take excess of salt, sweets, dessert, hydrogenated fat, soft drink, refined grain, tea and coffee.
- Do not take stress.
- Avoid food that causes overweight.
- Avoid exercising during flare up or acute pain.
- Do not sit on a low soft couch with a deep seat and when getting up from sitting, keep the normal curves in back.
- Avoid half bent positions while standing.
- Avoid lifting heavy weights.
- Do not sleep on stomach.
- Seat must be close enough to the wheel to keep the natural curves of the back.
- Avoid Fried foods, spicy, oily foods, excessive meats and refined foods like sweets, confectionery, bread, and other refined wheat products. These along with other factors contribute to the development of LS and bone demineralization.

Unani medicine's perspective

Dos & Don'ts

Dos	Don'ts (disease aggravating factors)
• Rest[4] • Adequate sleep[4] • Intake of easily digestible diet[4] • Gruel of black lentil[4] • *Shīra'-i-Bādām* (semi liquid material obtained after grinding the kernel of almond)[4] • Massage with olive oils/oils of hot temperament[4] • Pouring of lukewarm water on affected part[4] • *Aghdhiya Hārra* (food of hot temperament)[13]	• Intake of cold water[4] • Intake of juicy fruits[4] • Intake of cold and moist vegetables[4] • *Aghdiya Ghalīẓa* (thick humours producing diets)[4] • Strenuous Exercise[13] • Incorrect posture[4] • Lifting and pushing heavy objects[4] • Excessive sexual indulgence[4]

OPD level management – If the patient shows mild features of *Waja' al-Khāṣira* (lumbar spondylosis) and slight restriction of movement, two or more of the following forms of medications may be given along with diet restriction:

Single drugs and compound formulations for internal or external use

S. No.	Single drugs/ Compound Formulation	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicle)
1.	*Zanjabīl* (*Zingiber officinale* Rosc.)	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water
2.	*Chobchīnī*[56] (*Smilax china* L.)	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water
3.	*Ḥabb-i- Sūranjān*[56]	Pills	1-3 g. in two divided doses	After meal	15 days to 1 month	water
4.	*Ḥabb-i-Asgand*[56]	Pills	500 mg-1 g.	After meal	15 days to 1 month	water
5.	*Ma'jūn-i-Chob Chīnī*[56]	Semi-solid preparation	5-10 g. in two divided doses	After meal (Contra indicated in Diabetes Mellitus Type I & II)	15 days to 1 month	water
6.	*Ma'jūn-i-Sūranjān*[56]	Semi-solid preparation	5-10 g. in two divided doses	After meal (Contra indicated in Diabetes Mellitus Type I & II)	15 days to 1 month	water
7.	*Roghan Surkh*[56]	Oil for local application	Quantity sufficient (Q.S.) for external use	As directed by the physician	15 days to 1 month	
8.	*Roghan-i-Qusṭ*[4,14]	Oil for local application	Q.S. for external use	As directed by the physician	15 days to 1 month	
9.	*Roghan-i-Sudāb*[56]	Oil for local application	Q.S. for external use	As directed by the physician	15 days to 1 month	
10.	*Ḍimād Muḥallil*[56]	Poultice	Q.S. for external use	As directed by the physician	15 days to 1 month	

Note: Out of the drugs mentioned above, any one or a combination of two or more may be prescribed by the physician. *'Ilāj bi'l Tadbīr* (regimenal therapy) described under principles of management may be recommended as per assessment of physician about the condition of the patient and stage of disease. The duration of the treatment may vary from patient to patient. The physician should decide the dosage (per dose) and duration of the therapy based on the clinical findings and response to the therapy.

Recommended and restricted diet & lifestyle – as mentioned in table of Dos & Don'ts

Follow up (Every 15 days or earlier as per the need of the patient)

Reviews should include:

- Monitoring the person's symptoms and the ongoing impact of the condition on their everyday activities and quality of life.
- Monitoring the long-term course of the condition.
- Management of LBP in terms of exercise, and physiotherapy.
- Discussing the person's knowledge of the condition, any concerns they have, their personal preferences, and their ability to access services.
- Reviewing the effectiveness and tolerability of all treatments.
- Self-management support.

Referral Criteria

- Non-response to treatment
- Evidence of an increase in severity/complications such as progressive or severe neurological deficit in the lower extremity
- Substantial impact on their quality of life and activities of daily living
- Diagnostic uncertainty
- Uncontrolled co-morbidities, such as diabetes, hypertension or associated cardiac disease.

At Level 2 (CHC/Small hospitals (10-20 bedded hospitals with basic facilities such as routine, investigation, X-ray)

Clinical Diagnosis: Same as level 1. The case referred from Level 1, or a fresh one, must be evaluated thoroughly for complications.

Investigations: The diagnosis would be primarily clinical. However, some investigations may be necessary to investigate complications or exclude other differential diagnoses as follows:

- Haemogram
- X-ray
- Magnetic resonance imaging
- C-reactive protein

Physiotherapy Management:[1]

- Transcutaneous electrical nerve stimulation (TENS): A 'TENS' unit is a therapeutic modality involving skin surface electrodes which deliver electrical stimulation to peripheral nerves in an effort to relieve pain noninvasively.

- Lumbar supports: Lumbar back supports may provide benefit to patients suffering chronic LBP secondary to degenerative processes through several potential, debated mechanisms. Supports are designed to limit spine motion, stabilize, correct deformity, and reduce mechanical forces. They may further have effects by massaging painful areas and applying beneficial heat.
- Traction: Lumbar traction applies a longitudinal force to the axial spine through use of a harness attached to the iliac crest and lower rib cage to relieve chronic low back pain. The forces, which open intervertebral space and decrease spine lordosis, are adjusted both with regard to level and duration and may closely be measured in motorized and bed rest devices.
- Spine manipulation: Spine manipulation is a manual therapy approach involving low-velocity, long lever manipulation of a joint beyond the accustomed, but not anatomical range of motion.
- Massage therapy: Massage therapy for chronic LBP appears to provide some beneficial relief.

Recommended and restricted diet & Lifestyle as mentioned in Level-1

Unani Medicine's perspective

Management with single drugs and compound formulations for internal or external use

S. No.	Single drug/ Compound Formulation	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Zard Chob* (*Curcuma longa* L.)	Powder/ Decoction	5-7 g. in two divided doses	After meal	15-30 days	Water	Nothing Specific (NS)
2.	*Asgand* (*Withania somnifera* (L.) Dun.[57]	Powder	5-10 g. in three divided doses	After meal	15-30 days	Water	NS
3.	*Muqil* (*Commiphora mukul* (Hook. ex Stocks) Engl.)[57]	Powder/ Decoction	1-1.5 g. in two divided doses	After meal	15-30 days	Water	NS
4.	*Qusṭ* (*Saussurea lappa* C. B. Clarke)[57]	Powder/ Decoction	2-3 g. in two divided doses	After meal	15-30 days	Water	NS
5.	*Safūf-i-Sūranjān*	Powder	5-10 g. in two divided doses	After meal	15-30 days	Water	NS
6.	*Ḥabb-i-Muqil*[58,59]	Pills	2 pills	After meal	15-30 days	Water	NS

S. No.	Single drug/ Compound Formulation	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicle)	Precaution/ Contraindication
7.	*Ma'jūn-i- Jograj Gūgal*[58,59]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15-30 days	Water	Diabetes Mellitus Type I & II
8.	*Ma'jūn-i-Ghīkvār*	Semi-solid preparation	10 g. in two divided doses	After meal	15-30 days	Water	Diabetes Mellitus Type I & II
9.	*Kushta-i-Ga'odantī*[58,59]	Powder	60-120 mg in two or three divided doses	After meal	15-30 days	Water	NS
10.	*Ḥalwa-i-Ghīkvār*[58,]	Semi-solid preparation	12-25 g. in two divided doses	After meal	1-2 months	Milk	Diabetes Mellitus Type 1 &II

Oil for external application

S. No.	Formulation	Dosage form	Dose per day	Time	Duration & Frequency	Precaution/ Contraindication
1.	*Roghan-i-Mom*[56]	Oil	Q.S. for external use	Morning and night	1-2 months	NS
2.	*Roghan-i- Māl-kanganī*[59]	Oil	Q.S. for external use	Morning and night	1-2 months	NS
3.	*Roghan-i- Ḥinnā*	Oil	Q.S. for external use	Morning and night	1-2 months	NS
4.	*Roghan-i- Shibit*[62]	Oil	Q.S. for external use	Morning and night	1-2 months	NS

***Ḍimād* (Poultice):**

It is prepared with *Bābūna* (*Matricaria chamomilla* L.), *Ḥabb al-Ghār* (*Laurus nobilis* L.), *Ḥulba* (*Trigonella foenum-graecum* L.) *Ushaq* (*Dorema ammoniacum* D. Don.) *Muqil* (*Commiphora mukul* (Hook. ex Stocks) Engl.), all taken in equal quantity and mixed with *Roghan-i-Bed Injīr* (castor oil) and *Lu'āb-i-Tukhm-i Katān* (*Linum usitatissimum* L.) and is applied on the lower back.[4]

- In case of accumulation of excessive *Balghamī Mādda* (phlegmatic matters) at the affected site, the following formulations may be given.

Management with *Munḍij-o-Mushil* therapy (concoctive and purgative therapy):

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Gul-i-Banafsha* (*Viola odorata* L. flowers) 7 g., *Chirā'ita* (*Swertia chirayita* (Roxb. ex Flem.) Karst.) 7 g., *Shāhtara* (*Fumaria officinalis* L.) 7 g., *Mako Khushk* (dried *Solanum nigrum* L.) 5 g., *Bādiyān* (*Foeniculum vulgare* Mill.) 7 g., *Bekh-i-Bādiyān* (*Foeniculum vulgare* Mill. Root) 7 g., *Sūranjān* (*Colchicum autumnale* L.) 5 g., *Mawīz Munaqqā* (Deseeded dried fruit of *Vitis vinifera* L.) 9 numbers.[63]	Decoction (*Munḍij*)	100 ml	Morning before the meal	14-21 days	Water	Pregnancy
2.	**Note:** After completion of course of above *Munḍij* (concoctive**)** and appearance of signs of *Nuḍj* (concoction*)* in urine*,* following *Mushil* (purgative*)* will be given:						
	Gul-e-Surkh (Flower of *Rosa damascena* Mill.) 7 g., *Sanā* (Leaves of *Cassia angustifolia* Vahl.) 7 g., *Maghz-i-Falūs Khayārshambar* (Pulp of fruit devoid of seeds *Cassia fistula* L.) 46.8 g., *Turanjbīn* (*Alhagi pseudalhagi* (Bieb.) Desv.) 46.8 g., *Maghz-i-Bādām* (Seed kernel of *Amygdalus communis* L.) 5 g.	Decoction (*Mushil*)	100 ml	Early morning before the meal	2-3 days (after appearance of *Nuḍj* (concoction).	Water	Pregnancy

- **Management with *'Ilaj bi'l Tadbīr* (regimenal therapy):**
- ***Ḥijāma bilā Sharṭ* (dry cupping)** [IUMT-7.2.32]**:**
  - To divert the accumulated morbid humours from the affected joints.[43]
- ***Inkibāb* (vapour bath) [** IUMT-6.2.115]**:**
  - Fomentation with vapours of the decoction of *Tukhm-i-Shibit* (seed of *Anethum sowa* Roxb. ex Fleming) on the affected part.[45]

Recommended and restricted diet & Lifestyle: Same as Level-1

Follow Up: (every 15 days or earlier as per the need)

Referral Criteria:

- Same as mentioned earlier at level 1, Plus
- When the initial medical treatment does not produce improvement during an acute exacerbation.
- Advanced stages of disease like lateral or central disc herniation etc.

