



Treatment Guidance: Arthroscopic Meniscal Surgery (Flow Chart)

Common Clinical Presentations

RECOMMENDATION

Integrated Assessment

History
Symptoms, Duration

Examination
Signs

Imaging
Per imaging protocol:
X-ray and/or MRI

Meniscal Tear
(+/- osteoarthritis)

No Meniscal Tear
[Alternative Treatment Pathways]

1 Locked Knee
Assessment:
Arthroscopic meniscal surgery indicated

Urgent Arthroscopic Meniscal Surgery

2 Advanced Structural OA
Assessment:
Arthroscopic meniscal surgery usually not appropriate

No Arthroscopic Meniscal Surgery

3 Acute Injury with Meniscal Target (MRI)
Assessment:
Meniscal preservation may be appropriate

Consider Arthroscopic Meniscal Repair
(if suitable candidate)

4 Meniscal Target (MRI) & Corresponding Symptoms / Signs
Assessment:
Arthroscopic meniscal surgery may be beneficial after a trial of non-surgical treatment

Symptoms > 3 months

Consider Non-Urgent Arthroscopic Partial Meniscectomy

Symptoms < 3 months

Optimal Non-Operative Treatment & Re-Assess

e.g. provide information, physiotherapy, exercise, analgesia, steroid injection

5 Possible Meniscal Target (MRI) & Corresponding Symptoms / Signs
Assessment:
Further non-surgical treatment is first line
(Arthroscopic meniscal surgery may be indicated in selected cases if symptoms do not improve)

Definitions and terminology:

Degenerative meniscus and meniscal tears

- A degenerative meniscus develops progressively with degradation of meniscal tissue and this may be revealed by intra-meniscal high signal on MRI imaging.
- A meniscal 'tear' is a defect or split in the meniscocapsular complex, which can occur in a degenerative or non-degenerative meniscus.
- Degenerative meniscal lesions (high signal or tear) are frequent in the general population and are often incidental findings on knee MRI. There may or may not be a memorable history of knee injury.

Approach to imaging (secondary care imaging protocol)

1. Plain radiographs (weight-bearing AP and lateral +/- Rosenberg +/- skyline view) are the first line investigation when OA is suspected.
 2. In patients where OA is not suspected, MRI is the first line investigation*.
 3. If plain radiographs do not demonstrate advanced osteoarthritis (Kellgren-Lawrence-L 4) and meniscal symptoms predominate, then MRI imaging is indicated.
- *In certain cases, when clinical findings are conclusive (e.g. locked knee), clinicians may apply their own judgement on the need for MRI imaging.

Classification of structural osteoarthritis (OA)

- **Early or No Structural OA:** Kellgren-Lawrence Grade 0 or 1 on plain radiographs and/or Normal MRI, or MRI with possible chondral signal change and no chondral loss.
 - **Mild to Moderate Structural OA:** Kellgren-Lawrence Grade 2 or 3 on plain radiographs and/or Partial thickness chondral loss on MRI.
 - **Advanced to End-stage Structural OA:** Kellgren-Lawrence Grade 4 on plain radiographs and/or significant areas of full thickness chondral loss on MRI*.
- *Excluding cases of contained full thickness cartilage / osteochondral defects.

Classification of symptoms and signs

MENISCAL: Strongly Suggestive of a Treatable Meniscal Lesion

- **Locked knee:** sudden onset, complete mechanical block to flexion or extension of the knee, detected on clinical examination and which does not resolve despite adequate analgesia.
- **Locking:** An intermittent block to normal range of movement of the knee (commonly a block to extension) with an associated unlocking movement. Knee returns to near normal after unlocking.
- **Catching:** the sensation of something intermittently out of place in the knee and interfering with joint movement.
- **Tender, palpable meniscal tissue:** the finding on clinical examination of a discrete, tender lump, close to the joint line.