At Level 3 (Ayush hospitals attached to teaching institutions, District Level/Integrated/ State Ayush Hospitals, Tertiary care allopathic hospitals having Ayush facilities), multiple departments/facilities for diagnosis and interventions including additional facilities like dieticians, counselling, and physiotherapy unit.

Clinical Diagnosis: Same as levels 1& 2.

Confirm diagnosis and severity with the help of investigations like magnetic resonance imaging.

Management: For the patients referred from Level 1 or 2, the treatment received at Level 1 and/ or 2, may be continued, if appropriate for the presenting complaints. For new patients at this level, any of the following medications along with any oil mentioned may be included as appropriate. At this level, the patient may be preferably treated in the indoor department.

Unani Medicine's perspective:

Management with single drugs and compound formulations for internal or external use

S. No.	Single Herb	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicl)	Precaution/ Contraindi-cation
1.	*Turbud* (*Operculina turpethum* (L.) Silva Manso)	Powder	3-5 g. in two divided doses	After meal	15-30 days	Water	Pregnancy
2.	*Safūf-i-Sūranjān Za'farānī*[59]	Powder	3-5 g. in two divided doses	After meal	15-30 days	Water	NS
3.	*Ḥabb-i-Muntin Ak-bar*[59]	Pills	5g. in divided doses	After meal	15-30 days	Water	NS

S. No.	Single Herb	Dosage form	Dose per day	Time	Duration & Frequency	*Badraqa* (vehicl)	Precaution/ Contraindi-cation
4.	*Ḥabb-i-Mafāṣil*[60]	Pills	3-5 g.	After meal	1-2 months	Water	NS
5.	*Ḥabb-i-Chobchīnī*	Pills	10 g.	After meal	1-2 months	Water	NS
6.	*Ma'jūn-i- Azrāqī*[58,59,63]	Semi-sol-id prepa-ration	3-5 g.	After meal	15-30 days	Water	Hypertension & Diabetes Mellitus Type I & II
7.	*Ma'jūn-i- Flāsifa*[58,59]	Semi-sol-id prepa-ration	5-10 g.	After meal	1-2 months	Water	Diabetes Mellitus Type I & II
8.	*Ma'jūn Talkh*[59]	Semi-sol-id prepa-ration	5-10 g.	After meal	1-2 months	Water	Diabetes Mellitus Type I & II
9.	*Aujaiya*	Tablets	2 tab. Twice daily	After meal	1-2 months	Lukewarm Water	NS

Oil for external application

S. No.	Formulation	Dosage form	Dose per day	Time	Duration & Frequency	Precaution/ Contraindica-tion
1.	*Roghan-i-Sūranjān*[58,59]	Oil	Q.S. for external use	Morning and night	1-3 months	NS
2.	*Roghan-i-Haft Barg*[59]	Oil	Q.S. for external use	Morning and night	1-3 month	NS
3.	*Roghan-i-Bābūna Qawī*[59]	Oil	Q.S. for external use	Morning and night	1-3 months	NS
4.	*Roghan-i-Chahār Barg*[59]	Oil	Q.S. for external use	Morning and night	1-3 months	NS
5.	*Roghan-i-Awrāq*[62]	Oil	Q.S. for external use	Morning and night	1-3 months	NS

- ***Ḍimād* (Poultice):**

- ***Ḍimād Muḥallil*:** The paste is prepared with the powder of *Iklīl al-Malik* (*Trigonella uncata* Boiss.) 1 part, *Bābūna* (*Matricaria chamomilla* L.) 1 part, *Asgand Nagorī* (*Withania somnifera* (L.) Dun.) 1 part, *Mako* (*Solanum nigrum* L.) 1 part, *Tukhm-i-Khaṭmī* (*Althaea officinalis* L.) 1 part, *Rewand Chīnī* (*Rheum emodi* Wall. ex Meissn.)1 part, *Muqil* (*Commiphora mukul* (Hook. ex Stocks) Engl.) ¼ part, and *Āb-i-Mako Sabz* (fresh juice of *Solanum nigrum* L.) or *Āb-i-Barg-i-Sambhālū* (fresh juice of *Vitex negundo*L.), which is applied on the affected part.[62]

- ***Ḍimād-i-Waja' al-Mafāṣil*:** The paste is prepared with *Ṣibr Zard* (*Aloe barbadensis* Mill.) 5 parts, *Za'farān* (*Crocus sativus* L.) 1 part, *Murr* (*Commiphora myrrha* (Nees) Engl.) 5 parts, and *Āb-i-Kāsnī* (fresh juice of *Cichorium intybus* L.) Q. S. and applied on the affected part.[62]
- ***Marḥam* (Ointment)** [IUMT-6.2.51]: The ointment is prepared with *Kunjad Muqashshar* (de-husked seeds of *Sesamum indicum* L.), *Muqil* (*Commiphora mukul* (Hook. Ex Stocks) Engl.), *Roghan-i-Bābūna* and *Āb-i-Marzanjosh* (fresh juice of *Origanum vulgare* L.) and applied on the affected part.
- The ointment prepared with *Tukhm-i-Ḥulba* (*Trigonella foenum-graeceum* L.), *Tukhm-i-Katān* (*Linum usitatissimum* L.), and *Roghan-i-Sosan* is applied over the affected part.

- In case of accumulation of excessive *Balghamī Mādda* (phlegmatic matters) at the affected site, the following formulations may be given.

Management with *Munḍij-o-Mushil* therapy (concoctive and purgative therapy):

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Sūranjān* (*Colchicum autumnale* L.) 5 g., *Chirā'ita* (*Swertia chirayita* (Roxb. ex Flem.) Karst.) 7 g., *Shāhtra* (*Fumaria officinalis*L.) 7 g., *Aftīmūn* (*Cuscuta reflexa* Roxb.) 5 g., *Bisfā'ij Fustaqī* (*Polypodium vulgare* L.) 5 g., *'Unnāb* (*Zizyphus jujube* Mill.) 5 No., *Bādiyān* (*Foeniculum vulgare* Mill.) 7 g., *Bekh-i-Bādiyān* (*Foeniculum vulgare* Mill. root) 7 g.[63]	Decoction (MM therapy)	100 ml	Morning before the meal	14-21 days	Water	Pregnancy

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
2.	**Note:** After completion of course of above *Munḍij* (concoctive) and appearance of signs of *Nuḍj* (concoction) in urine, following *Mushil* (purgative) will be given:						
	Ayārij-i- Fayqrā[59]	Powder	3-5 g.	Early morning before the meal	2-3 days (after appearance of *Nuḍj*)	Water	Pregnancy
After completion of *Mushil* (purgative) therapy following drug will be given							
3.	*Ma'jūn-i-Chobchīnī*[63]	Semi-solid preparation	7 g.	After the meal at bedtime	15 days (after *Mushil* (purgative) therapy)	Water	Diabetes Mellitus Type I & II

Management with *'Ilaj bi'lTadbīr* (regimenal therapy):

- ***Ḥijāma bi'l Sharṭ* (wet cupping/cupping with scarification):** It is advised to evacuate the viscid humours accumulated in the joints.[43,46]
- ***Ta'līq al-'Alaq* (leech therapy)**[IUMT-7.2.68]**:**It is advised in case of chronic low backache.

Recommended and restricted diet and Lifestyle: Same as levels 1& 2

Follow up (every 15 days or earlier as per the need)

Referral Criteria

- Same as mentioned earlier at level 2, plus
- Other modalities can be considered depending on the case and to rehabilitate properly.

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5 FIBROMYALGIA

5

FIBROMYALGIA

(ICD-10 code M79.7)
(ICD-11 code MG30.01)

I'yā' (National Unani Morbidity Code (NUMC): M-45) http://namstp.ayush.gov.in/#/Unani

CASE DEFINITION

Fibromyalgia (FM) is a syndrome characterized by chronic widespread pain (CWP) of musculoskeletal origin and tenderness without any specific underlying organic disease. Although FM is defined primarily as a pain syndrome, the patients commonly complain of associated neuropsychological symptoms such as fatigue, unrefreshing sleep, cognitive dysfunction, anxiety, and depression too.[1,2]

Unani Medicine's perspective:

It is a generalized or organ specific fatigue in the body that results in reduced functions of the body as a whole or a specific organ.

INTRODUCTION *(INCIDENCE/PREVALENCE, MORBIDITY/MORTALITY)*

- The prevalence of Fibromyalgia (FM) in the general population varies between 2% and 8%.[,] In India, it is estimated to be 0.05% (Rural-3.77% and urban-1.7%).[6]
- The disease has a female: male ratio of 2:1, similar to other chronic pain conditions.[4,5]
- Age of onset is typically between 20 and 60 years, with an average age of 35 years. Prevalence increases with age and the risk also appears greater in women. [7]

Unani Medicine's perspective:

Etiology[3]

- *Sū'-i-Mizāj Damawī* (sanguineous morbid temperament)
- *Sū'-i-Mizāj Balghamī* (phlegmatic morbid temperament)
- Infiltration /accumulation of excessive fluids in the joint or entire body
- Increased heat in the body that helps in the flow of humours
- Impairment of temperament of whole body/single organ, such as joints
- *Ifrāṭ-i-Istiḥmām* (excessive use of Turkish bath)

- Trauma, tightening of organs, exhaustive and excessive physical exercise
- Seasonal impact: winter and spring seasons are prone for fibromyalgia
- Consumption of fluid producing diets viz. milk and muskmelon.

Pathophysiology[3]

According to Unani Medicine, fibromyalgia in general is primarily caused by *Kasl* (laziness) and flow of humours. The main cause of *Kasl* is infiltration/accumulation of excessive fluids in the body. Another cause of fibromyalgia is *Farṭ-i-Ḥarārat* (excessive heat) which liquefies the humours and thereby helps in their infiltration. Other factors include trauma, tightening of organs, exhaustive and excessive physical exercise, etc.

Risk factors[3]

- *Mizāj Damawī* (sanguineous temperament) and *Mizāj Balghamī* (phlegmatic temperament)
- Those who consume fluid producing diets viz. milk and muskmelon and habit of excessive use of Turkish bath
- Spring season

DIAGNOSTIC CRITERIA[7, 8]

Fibromyalgia is a chronic pain syndrome diagnosed by the presence of widespread body pain (front and back, right, and left, both sides of the diaphragm) for at least 3 months in addition to tenderness (digital palpation at an approximate force of 4 kg) of at least 11 out of 18 designated tender point sites as defined by the American College of Rheumatology 1990 classification criteria.

However, the newer 2016 ACR diagnostic criteria define FM as a CWP condition associated with a patient satisfying the following diagnostic criteria:

1) Widespread pain index (WPI) > or =7 and symptom severity (SS) scale score > or =5 or WPI 4–6 and SS scale score > or =9. (Tables 1 and 2)

Table 1: The WPI scoring index is as per the 5 areas and 19 points to identify pain:

*Left upper region	*Right upper region	*Axial region	*Left lower region	*Right lower region
L jaw	R jaw	Neck	L Hip (buttock/trochanter)	R Hip (buttock/trochanter)
L Shoulder girdle	R Shoulder girdle	Upper back	L upper leg	R upper leg
L Upper arm	R Upper arm	Lower back	L lower leg	R lower leg
L Lower arm	R Lower arm	Chest		
		Abdomen		

*Total score will be between 1-19. Each point is scored as 1.

Table 2: Symptom Severity Index is as below:

Fatigue	Waking unrefreshed	Cognitive symptoms
0 = No problem	0 = No problem	0 = No problem
1 = Slight or mild problems; Generally mild or intermittent	1 = Slight or mild problems; Generally mild or intermittent	1 = Slight or mild problems; Generally mild or intermittent
2 = Moderate; considerable Problems; often present and/or at a moderate level	2 = Moderate; considerable Problems; often present and/or at a moderate level	2 = Moderate; considerable Problems; often present and/or at a moderate level
3 = severe: pervasive, continuous, Life disturbing problems	3 = severe: pervasive, continuous, Life disturbing problems	3 = severe: pervasive, continuous, Life disturbing problems

2) Generalized pain: pain in 4/5 regions.

3) Symptoms have been present > or = 3 months.

4) The fibromyalgia diagnosis can now be made irrespective of other diagnoses (no need to rule out all other conditions that could explain the symptoms, if criteria 1-3 are all met).

CLINICAL PRESENTATION[1]

Pain and tenderness: Patient commonly report "pain all over" which is poorly localized, difficult to ignore, severe in its intensity, & associated with a reduced functional capacity (see figure 1).

Neuropsychological symptoms: In addition to widespread pain, fatigue, stiffness, sleep disturbance, cognitive dysfunction, anxiety, and depression.

Overlapping syndromes: Headaches, facial/jaw pain, regional myofascial pain particularly involving the neck or back, and arthritis.

Co-morbid conditions: FM is often co-morbid with chronic musculoskeletal, infectious, metabolic or psychiatric conditions.

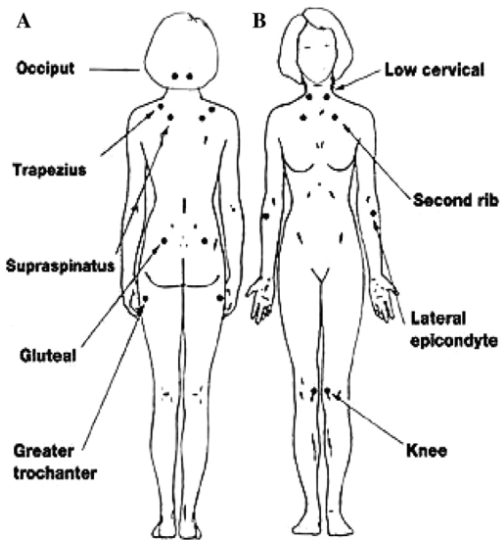


Figure 1: Tender points assessment in patients with fibromyalgia [5]

Psychosocial considerations: Symptoms often have their onset and are exacerbated during periods of high-level real or perceived stress.

Functional impairment: Functional assessment should include physical, mental and social domains.

Many assessment tools are widely used for the diagnosis and evaluation of improvement of FM and the core symptom domain in the process of the treatment.[5,]

Unani Medicine's perspective:

In fibromyalgia, following clinical manifestations can be seen:[3]

- Dullness and laziness.
- Stretching of muscles.
- If this condition is localized in a specific area of the body then it will result in the pain of that part without throbbing and piercing.
- Throbbing and piercing pain may be felt due to predominance of morbid humours in the body.
- Fever, if caused by *Khilṭ Damawī* (sanguineous humour) and the patient will be afebrile if caused by *Khilṭ Balgham* (phlegmatic humour).
- *Nabḍ Sarī'* (rapid pulse) will be felt in case of predominance of *Khilṭ Damawī* (sanguineous humour) and in case of predominance of *Khilṭ Balgham* (phlegmatic humour), there will be *Nabḍ Baṭī'* (slow pulse).

SUPPORTIVE INVESTIGATIONS[7]

Essential:

The diagnosis is strictly based on clinical manifestations and no X-ray or laboratory test is needed for diagnosing fibromyalgia;

Advanced:

If the patient does not meet clinical criteria for the diagnosis of fibromyalgia, then the following tests can be done for further evaluation:

- CBC and ESR
- TFT
- CRP
- Vitamin D levels
- Rheumatoid factor (RF)
- Anti-cyclic citrullinated protein antibody (anti-CCP antibody)
- ANA may be obtained if patients have a history suggestive of an inflammatory disorder.

Note: -The positive results of the above-mentioned investigations do not rule out fibromyalgia, if the patient meets the clinical criteria/diagnostic criteria for fibromyalgia. Instead, a positive test would indicate that another disorder is also present.

DIFFERENTIAL DIAGNOSIS:[7]

Several disease conditions cause pain, muscle aches, and fatigue just like FM as below:

Disease	Features not present in fibromyalgia	Pitfalls in diagnosis
Rheumatoid arthritis	Joint swelling, elevated ESR and CRP	"False positive" rheumatoid factor in FM occasionally
Systemic lupus erythematosus	Rash and renal, cardiac, pulmonary, and neurologic features	"False positive" antinuclear antibody in some with FM and many symptoms
Polymyalgia rheumatica	Severe stiffness in the morning and when sedentary, elevated ESR and CRP, usual onset >60 years, rapid response to glucocorticoids	Like FM, often no abnormal physical findings in polymyalgia rheumatic
Polymyositis	Muscle weakness, elevated muscle enzymes, abnormal EMG/NCV	FM patients often feel weak (but have normal strength)
Spondyloarthritis	Restricted spinal motion, elevated ESR or CRP	May be no peripheral joint abnormality in spondyloarthritis
Lyme disease	Characteristic rash, joint swelling, serologic tests confirmatory	"Post-Lyme" FM symptoms, false positive serologic tests, early flu-like symptoms
Hypothyroidism	Abnormal thyroid function tests, pain not prominent	Hypothyroidism may present with a myopathy/mild myalgia
Neuropathy	Sensory or motor deficits, abnormal EMG/NCV	Subtle neurologic disorders, small fiber neuropathy in some with FM

ESR: erythrocyte sedimentation rate; CRP: C-reactive protein; FM: fibromyalgia; EMG: electromyogram; NCV: nerve conduction velocity.

PRINCIPLES OF MANAGEMENT

Red Flag Signs of Fibromyalgia:

These signs should be assessed before initiating treatment for need for management/ consultation through modern medicine:

- Widespread pain
- Hypersensitivity to touch
- Muscle cramps
- Joint and muscle stiffness
- Persistent headaches or migraines
- Gastrointestinal (GI) disorders

- Elevated reaction to sensory triggers
- Severe fatigue and weakness
- Fibro fog
- Depression and anxiety disorders

As in other chronic conditions requiring ongoing management, education plays an essential role in fibromyalgia management and can be integrated into a treatment plan after diagnosis and continued throughout follow-up. Confirming the diagnosis and describing its clinical picture can positively impact patients with fibromyalgia, giving them validation and reassurance. It must be emphasized that FM is not a life-threatening disease and to be advised to continue an active lifestyle. Because widespread pain and tenderness, along with associated symptoms such as fatigue, sleep disturbance, cognitive difficulties, and mood disturbances, are characteristics of fibromyalgia, a multi-disciplinary treatment approach must be considered for a treatment plan.[10] Thus, a comprehensive multidisciplinary modal treatment plan (MMTP) is recommended, integrating (1) education to patients, (2) Intervention, and (3) non-pharmacological therapies.[11]

Education of the patient: Patient education is an integral part of the treatment of FM. It should include the cause, course, and treatment information along with assurance. A one-time education is not sufficient, and the patient should periodically be given continuous education and reassurance in the follow-up visits regularly with a systematic approach. The focus should be on providing the right information and removing any myths and fears about the disease.

Unani Medicine's perspective:

The general line of treatment is:

- *Taskīn-i-Alam* (analgesia)[3]
- *Tanqiya'-i-Badan* (cleansing of morbid matter/ humour from body)[3,]
- *Taqwiyat-i-A'ṣāb* (toning up of nerves)[3]

The treatment of patients with fibromyalgia requires both pharmacological and non-pharmacological therapy. The goals of management for fibromyalgia include minimizing pain, heaviness, laziness, stretching of muscles and maintaining the quality of life. Treatment regimens comprise combinations of pharmaceuticals, exercise, educating patients about the disease, and rest.