POSSIBLY MENISCAL: Potentially Suggestive of a Treatable Meniscal Lesion

- **Episodic sharp knee pain:** sharp, intermittent knee pain, occurring with sudden onset.
- **Intermittent knee swelling:** symptom of periodic swelling of the knee, lasting for hours to days, that has occurred over a period of weeks or months.
- **Knee effusion:** a clinically detectable intra-articular fluid collection of the knee joint.
- **Activity avoidance:** the active avoidance of specific, potentially provoking, movements or activity e.g. twisting.
- **Squatting pain:** knee pain that is exacerbated by deep flexion when weight bearing (may be reported by the patient or elicited during clinical examination).
- **Clicking +/- pain:** Clicking: a clicking noise or sensation when moving the knee. Painful clicking: a clicking noise or sensation when moving the knee that is associated with pain.
- **Meniscal provocation tests:** e.g. McMurray's, Apley's, Thessaly.
- **Joint line point tenderness:** point tenderness on the joint line, detected on clinical examination.
- **Posteromedial joint line tenderness:** tenderness on deep palpation of the joint line, from mid medial collateral ligament posteriorly, corresponding to the location of the commonest posteromedial degenerative meniscal lesion.

ARTHRITIC: Osteoarthritic Symptoms and Signs

- **Inactivity pain and stiffness:** the temporary, subjective sensation of stiffness on initiation of movement, often with pain, after periods of immobility (e.g. sleeping, prolonged sitting).
- **Crepitus:** crunching, grating or creaking detected clinically on active movement of the knee.
- **Bony enlargement:** abnormal shape of the normal knee bony contour visible on inspection or detected on clinical examination.
- **Bony tenderness:** tenderness on clinical palpation of the bone adjacent to the joint.
- **Aching pain:** constant knee pain during and after activity.

Classification of meniscal lesions

TARGET (Treatable Lesion: meniscal surgery may be indicated based on appearance)

- **"Bucket-handle" tear:** a longitudinal tear or peripheral separation involving MORE than 25% of meniscus length (either displaced or undisplaced).
- **Displaced meniscal tear:** a meniscal lesion with meniscal fragments displaced from their usual anatomical position.
- **Meniscal root failure:** a complete tear or avulsion of the meniscal root.

POSSIBLE TARGET (Indeterminate Lesion: meniscal surgery may be indicated based on appearance)

- **Undisplaced meniscal tears:**
 - Radial tear:
 - Radial flap tear: a vertical and oblique meniscal tear lesion (parrot beak type).
 - Complete radial split tear: a radial meniscal tear lesion that extends to the meniscocapsular junction.
 - Partial radial split tear: a radial tear that does not extend to meniscocapsular junction.
 - Horizontal tear +/- cyst:
 - Horizontal cleavage tear and meniscal cyst: a horizontal meniscal cleavage lesion that is associated with a meniscal cyst.
 - Horizontal cleavage tear in isolation: meniscal horizontal cleavage lesion without an associated cyst.
 - Complex meniscal lesion: a meniscal lesion with more than 1 plane of tear in continuity.
 - Short longitudinal tear: a longitudinal meniscal tear lesion involving LESS than 25% of the overall meniscus length.

NO TARGET (Unlikely Treatable: meniscal surgery not indicated based on appearance)

- **Contour abnormality:** a meniscus with an abnormal edge contour and very minor tear only.
- **Isolated meniscal extrusion:** extension of the meniscus beyond the tibial margins without any associated meniscal tear.
- **No tear.**

Clinical Case Examples:

RECOMMENDATION

Case 1

Onset: 1 week ago, twisting injury
Symptoms/Signs: Locked Knee
Imaging: Bucket handle meniscal tear

Urgent Arthroscopic Meniscal Surgery

Case 2

Onset: 6 months ago, no injury
Symptoms/Signs: Arthritic
Imaging: Advanced structure OA +/- Meniscal tear

No Arthroscopic Meniscal Surgery

Case 3

Onset: 1 week ago, twisting injury
Symptoms/Signs: Meniscal
Imaging: Longitudinal tear in repairable zone of meniscus.

Consider Arthroscopic Meniscal Repair
(if suitable candidate)

Case 4

Onset: 1 month ago
Symptoms/Signs: Meniscal
Imaging: Displaced parrot beak tear. Moderate OA.

Optimal Non-Operative Treatment
& Re-Assess

Case 5

Onset: 4 months ago
Symptoms/Signs: Meniscal
Imaging: Displaced parrot beak tear. Moderate OA.

Consider Non-Urgent Arthroscopic
Partial Meniscectomy

Case 6

Onset: 6 months ago
Symptoms/Signs: Possibly meniscal
Imaging: Complex posterior horn tear.

Optimal Non-Operative Treatment
& Re-Assess