The main line of treatment is *Ilāj bi'l Dawā'* (pharmacotherapy) [IUMT-7.1.10], *'Ilāj bi'l Tadbīr* (regimenal therapy) [IUMT-7.2.0] which includes *Qay'* (induced emesis) [IUMT-7.2.3][3,] *Faṣd* (venesection) [IUMT-7.2.6][3] of opposite side of affected part, *Tabrīd* (cooling of body or part of body) [IUMT-7.1.70][3,] *Tanqiya'-i-Badan* (cleansing of morbid matter/humour from body)

[IUMT-7.1.29][13,] *Dalk Layyin* (soft-handed light and gentle-pressure massage) [IUMT-7.2.94] and use of *Munḍij-o-Mushil* (concoctive and purgative) [IUMT-6.1.134 & IUMT-6.1.146].[3,13]

(A) Prevention management

Fibromyalgia is one of the most significant causes of chronic widespread musculoskeletal pain, heavily burdening both individual patients and the healthcare system. Hence, reducing the prevalence of the disorder is of paramount importance. There are numerous risk markers that are associated with an increased probability of the disease, such as obesity, psychological and physical stress, exposure to traumatic life events, and psychiatric disorders. Targeting preventable risk factors may suppress consequent emergence of fibromyalgia such as maintenance of a normal body mass index, regular physical exercise, and psychological techniques such as cognitive behavioural therapy.

Unani Medicine's perspective:

- Avoiding the causes that may lead to fibromyalgia e.g. exposure to sunlight.

Correction of humoral and temperamental derangement:

Fibromyalgia is caused by derangement of temperament that involves sanguineous and phlegmatic matter. The basis of correction of derangement of temperament is food and lifestyle modification, along with evacuation of morbid humour from the body or affected parts and alteration of the temperament and the administration of fibromyalgia-specific medications as mentioned in Unani Medicine .).[3,13]

(B) Interventions

At Level 1

Solo Physician Clinic/Health Clinic/PHC (Optimal Standard of treatment where technology and resources are limited).

Clinical Diagnosis:

Diagnosis of FM is primarily clinical and made after a complete medical history and physical examination. However, some investigations, like a complete haemogram and X-ray, may be done to exclude the condition.

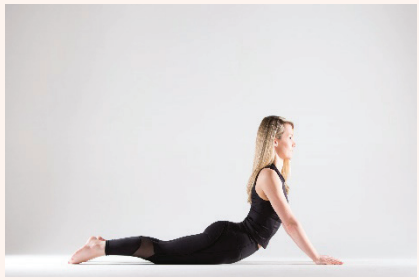
Recommended Diet and Lifestyle:[,16,17,18,19]

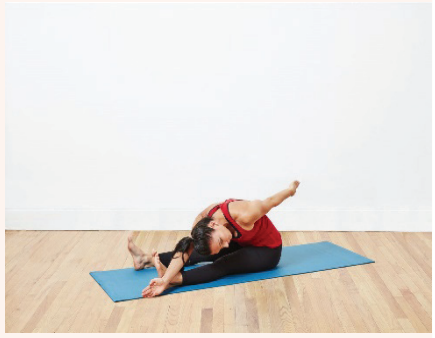
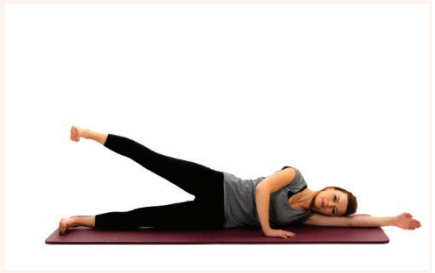
The physicians may advice the patients as follows:

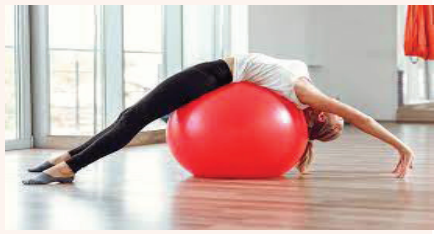
- High consumption of vegetables, fruits, vegetable/olive oils and nuts, and low consumption of red meats.
- To consume a gluten-free diet.
- To intake low carbohydrate and high protein diets that seems to alleviate pain.
- Yoga therapy primarily focuses on strengthening the muscles and stress relief through

yoga practices. The patient when given special yoga postures under the supervision of trained yoga therapist improves the flexibility and movement of joints. Various practices that help are *Mountain pose (Vrikshasana), Standing forward asana (Uttanasana), Cat cow asana (Marjaryasana, Bitilasana), Child pose (Balasana)* increase the flexibility of the muscles and joints to free the movement and also *corpse pose (Yoga nidra* and meditation*)* help to calm the soul and improve sleep along with improved cognitive functioning.[16,17]

- Aerobic exercises such as swimming, running, walking, and stretching exercises along with Mat Pilates group exercises are found to be beneficial and are given below: [19,20]

S.no.	Exercise	Benefit	Posture
1.	**Swan** Lying on prone position, hands resting in the direction of the shoulders. Extend the elbows, keeping head aligned with the spine, stretching the trunk. Return back.	Strengthens the pectoral, triceps and anterior deltoid muscles	
2.	**One leg up-down** Lying on supine position, arms outstretched along the body. Raise the leg in extension with the feet in plantar flexion.	Strengthens the rectus femoris, iliopsoas and sartorius muscles	
3.	**Leg circles** Lying in the supine position, arms outstretched alongside the body and supported on the ground. Raise the leg in extension, with the feet in plantar flexion. Make circles with the leg.	Strengthens the rectus femoris, sartorius, adductor and gluteus medius muscles.	
4.	**Single leg stretch** Lying in the supine position, flex the right leg by placing the left hand on the right knee and the right hand on the right ankle, flexing as much as possible towards the chest. The left leg will be extended at an angle of 30°. Slowly switch the leg	Strengthens the abdomen and stretches the glutes and the lumbar spine.	

S.no.	Exercise	Benefit	Posture
5.	**Saw** Sitting with the back straight and the legs apart at hip width, and the arms extended and apart at shoulder height. Slowly from the waist, twist the spine to the left. Move the right arm towards the left foot and the left arm back at shoulder height. Return to the initial position and switch sides.	Stretches the trunk rotators, the hamstrings and the quadratus lumborum muscles. Strengthens the rectus abdominis, external and internal oblique muscles.	
6.	**Sidekicks front & back:** Lying straight in lateral decubitus, arm flexed and hand resting under the head. Keep your upper leg aligned with the hips and slowly bring the extended leg forward. Return to the initial position	Strengthens the rectus femoris, iliopsoas, sartorius, gluteus medius, gluteus maximus and abdominal muscles in isometry.	
7.	**The Hundred** Lying in the supine position, elbow extended with the shoulder, hips and knees at 90°. Knee extension at approximately 45°. Slight bending of the trunk (removing the shoulder blades from the mat) and chin towards the chest. 3. Return to the initial position	Strengthens the abdominal, oblique, transverse and rectus femoris muscles.	
8.	**Pelvic lift on the ball** Lying in the supine position, legs flexed at 90°, with heels on the ball. Raise the hips from the mat, extending the legs. Return to the initial position.	Strengthens the gluteus maximus, biceps femoris, semitendinosus, semimembranosus, gastrocnemius, and quadriceps femoris muscles. Mobilises the spine.	
9.	**Sits up on the ball** Lying in the supine position holding the ball over the head and legs at 45°. Bring the ball towards the legs and hold it. Return to the initial position.	Strengthens rectus abdominis and external oblique muscles.	

S.no.	Exercise	Benefit	Posture
10.	**Stretching on the ball** Lying in lateral, ventral and dorsal decubitus on the ball.	Stretching and muscle relaxation.	

Restricted Diet and Lifestyle:[18]

- Restrict consumption of red meat.
- Avoid consumption of food additives.
- Avoid consumption of tinned and processed foods.
- Avoid consumption of genetically modified foods.
- Avoid severe exercises during episodes of pain.

Unani Medicine's perspective:

Dos[3,14]	Don'ts (Disease aggravating factors)[3,14]
• Special care in winter and spring season • Intake of *Mā' al-Sha'īr /Āsh-i-Jav* (barley water) • Intake of *'Adas* (*Lens culinaris* M.) , *Bāqla* (*Vicia faba* L.), *Chuqandar* (*Beta vulgaris* L.), *Kāhū* (*Lactuca sativa* L.) • Intake of *Ālū Bukhāra* (*Prunus domestica* L.), *Ṣandal* (*Santalum album* L.), *Zarishk* (*Berberis aristata* DC.), *Bihī* (*Cydonia oblonga* Mill.), etc.	• Intake of *Aghdhiya Muraṭṭiba* (foods possessing wet/moist temperament and having ability to produce humours which give rise to wetness in the body e.g. milk and musk melon etc.) • Exposure to sunlight

Management with single drugs and compound formulations for internal or external use

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicl)	Contra indication
1.	*Ḥabb-i-Sūranjān*	Pills	500-1500 mg-in two divided doses	After meal	15 days to 1 month	water	Nothing Specific (NS)
2.	*Ḥabb-i-Muqil*	Pills	500 mg.1 g.	After meal	15 days to 1 month	Water	NS

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicl)	Contra indication
3.	*Ma'jūn-i-Falāsifa*[22]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	water	Diabetes Mellitus Type I & II
4.	*Roghan-i-Banafsha*[21]	Oil for local application	Quantity Sufficient (Q. S.) /for external use	As directed by the physician	15 days to 1 month	-	NS
5.	*Roghan-i-Gul*[21]	Oil for local application	Q.S./ for external use	As directed by the physician	15 days to 1 month	-	NS
6.	***Ālu-Bukhārā*** (*Prunus domestica* L.)	Fruit	As directed by the physician	After meal	15 days to 1 month	-	NS
7.	*Ṣandal Safayd* (*Santalum album* L.)[23,]	Powder/ Decoction	1.5 g. in two divided doses	After meal	15 days to 1 month	water	NS
8.	*Zarishk* (*Berberis aristata* DC.)[23]	Fruit	As directed by the physician	After meal	15 days to 1 month	water	NS
9.	*Bihī* (*Cydonia oblonga* Mill.)[23]	Fruit	As directed by the physician	After meal	15 days to 1 month	water	NS
10.	*Bāqlā* (*Vicia faba* L.)[23]	Seed	3-5 g. in two divided doses	After meal	15 days to 1 month	water	NS
11.	*Chuqandar* (*Beta vulgaris* L.)	Root	As directed by the physician	After meal	15 days to 1 month	water	NS
12.	*Kāhū* (*Lactuca sativa* L.)[23,]	Seed	3-5 g.	After meal	15 days to 1 month	water	NS

Note: Out of the drugs mentioned above, any one or a combination of two or more may be prescribed by the physician. *'Ilāj bi'l Tadbīr* (regimenal therapy) described under principles of management may be recommended as per assessment of physician about the condition of the patient and stage of disease. The duration of the treatment may vary from patient to patient. The physician should decide the dosage (per dose) and duration of the therapy based on the clinical findings and response to the therapy.

Follow Up (every 15 days or earlier as per the need)

Reviews[27,28,] should include:

- Monitoring the person's symptoms and the ongoing impact of the condition on their everyday activities and quality of life.
- Monitoring the long-term course of the condition.
- Management of FM in terms of yoga.
- Discussing the person's knowledge of the condition, any concerns they have, their personal preferences, and their ability to access services.
- Reviewing the effectiveness and tolerability of ongoing treatment and if the patient is improving, continue treatment and if not, review the totality for further prescription.
- Self-management support.

Referral Criteria

- Non-response to treatment.
- Evidence of an increase in severity/complications
- Substantial impact on their quality of life and activities of daily living
- Diagnostic uncertainty
- Uncontrolled co-morbidities, such as diabetes, hypertension or associated cardiac disease.

At Level 2

CHC/Small hospitals (10-20 bedded hospitals with basic facilities such as routine, investigation, X-ray)

Clinical Diagnosis: Same as level 1. The case referred from Level 1, or a fresh case must be evaluated thoroughly for any complications.

Investigations:

The diagnosis would be primarily clinical. However, some investigations that might be necessary to investigate complications or exclude other differential diagnoses are as follows:

- Haemogram
- X-ray
- Anti-CCP antibodies
- C-reactive protein
- Serum uric acid
- RA Factor
- ANA profile

Management: Same as Level 1 and in addition few other procedures and treatments may be helpful as given below:

- Physiotherapy including exercises, massage, transcutaneous electrical nerve stimulation (TENS), thermotherapy, and braces may be done as per the case's need under a physiotherapist's guidance.
- Cognitive Behavioural Therapy: Therapeutic activities to promote cognitive functioning thereby improving functional abilities with daily tasks such as self-care, home management, and work and leisure activities under the guidance of a clinical psychologist.

Unani Medicine's perspective:

Management with single drugs and compound formulations for internal or external use

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicle)	Contra indication
A	**Compound Formulation (Oral)**						
1.	*Ḥabb-i-Asgand*[22]	Pills	500-1000 mg.	After meal	15 days to 1 month	water	NS
2.	*Ma'jūn-i-Sūranjān*[22]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	water	Diabetes Mellitus Type I & II
3.	*Ma'jūn-i-'Ushba*[22]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	water	Diabetes Mellitus Type I & II
B	**Compound formulation for local application**						
1.	*Roghan-i-Qusṭ*[21]	Oil for local application	Q. S. /for external use	As directed by the physician	15 days to 1 month	-	NS
2.	*Roghan-i-Jund*[23]	Oil for local application	Q.S./ for external use	As directed by the physician	15 days to 1 month	-	NS

In case of accumulation of excessive *Balghamī Mādda* (phlegmatic morbid matter) in the body, the following formulations may be given.

Management with *Munḍij-o-Mushil* [MM] therapy (concoctive and purgative therapy):

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Shāhtara* (*Fumaria officinalis* L.) 7 g., *'Unnāb* (*Zizyphus jujuba* Mill.) 5 pieces, *Gul-i-Banafsha* (flower of *Voila odorata* L.) 10 g., *Bīkh-i-Kāsnī* (root of *Cichorium intybus* L.) 7 g., *Sūranjān* (*Colchicum autumnale* L.) 5 g.[3]	Decoction) *Munḍij* (concoctive)	100 ml	Morning before the meal	15-21 days	Water	Pregnancy
2.	**Note:** After completion of course of above *Munḍij* (concoctive) and appearance of signs of *Nuḍj* in urine, following *Mushil* (purgative) will be given						
	Ḥabb-i-Ayārij[21]	Pills (purgative)	250-500 mg	Early morning before the meal	2-3 days (after appearance of *Nuḍj*)	Water	Pregnancy

Management with *'Illāj bi'l Tadbīr* (regimenal therapy) The Management will depend on condition of the patient and stage of disease.

- ***Faṣd* (venesection):**
  - *Faṣd-i-Bāsalīq* (venesection of Basilic vein) in case of predominance of sanguineous humour in the whole body. Venesection of the opposite side of the affected part.[3]
- ***Tadhīn* (oiling):**
  - *Behroza* (*Pinus roxburghii* Sarg.), dissolved in olive oil.[3]
- ***Naṭūl* (douche):**

  Gul-i-Bābūna (*Matricaria chamomilla* L.) is boiled in water till it becomes soft and used as douche.[3]

Recommended Diet and Lifestyle: Same as level 1

Restricted Diet and Lifestyle: Same as level 1

Follow Up (every 15 days or earlier as per the need)

Referral Criteria

- Same as mentioned earlier at level 1 and in addition,
- Failure of acute pain exacerbations to respond to initial medical management.

At Level 3

Ayush hospitals attached with teaching institutions, District level/Integrated/State Ayush Hospitals, Tertiary care allopathic hospitals having Ayush facilities, and multiple departments/ facilities for diagnosis and interventions. Must provide additional facilities like dieticians, counselling, and physiotherapy units.

Clinical Diagnosis:

Same as levels 1& 2.

Management:

Same as levels 1 & 2 and in addition few other procedures and treatments may be helpful as given below:

Other non-pharmacological therapies:[11]

There are many therapies that can be employed as an add-on to the pharmacotherapy to the FM patient. As part of integrative therapy, additional therapies including massage, cupping, acupressure, and acupuncture may also be utilized simultaneously to lessen pain and improve flexibility. A few of them are as follows:

i) Mindfulness – meditation to maintain proper sleep hygiene.

ii) Hydrotherapy – for pain reduction, research evidence shows a moderate effect of this therapy on FM patients.

Unani Medicine's perspective:

Management with single drugs and compound formulations for internal or external use

S.No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicle)	Contra indication
A	**Compound Formulation (Oral)**						
1.	*Ma'jūn Jograj Gūgal*[22]	Semisolid Preparation	5-10 g in two divided doses	After meal	15-30 days	Water	Diabetes Mellitus TI & TII
2.	*Ma'jūn-i-Chob Chīnī*[22]	Semi-solid preparation	5-10 g. in two divided doses	After meal	15 days to 1 month	water	Diabetes Mellitus TI&II

S.No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicle)	Contra indication
3.	*Ma'jūn-i-Ispand Sokhtanī*[22]	Semisolid Preparation	5-10 g. in two divided doses	After meal	15-30 days	Water	NS
4.	*Ḥabb-i-Jadwār*[22]	Pills	125-250 mg	After meal	1-2 months	Water	NS
B.	**Compound formulation for local application**						
5.	*Roghan-i-Mom*[22]	Oil	Q.S./ for external use	Morning and night	1-3 months	-	NS
6.	*Roghan-i-Mālkangnī*[22]	Oil	Q.S./ for external use	Morning and night	1-3 months	-	NS
7.	*Roghan-i-Zaytūn*[22]	Oil	Q.S./ for external use	Morning and night	1-3 months	-	NS
C.	**single drugs**						
8.	*Karnab* (*Brassica oleraceae* L.)[23]	Leaves Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS
9.	*Sīr* (*Allium sativum* L.)[23]	Bulb Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS
10.	*Mālkangnī* (*Celastrus paniculatus* Willd.)[23]	Seed Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS

Management with *Munḍij-o-Mushil* [MM[therapy (concoctive and purgative therapy):

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Sūranjān* (*Colchicum autumnale* L.) 5 g., *Shāhtara* (*Fumaria officinalis* L.) 7 g., *Imlī* (*Tamarindus indica* L.) 5 g. *Ālū Bukhāra* (*Prunus domestica* L.) 5 pieces, *Mawīz Munaqqā* (*Vitis vinifera* L.) 5 pieces, *Halayla* (*Terminalia*	Decoction for MM therapy	100 ml	Morning before the meal	15-21 days	Water	Pregnancy

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindi-cation
	chebula Retz.) 5 g. *Maghz-i-Amaltās (Cassia fistula* L.) 5g.						
2.	**Note:** After completion of course of above *Munḍij* and appearance of signs of *Nuḍj* in urine, following *Mushil* will be given						
	Ḥabb-i-Ayārij[21]	Pills	250-500 mg	Early morning before the meal	2-3 days (after ap-pearance of *Nuzj*)	Water	Pregnancy

Management with *'Ilāj bi'l Tadbīr* (regimenal therapy): described under principles of management as per assessment of physician about the condition of the patient and stage of disease:

- *Qay'* (induced emesis)[3]
- *Hammām* (therapeutic bath)[3]
- *Tamrīkh* (embrocation/anointing)[3]
    - Salt mixed with olive oil /*Roghan-i-Ghār / Roghan-i-Īrsā*.[3]
    - *Bekh-i-Anjadān* (*Ferula assafoetida* L.) mixed with *Roghan-i-Bābūna*.[3]

Recommended Diet and Lifestyle: Same as levels 1 & 2

Restricted Diet and Lifestyle: Same as levels 1 & 2

Follow Up (every 15 days or earlier as per the need)

Referral Criteria

Same as mentioned earlier at levels 1 and 2.

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6 ADHESIVE CAPSULITIS

6

ADHESIVE CAPSULITIS (FROZEN SHOULDER)

(ICD-10 code: 75.0)
(ICD-11 code: FB 53.0)

***Waja'-i-Mafṣal-i-Katif* (Frozen Shoulder) (NUMC:** L-19**)** https://namstp.ayush.gov.in/#/Unani

CASE DEFINITION

Adhesive capsulitis is characterized by pain and restricted movement of the shoulder and is also known as "Frozen Shoulder".[1] It is a condition of uncertain aetiology that occurs in the absence of a known intrinsic shoulder disorder.[2] The American Shoulder and Elbow Society (ASES) put forward a consensus definition of Adhesive capsulitis as follows: "a condition characterized by functional restriction of both active and passive shoulder motion for which radiographs of the glenohumeral joint are essentially unremarkable".[3]

INTRODUCTION (incidence/prevalence, morbidity/mortality)

- A study from India reported that approximately 50% people suffering from shoulder pain and stiffness present with diabetes.[4] Globally, prevalence of 10-22% is reported among diabetic patients.
- Inflammatory markers such as an elevated C-reactive protein can be independent risk factors for adhesive capsulitis.[6]
- The peak incidence of onset is in between 40 and 60 years of age and seldom occurs outside this age group and in manual workers.[7,8] The mean age of onset of the disease is 55 years.[9]
- Adhesive capsulitis is slightly more common in women (1.4:1).
- In about quarter of the patients the disease is bilateral.[3]

Unani Medicine's Perspective:

Waja'-i-Mafṣal-i-Katif) Frozen Shoulder (is a type of joint pain which comes under the topic of *Waja'al-Mafāṣil*. *Waja'al-Mafāṣil* has been described in Unani medicine's classical literature in a comprehensive manner and there are many books on *Waja'al-Mafāṣil* in Unani Medicine mentioned by historians. Stiffness being the most prominent clinical feature of frozen shoulder has been mentioned by Unani scholars as *Taḥajjur* which means' to become hard .'The hardening in joints usually occurs as a result of their chronic inflammatory conditions and the chronic inflammation of joints occurs due to accumulation/infiltration of *Balgham*) phlegm(

in the joints ,therefore presently *Waja-'i-Mafṣal-i-Katif* is treated by Unani physicians under the principles of treatment of *Waja 'al-Mafāṣil Balghamī*.[,,,]

Etiology:

- *Ḍu'f-i-'Uḍw* (weakness of affected joint)[11]
- *Inṣibāb-i-Akhlāṭ* (infiltration of humours) in the affected joint[11]
- *Burūdat-i-Mafṣal* (coldness of joint)[11]

Risk Factors:

- Refrainment from exercise [11]
- Emotional disturbances e.g. excessive sorrow[11]
- Insomnia[11]
- *Iḥtibās-i-Mādda* (retention of matter)[11]
- Disturbance in regular evacuation of body wastes [11,]

Clinical presentation:

- Pain of affected joint[11,15]
- *Taḥajjur-i-Mafṣal* (freezing or immobility of the joint)[11,]

DIAGNOSTIC CRITERIA

Frozen shoulder is classified into primary and secondary with secondary frozen shoulder further subdivided into intrinsic, extrinsic, and systemic categories.

Primary/idiopathic frozen shoulder: An underlying etiology or associated condition cannot be identified.

Secondary frozen shoulder: An underlying etiology or associated condition can be identified.

- ***Intrinsic:*** In association with rotator cuff disorders (tendinitis and partial-thickness or full-thickness tears), biceps tendinitis, or calcific tendinitis.
- ***Extrinsic:*** In association with previous ipsilateral breast surgery, cervical radiculopathy, chest wall tumour, previous cerebrovascular accident, or more local extrinsic problems, including previous humeral shaft fracture, scapulothoracic abnormalities, acromioclavicular arthritis, or clavicle fracture.
- ***Systemic:*** Diabetes mellitus, hyperthyroidism, hypothyroidism, hypoadrenalism, etc.[16,,]

The diagnosis of shoulder pain is essential to direct intervention and inform prognosis.

- Idiopathic frozen shoulder is characterised by spontaneous and sudden onset of severe pain and it may follow minor trauma.
- Night pain is usually noticed in the affected shoulder that may interfere with sleep.
- On palpation, the shoulder is tender with restriction of both active and passive movement1 (elevation <100°, external rotation >50% restriction).[3]
- Local tenderness is often felt anteriorly over the rotator interval.
- Loss of external rotation is the pathognomonic sign of frozen shoulder which differentiates it from rotator cuff disease.[20]

Clinical course:

The clinical course of frozen shoulder can be divided into three stages as follows:[2,20,]

Stage 1 – Painful phase/freezing: This can last for 2–9 months. The severity of shoulder pain, especially at night, continues to increase and the patient uses the arm less and less. The very severe pain may often be unrelieved by analgesics.[20] This phase is characterized by an acute synovitis of the glenohumeral joint.[21]

Stage 2 – Stiffening/frozen phase: This can last for 4–12 months and is associated with a gradual reduction in the range of movement of the shoulder. The pain usually resolves during this period, although it is commonly felt as an ache, especially at the extremes of the reduced range of movement.[20] There is restriction of external shoulder rotation followed by shoulder flexion, and internal rotation.[21]

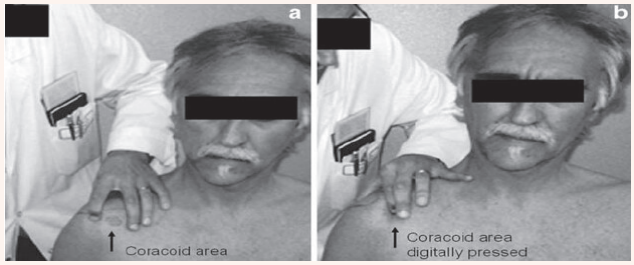
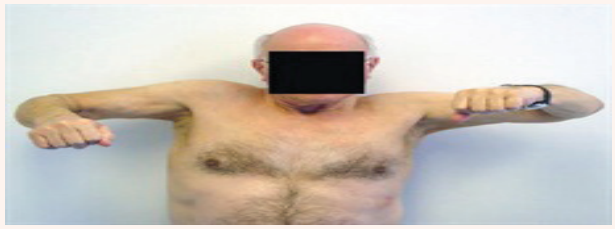
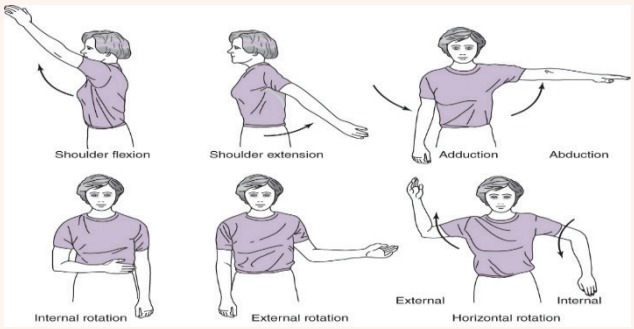
Stage 3 – Thawing phase: This lasts for a further 4–12 months and is associated with a gradual improvement in the range of motion.

The idiopathic frozen shoulder usually resolves without any long-term sequelae after its clinical course runs over a period of 3–1 years[20]. In some cases it can persist, presenting symptoms like mild pain which is the most common complaint or with some limitation of shoulder motion.2 However, secondary adhesive capsulitis will warrant further course of action keeping in mind the appropriate management of the underlying cause.

The clinical course resolves when the cause is idiopathic. However, if the cause is secondary it takes further course of action (this has to be done with appropriate management of underlying cause).

CLINICAL EXAMINATION[19]

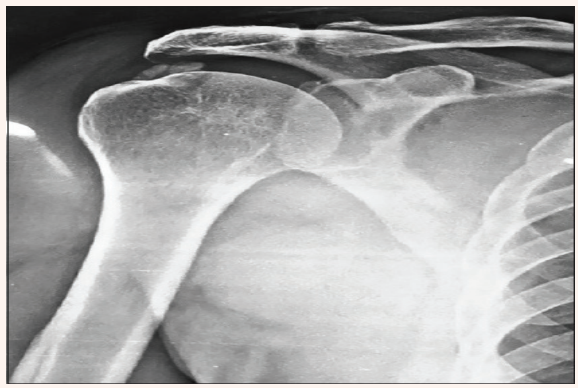
Clinicians should measure pain, active shoulder Range of Motion (ROM), and passive shoulder ROM to assess the key impairments of body function and body structures. *It is often viewed as a diagnosis of exclusion.*

Coracoid Test	It is a highly sensitive and specific clinical examination finding for adhesive capsulitis.[22]	 Digital pressure on the coracoid area (fig b) evokes pain compared to other shoulder area (fig a)[22]
Shoulder Shrug Test	An inability to abduct the arm to 90° in the plane of the body and to hold that position briefly is considered positive.[17]	 The right shoulder shows a shrug sign; the left shoulder is normal. The patient had to elevate the shoulder girdle for the arm to reach 90° abduction.[23]
Glenohumeral External Rotation in Adduction	The patient is positioned in supine with the upper arm comfortably by the side and the elbow flexed to 90°. The examiner passively externally rotates the glenohumeral joint until end range is reached. ROM is measured by placing the axis of the goniometer on the olecranon process. The stationary arm is aligned with the vertical position. The movable arm is aligned with the ulnar styloid process.	 Shoulder Range of Motion[24]
Glenohumeral External Rotation in Abduction	External rotation ROM may also be measured with the shoulder abducted to 45° or to 90° in the frontal plane. Placement of the axis and arms of the goniometer is similar to what is used with the adducted position.	
Glenohumeral Internal Rotation in Abduction	The patient is positioned in supine, the shoulder abducted to 90°, and the elbow flexed to 90°. If glenohumeral abduction is less than 90°, a 45° abduction angle can be used. The examiner passively internally rotates the glenohumeral joint until end range is reached. Placement of the axis and arms of the goniometer is similar to what is used with the adducted position.	

Shoulder Flexion	The patient is positioned in supine with the arm comfortably by the side. The examiner passively flexes the shoulder until end range is reached. ROM is measured by placing the axis of the goniometer on the greater tuberosity. The stationary arm is aligned with the midline of the trunk. The movable arm is aligned with the lateral epicondyle.	
Shoulder Abduction	The patient is positioned in supine with the arm comfortably by the side. The examiner passively abducts the shoulder until end range is reached. ROM is measured by placing the axis of the goniometer on the head of the humerus. The stationary arm is aligned parallel with the midline of the sternum. The movable arm is aligned with the midshaft of the humerus.	

SUPPORTIVE INVESTIGATIONS:[25]

Adhesive capsulitis is primarily diagnosed by history and physical examination, but imaging studies are needed to exclude any underlying pathology. No single imaging study is diagnostic.

Investigation	Findings	
Essential Investigations		
X-Ray	Plain radiographs (anteroposterior, lateral, and axillary views of the glenohumeral joint) are the preferred initial test to rule out other potential shoulder pathologies.[25] They are typically normal in adhesive capsulitis but can identify osseous abnormalities, such as glenohumeral osteoarthritis.[19] Radiographs of the shoulder show osteopenia.[1]	
		X-ray showing calcific deposits in suprsapinatus tendon[26]

DIFFERENTIAL DIAGNOSIS:[25]

The following conditions should be considered in the differential diagnosis when a patient presents with shoulder pain:

Condition	Differential Features
Posterior glenohumeral dislocation	• Usually occur after a traumatic event • Also traditionally attributed to electrocution or seizure. • Acute onset of pain and immediate severe loss of motion. • Posterior shoulder dislocation on axillary view plain radiograph.
Rotator cuff injury	• Pain is typically aggravated by overhead activities. • Decreased active range of motion on physical examination but should have normal or near-normal passive range of motion. • Pain and weakness on affected side elicited with provocative manoeuvres. • Shoulder radiographs are usually normal though MRI will show evidence of rotator cuff tear.
Subacromial rotator cuff impingement	• Pain with shoulder elevation between 60° and 120° • Painful arc syndrome. • Weakness due to pain. • Radiograph may show subacromial bony proliferation. • Shoulder MRI may show evidence of inflammation in the subacromial space.
Proximal biceps tendonitis	• Tenderness at bicipital groove. • Positive Speed test: Pain in the anterior region of the shoulder (resisted forward arm flexion with the elbow extended) • Positive Yergason test (resisted forward supination). • Shoulder radiographs are inconclusive. • MRI may reveal a subluxated long head of the biceps tendon or demonstrate degeneration within the proximal biceps tendon.
Superior labral tears	• Pain elicited with active compression test (resisted arm elevation with the arm 15° adducted, forward flexed parallel with the floor and maximal pronation). • Shoulder radiographs are usually normal though MRI or MR arthrograms demonstrate superior glenoid labral tears.
Acromioclavicular joint arthrosis	• Anterior shoulder pain. • Pain with cross arm adduction, and no limitation of passive range of motion. • Degeneration of the acromioclavicular joint, distal clavicle osteolysis, and cystic formation at the end of the clavicle on imaging. • Clinical examination can be normal.

Condition	Differential Features
Cervical spine neuropathy or myelopathy/ Degenerative cervical spine disease	• Accompanied by neck pain and/or radiating pain, numbness, or paraesthesia down the arm. • Weakness or difficulty with fine motor skills involving the hand. • Full sensory, motor, and reflex examinations will manifest symptoms and signs outside the shoulder. • Positive Spurling manoeuvre (one hand is placed on top of the patient's head while stabilising the shoulders, the neck is then hyperextended, and the head gently tilted towards the symptomatic site). • Degenerative changes in the cervical spine as well as vertebral body subluxation on X-Ray. • Evidence of cervical nerve root compression on MRI.
Glenohumeral arthritis	• Patients may note a sensation of "popping" or crepitus. • Decreased joint space and marginal osteophytes on X-Ray.

PRINCIPLES OF MANAGEMENT

Red Flag Signs of Adhesive capsulitis:

These signs should be assessed before initiating treatment for need for management/ consultation through modern medicine

- Unexplained deformity, mass or swelling with associated lymphadenopathy
- Infection: red skin, fever, systemically unwell
- Trauma causing loss of rotation, abnormal shape
- Disabling pain and significant weakness
- Unexplained wasting
- Significant sensory or motor deficit

The main objective of all treatments for adhesive capsulitis should be early pain relief and functional restoration.[3] It is important to consider the patient's symptoms, stage of the condition, and patterns of motion loss when selecting a treatment method.[21] Treatment of adhesive capsulitis requires a multi-faceted and individualized approach. A stepwise approach shall be adopted in which the physician shall begin with non-invasive treatment, and if it proves to be ineffective, then consider invasive interventions.[25]

Unani Medicine's Perspective:

- *Taskīn-i-Alam* (analgesia)[11]
- *Tanqiya* (evacuation of causative matter)[11]
- *Taḥlīl o Talyīn* (to resolve the inflammation and soften the joints)[11]
- *Taqwiyat-i-Mafāṣil* (strengthening of joints)[11]

For the management of frozen shoulder a comprehensive plan based on educational, behavioural, psychosocial, and physical interventions, as well as Unani topical, and oral medications (single and compound formulations) may be adopted.

'Ilāj bi'l Dawā' (pharmacological treatment) [IUMT-7.1.10] and *'Ilāj bi'l Tadbīr* (regimenal therapy) [IUMT-7.2.0] are considered the mainstay of treatment in case of frozen shoulder.*'Ilāj bi'l Tadbīr* (regimenal therapy) includes *Kimād/Takmīd* (fomentation) [IUMT-6.2.31], *Naṭūl* (douche) [IUMT-6.2.95], *Dalk* (massage) [IUMT-7.2.92], *Ḥijāma* (cupping) [IUMT-7.2.30], *Riyāḍat* (exercise) [IUMT-7.2.80], *Faṣd* (venesection) [IUMT-7.2.6], *Ḍimād* (poultice) [IUMT-6.2.52], *Tadhīn* (oiling/application of oil on affected body part) [IUMT-6.2.116], *Tamrīkh* (moistening and rubbing a part of body with a liniment) [IUMT-6.2.10], *Munḍij-o-Mushil* (concoctive and purgative) [IUMT-6.1.134 & IUMT-6.1.146] therapy /MM Therapy, etc.[11,14,15]

(A) Prevention Management: Primary prevention consists of managing modifiable risk factors. Prolonged immobilization has been linked to adhesive capsulitis, especially following shoulder trauma. Early active and passive range of motion can help to prevent the development of adhesive capsulitis.[27,28] Good control of diabetes may help to prevent secondary adhesive capsulitis.[29,30]

Unani Medicine's Perspective:

a) For prevention of progression –

- Avoiding the causes that may lead to frozen shoulder e.g. *Tark-i-Riyāḍat* (Refrainment from exercise) or excessive exercise and mental stress, sedentary lifestyle etc.[11]

(B) Interventions

At Level 1- Solo Physician Clinic/Health Clinic/PHC (Optimal standard of treatment where technology and resources are limited)

Clinical Diagnosis: The diagnosis of adhesive capsulitis is primarily clinical and made after a complete medical history and physical examination. However, some investigations, like X-ray, may be done.

Single drugs and compound Unani formulations for internal/external use

S. No.	Single drug/ Compound Formulation	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicle)	Contraindication
1.	*Būzīdān* (*Tanacetum umbelliferum* Boiss.)[11,]	Powder	5g.	Twice a day	15 days to 1 month	water	Nothing specific (NS)
2.	*Sūranjān* (*Colchicum autumnale* L.)[11]	Powder	3-7 g	Twice a day	15 days to 1 month	Water	NS

S. No.	Single drug/ Compound Formulation	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicle)	Contraindication
3.	*Ṣibr* (*Aloe barbadensis* Mill.)[31]	Paste	Q.S. for external use	Twice a day	15 days to 1 month	-	
4.	*Tukhm-i-Shibit* (seed of *Anethum sowa* Roxb. ex Fleming)[31]	Paste after grinding with *Roghan-i-Zaytūn*	Q.S. for external use	Twice a day	15 days to 1 month	-	
5.	*Gul-i-Ṯesū* (flower of *Butea monosperma* (Linn.) Kuntze)[31]	Paste	Q.S. for external use	Twice a day	15 days to 1 month	-	
6.	*Ḥabb-i-Muqil*	Pills	500 mg-1 g.	After meal	15 days to 1 month	Water	NS
7.	*Ma'jūn-i-Jograj Gugal*	Semi-solid preparation	3-5g.	Twice a day, after meal	15 days to 1 month	Water	Diabetes Mellitus TI&II
8.	*Ma'jūn-i-'Ushba*[32]	Semi-solid preparation	5-10 g in two divided doses	After meal	15 days to 1 month	Water	Diabetes Mellitus TI&II

Oil for External Application

S. No.	Formulation	Dosage form	Dose per day	Time	Duration & Frequency	Precaution/ Contraindication
1.	*Roghan-i-Gul*[32]	Oil for local application	Q. S. / for external use	As directed by the physician	15 days to 1 month	NS
2.	*Roghan-i-Bābūna*	Oil for local application	Q. S. / for external use	As directed by the physician	15 days to 1 month	NS
3.	*Roghan Surkh*[32]	Oil for local application	Q. S. / for external use	As directed by the physician	15 days to 1 month	NS
4.	*Roghan-i-Sosan*[11]	Oil for local application	Q. S. / for external use	As directed by the physician	15 days to 1 month	NS

Note: Out of the drugs mentioned above, any one or a combination of two or more may be prescribed by the physician. *'Ilāj bi'l Tadbīr* (regimenal therapy) described under principles of management may be recommended as per assessment of physician about the condition

of the patient and stage of disease. The duration of the treatment may vary from patient to patient. The physician should decide the dosage (per dose) and duration of the therapy based on the clinical findings and response to the therapy.

Recommended Diet and Lifestyle

Patient Education: Patients should be educated in the chronicity of this condition. If they know and understand ahead of time that it can be several years before symptoms are completely resolved, apprehension and a feeling of urgency for functional return may be decreased.[34]

Exercise: A useful exercise that can be performed in the patient's home and with the therapist is known as the sleeper stretch, which works on improving internal rotation. In the lateral decubitus position (patient on side), with the affected shoulder down against the bed, the elbow is flexed 90° and the unaffected arm pushes it towards the bed.[25]

Yoga: Various yoga practices are helpful for the management of patients with adhesive capsulitis.[35] Yoga maintains existing joint function and prevents further loss of range of movements. Some of the asanas that may be helpful in adhesive capsulitis are garudasana and dhanurasana.[36] Few of the standing group of asanas that can be practiced are *tadasana, tiriyakatadasana, katichakrasana, trikonasana, ardhakatichakrasana, dwikonasana, ardhachakrasana, natarajasana etc.*

Nutrition: Vitamin C has anti-inflammatory properties, and it may be used to treat primary frozen shoulder at an early stage or to prevent secondary frozen shoulder

Restricted Diet and Lifestyle[25,38]

Diet: Avoid diet rich in saturated fats such as butter, cheese, red meat and other animal-based foods, and tropical oils, as hypercholesterolemia, particularly hyper-low-density lipoproteinemia have significant associations with primary frozen shoulder.

Activity modification: Patients should be advised to avoid exacerbating activities to interrupt the cycle of ongoing inflammation. This may necessitate significant time off work or away from leisure activities.

Unani Medicine's Perspective:

Dos & Don'ts[11,15]

Dos	Don'ts (Disease aggravating factors)
• Use of easily digestible food • Regular exercise • *Istifrāgh-i-Mādda* (evacuation of morbid matter)	• Excessive diet • Use of alcohol • Physical exertion with full stomach • Excess use of sugar • Exercise in full stomach

Dos	Don'ts (Disease aggravating factors)
	• Drinking water empty stomach in the morning • Insomnia • Emotional disturbances

Follow up (every 15 days or earlier as per the need)

Reviews should include:[25]

- Monitoring the patient's symptoms and impact on their daily activities and overall quality of life.
- Monitoring the clinical course of adhesive capsulitis over long-term.
- Management of adhesive capsulitis in terms of exercise.
- Discussing the concerns of the patients related to treatment, their knowledge of the condition, and their ability to access services.
- Reviewing the effectiveness and tolerability of all treatments.
- Self-management support.

Referral Criteria

- Non-response to treatment
- Evidence of an increase in severity/complications
- Substantial impact on their quality of life and activities of daily living
- Diagnostic uncertainty
- Uncontrolled co-morbidities, such as diabetes, hypothyroidism etc.

At Level 2 (CHC/Small hospitals (10-20 bedded hospitals) with basic facilities such as routine, investigation, X-ray)

Clinical Diagnosis: Same as level 1. The case referred from level 1, or a fresh case must be evaluated thoroughly for any complications.

Investigations: The diagnosis would be primarily clinical. However, some investigations may be necessary to investigate complications or exclude other differential diagnoses as follows:

- X-Ray
- Magnetic resonance imaging

Other procedures:

Physiotherapy: Physiotherapy is the cornerstone of successful treatment and should be initiated as early as possible in the disease course.[39] Evidence suggests manual mobilisation

techniques with exercise are effective for adhesive capsulitis.[21,38,40] Passive mobilisation and capsular stretching are two of the most commonly used techniques. Maitland technique (a high-grade mobilization technique in which to and fro movements or oscillations are applied to the affected areas) and combined mobilizations have proven beneficial effects in adhesive capsulitis.[41]

Management: Same as level 1 and/or the following treatment:

Single drugs and compound Unani formulations for internal/external use

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicle)	Contraindication
1.	*Ḥabb-i-Asgand*[32]	Pills	500 mg-1 g	After meal	15 days to 1 month	water	NS
2.	*Ma'jūn-i-Sūranjān*[32]	Semi-solid preparation	5-10 g in two divided doses	After meal	15 days to 1 month	water	Diabetes Mellitus I & II
3.	*Roghan-i-Sūranjān*[32]	Oil for local application	Q. S. / for external use	As directed by the physician	15 days to 1 month	-	NS
4.	*Roghan-i-Chahār Barg*[32]	Oil for local application	Q. S. / for external use	As directed by the physician	1-3 months	-	NS
5.	*Roghan-i-Zaytūn*[32]	Oil for local application	Q. S. / for external use	As directed by the physician	15 days to 1 month	-	NS
6.	*Tukhm-i-Khaṭmī* (*Althea officinalis* L.)[32]	Seeds	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS
7.	*Zanjabīl* (*Zingiber officinale* Rosc.)[32]	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS

Management with *Munḍij-o-Mushil* therapy (Concoctive and Purgative therapy)

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
1.	*Sūranjān* (*Colchicum autumnale* L.) 5 g, *Chira'ita* (*Swertia chirayita* (Roxb. ex Flem.) Karst.)	Decoction	100 ml	Morning before the meal	15-21 days	Water	Pregnancy

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contraindication
	7 g, *Shāhtra* (*Fumaria officinalis* L.) 7 g, *Aftīmūn* (*Cuscuta reflexa* Roxb.) 5 g, *Bisfā'ij Fustaqī* (*Polypodium vulgare* L.) 5g, *'Unnāb* (*Zizyphus jujuba* Mill.) 5 No., *Bādiyān* (*Foeniculum vulgare* Mill.) 7 g, *Bekh-i-Bādiyān* (Root of *Foeniculum vulgare* Mill.) 7 g						
2.	**Note:** After completion of course of above *Munḍij* and appearance of signs of *Nuḍj* in urine, following *Mushil* will be given						
	Ayārij-i- Fayqrā[42]	Powder (*Mushil*)	3-5 g	Early morning before the meal	2-3 days (after appearance of *Nuḍj*)	Water	Pregnancy
		After completion of course of above MM Therapy following *Ma'jūn* will be given					
3.	*Ma'jūn-i-Chobchīnī*[33]	Semi-solid preparation	7 g	After the meal at bedtime	15 days (after *Mushil* therapy)		Diabetes Mellitus I & II

Management with *'Ilāj bi'l Tadbīr* (Regimenal therapy): As described under principles of management according to the assessment of physician about the condition of the patient and stage of disease.

- ***Ḥijāma bi'l Sharṭ* (Wet cupping):**

- *Ḥijāma bi'l Sharṭ* (Wet cupping) just beneath the affected joint.[16]

- ***Ṭilā'*(Liniment):**

- Add *Lu'āb-i-Ḥulba* (Mucilage of seeds of *Trigonella foenum-graecum* L.) with powder of *Tukhm-i-Katān* (seeds of *Linum usitatissimum* L.) and Sesame oil and apply on the affected part.[11]

- ***Ḍimād* (Poultice):**

  Maghz-i-Bed-i-Anjīr (Seed kernel of *Ricinus communis* L.) 3 parts, clarified butter1 part and honey 1 part are prepared as *Ḍimād* (Poultice) and applied locally on affected joint.[11]

- ***Inkibāb* (Vapour bath):**

- *Inkibāb* with *Ḥurmul* (*Preganum harmala* L.) soaked in Vinegar.[11]

- ***Tamrīkh* (Moistening and rubbing a part of body with a liniment or lotion):**

  Roghan-i-Khardal is used to massage the affected joint.[11]

- ***Naṭūl* (Douche):**

  Decoction of *Bikh-i-Kabar* (Root of *Caparis spinosa* L.) is used for this purpose.[15]

Recommended Diet and Lifestyle: Same as level 1

Restricted Diet and Lifestyle: Same as level 1

Follow up (every 15 days or earlier as per the need)

Referral Criteria

- Same as mentioned earlier at level 1, plus
- Failure of acute exacerbation to respond to initial medical management.
- Advanced stages of disease

At Level 3 (Ayush hospitals attached with teaching institution, District Level/Integrated/ State Ayush Hospitals, Tertiary care allopathic hospitals having Ayush facilities), multiple departments/facilities for diagnosis and interventions. Must provide additional facilities like dieticians, counselling, and physiotherapy unit.

Clinical Diagnosis: Same as levels 1 & 2.

Investigations:

- X-Ray
- Magnetic resonance imaging
- Arthrography
- Magnetic resonance arthrography
- Computed tomography arthrogram

Management: Same as level 1&2 and/or the following treatment:

Single drugs and compound Unani formulations for internal/external use

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicle)	Contraindication
1.	*Ḥabb-i-Sūranjān*[32]	Pills	1-3 g in two divided doses	After meal	15 days to 1 month	water	NS

S. No.	Drug	Dosage form	Dose (per day)	Time of administration	Duration & Frequency	*Badraqa* (vehicle)	Contraindication
2.	*Ma'jūn-i-Chob Chīnī*[32]	Semi-solid preparation	5-10 g in two divided doses	After meal	15 days to 1 month	water	Diabetes Mellitus TI&II
3.	*Ma'jūn-i-Flāsifa*[32]	Semi-solid preparation	5-10 g	After meal	1-2 months	Water	Diabetes Mellitus TI&II
4.	*Roghan-i-Bābūna Qawī*[32]	Oil	Q. S./ for external use	Morning and night	1-3 months	-	NS
5.	*Roghan-i-Bed-i-Injīr*[32]	Oil	Q. S. / for external use	Morning and night	1-3 month	-	NS
6.	*Roghan-i-Ḥaft Barg*[32]	Oil	Q. S. / for external use	Morning and night	1-3 month	-	NS
7.	*Roghan-i-Awrāq*[32]	Oil	Q. S. / for external use	Morning and night	1-3 month	-	NS
8.	*Roghan-i-Ḥinnā*	Oil	Q. S. / for external use	Morning and night	1-3 month	-	NS
9.	*Chob Chīnī* (*Smilax china* L.)[32]	Powder	5-10 g. in two divided doses	After meal	15 days to 1 month	water	NS
10.	*Sanā* (*Cassia angustifolia*- Vahl.)[32]	Leaves Powder (Oral)	5-10 g. in two divided doses	After meal	15 days to 1 month	water	pregnancy

- In case of accumulation of excessive *Balghamī Mādda* (phlegmatic morbid matters) in the shoulder joints, the following formulations may be given:

Management with *Munḍij-o-Mushil* therapy (Concoctive and Purgative therapy)

S. No.	Formulation	Dosage form	Dose	Time	Duration	*Badraqa* (vehicle)	Precaution/ Contra-indication
1.	*Gul-i-Banafsha* (*Viola odorata* L. flowers) 7 g, *Chirā'ita* (*Swertia chirayita* (Roxb. ex Flem.) Karst.) 7 g, *Shāhtara* (*Fumaria officinalis* L.) 7 g, *Mako Khushk* (dried *Solanum nigrum* L.) 5 g, *Bādiyān* (*Foeniculum vulgare* Mill.) 7 g, *Bekh-i-Bādiyān* (*Foeniculum vulgare* Mill. root) 7 g, *Sūranjān* (*Colchicum autumnale* L.) 5 g, *Mawīz Munaqqā* (Deseeded dried fruit of *Vitis vinifera* L.) 9 No.[42]	Decoction	100 ml	Morning before the meal	10-15 days	Water	Pregnancy
2.	**Note:** After completion of course of above *Munḍij* and appearance of signs of *Nuḍj* in urine, following *Mushil* will be given						
	Gul-e- Surkh (Flower of *Rosa damascena* Mill.) 7 g, *Sanā* (Leaves of *Cassia angustifolia* Vahl.) 7 g, *Maghz-i-Falūs Khayār shambar* (Pulp of fruit devoid of seeds *Cassia fistula* Linn.) 46.8 g, *Turanjbīn* (*Alhagi pseudalhagi* (Bieb.) Desv.) 46.8 g, *Maghz-i-Bādām* (Seed kernel of *Prunus amygdalus* Batsch) 5 no.[42]	Decoction	100 ml	Early morning before the meal	2-3 days (after appearance of *Nuḍj*)	Water	Pregnancy

Management with *'Illāj bi'l Tadbīr* (Regimenal therapy): described under principles of Management as per assessment of physician about the condition of the patient and stage of disease

***Ṭilā'*(Liniment):**

- Powder of *Ḥulba* (*Trigonella foenum-graeceum* L.) mixed with vinegar and boiled with honey till all the water dries. This dried mixture is again mixed in *Roghan-i-Gul* and applied on affected joint with the help of a piece of linen cloth for 2-3 days[11].

***Tamrīkh* (Moistening and rubbing a part of body with a liniment or lotion):**

- Massage with *Roghan-i-Zaytūn* (Olive oil) after mixing with salt.[15]

***Naṭūl* (Douche):**

- Irrigation with decoction of *Pudīna* (*Mentha arvensis* L.), *Ḥāshā* (*Thymus serpyllum* L.) and *Ṣa'tar* (*Zataria multiflora* Boiss.)[15]
- Irrigation with decoction of *Bābūna* (*Matricaria chamomilla* L.), *Nākhūna* (*Astragallus homosus* L.) and *Khaṭmī* (*Althea officinalis* L.) and *Qanṭūriyūn* (*Centaurium erythraea* Rafn).[15]

***Ḍimād* (Poultice):**

- Local application of *Roghan-i-Bābūna* mixed with *Marham Dākhilīyūn*[15]

Recommended Diet and Lifestyle: Same as levels 1 & 2

Restricted Diet and Lifestyle: Same as level 1& 2

Follow up (every 15 days or earlier as per the need)

Referral Criteria

- Same as mentioned earlier at level 2, plus
- Other modalities can be considered depending on the case and to rehabilitate properly.

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