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For all spinal MR requests, please include the following in the clinical request details

- 1. Duration of symptoms**
- 2. Specific level and side of radicular pain or radiculopathy (i.e. neurological deficit)**
- 3. Any adverse features or red flags (see below)**

Indication Criteria for Musculoskeletal MRI for GP requesting only

SPINE

Imaging rarely useful in absence of neurological signs/red flags/adverse features. NICE guidance states: Requests for imaging by non-specialist clinicians, with no suspicion of serious underlying pathology, can cause unnecessary distress and lead to further referrals for findings that are not clinically relevant. Radiographs of the lumbar spine have limited value when requested by general or other practitioners for back or radicular pain (consider only if focal refractory back pain and there is concern of an osteoporotic vertebral fracture).

CERVICAL SPINE

MRI indicated in patients radiculopathy or adverse features

- If there is radicular pain state side and suspected level(s)
- If there is loss of power, state side and muscle group

If there is no radiculopathy, then the patient must have adverse features, which include:

- focal neurological deficit defined to a spinal nerve root or spinal cord level
- focal refractory pain
- recent trauma
- previous, current or suspected malignancy
- known or suspected infection
- known or suspected inflammation and/or symptoms of myelopathy

Consider simultaneous patient referral to the orthopaedic spine team.

MRI is not indicated in patients with acute/chronic neck pain without neurology or adverse features; please note generalised arm pain, altered sensation, pins and needles and numbness is not an indication. Please specify dermatomal distribution for pain and weakness.

THORACIC SPINE

MRI indicated in patients with neurology or adverse features (see above)

Not indicated in patients with acute/chronic back pain without adverse features.

INFLAMMATORY SPINE (THORACIC, LUMBAR SPINE AND SACROILIAC JOINTS)

NICE guidance: Young people and adults with low back pain with or without sciatica do not have imaging requested by a non-specialist service (such as a GP practice) unless serious underlying disease is suspected.

Specialist referral only.

Indication Criteria for Musculoskeletal MRI for GP requesting only

LUMBAR SPINE

Patients with acute back pain (≤6 weeks) with potentially serious features as below should be referred directly to specialist care as an emergency. In acute cauda equina – please refer to orthopaedics as this is a surgical emergency.

Neurological (cauda equina syndrome/suspected spinal cord neurology)

- **Sphincter and gait disturbance**
- **Saddle anaesthesia**
- **Severe or progressive motor loss**
- **Widespread neurological deficit**

Patients with acute back pain (≤6 weeks) with any of the below should have an urgent MRI.

- focal neurological deficit defined to a spinal nerve root or spinal cord level
- Focal refractory pain – concern for osteoporotic fracture
- Previous, current or suspected malignancy
- Immunosuppression
- Steroid use
- Clinical suspicion of discitis

Patient's with back pain over 6 weeks with neurology could consider an MRI:

- Confirm patient has neurological signs
- Consider patient referral to the orthopaedic spine team

Not indicated in patients with acute/chronic back pain with no radicular symptoms, no red flag/ adverse features, sciatica for less than 6 weeks or chronic back pain for over 6 weeks.

Indication Criteria for Musculoskeletal MRI for GP requesting only

HIP

Confirm patient has:

- Plain radiograph within last 3 months
 - o If plain radiograph findings do not correlate with the patient's clinical findings i.e. plain radiograph is normal - MRI is then indicated.
- MRI also indicated in patients with suspected avascular necrosis or insufficiency fracture.

KNEE

MRI indicated in patients with:

- Acute knee pain following significant trauma such as sporting injury, fall or road traffic accident.
 - o Plain radiograph first
 - o MRI indicated, consider simultaneous specialist referral
- Non-traumatic knee pain under 50 years
 - o MRI indicated
- Chronic knee pain in patients aged 50 years or above i.e. over 4 weeks

- o Plain Radiograph within the last 6 months

MRI not indicated in patients over 50 years unless suspected insufficiency fracture, a locked knee or suspected avascular necrosis – in which case, specialist referral is recommended alongside the MRI request.

ANKLE AND FOOT

Confirm patient has:

- Plain radiograph within last 3 months. If plain radiograph findings do not correlate with the patient's clinical findings with clinical suspicion of an insufficiency fracture only- MRI is indicated.
- Patients with a history of trauma (i.e. inversion injury) a plain radiograph first, which if normal and if clinical symptoms persist at 6 months after the injury, an MRI ankle could be considered.
- In atraumatic ankle pain in patients with a normal radiograph – MRI would be indicated to assess for a radiographically occult/insufficiency fracture or if the patient has features of tibialis posterior dysfunction (e.g. pain and swelling behind or below the medial malleolus) only.

Indication Criteria for Musculoskeletal MRI for GP requesting only

SHOULDER

Ultrasound is the investigation of choice in the assessment of rotator cuff and surrounding soft tissues.

Features of shoulder instability or pre-op planning MRI should be by specialist referral only. Specialist referral only.

BRACHIAL PLEXUS

Specialist referral only.

ELBOW

Specialist referral only.

WRIST

Specialist referral only.

Indication Criteria for Musculoskeletal MRI for GP requesting only

SOFT TISSUE MASS

Confirm patient has had an ultrasound. Specialist referral.

SUSPECTED OSTEOMYELITIS

Specialist referral only.

SUSPECTED BONE TUMOUR

Specialist referral only.

Radiograph should be performed first. If radiographic appearances are suggestive of primary bone tumour, referral to a specialist centre should not be delayed.

Indication Criteria for Musculoskeletal MRI for GP requesting only

PAEDIATRIC GUIDANCE

PAEDIATRIC SPINE

- In patient's 0-12 years with focal or persistent neck/back pain, consider MRI with concurrent referral to the paediatric orthopaedics
- In patient's above 12 years with focal or persistent pain, consider MRI and refer accordingly if appropriate.

PAEDIATRIC HIP

- Radiographs of the pelvis (AP and frog lateral) are recommended first
- If radiographs are normal and symptoms persist, consider MRI with concurrent referral to paediatric orthopaedics

PAEDIATRIC KNEE

- If a patient has knee pain please examine the hip – if there are any hip symptoms, radiographs of the hip and knee are recommended.
- In patients with a history of trauma, consider MRI and refer accordingly if appropriate.

REFERENCES

1. Royal College of Radiologists, iRefer guidelines
2. NICE guidance: Low back pain and sciatica in over 16s: assessment and management (NG59)
 - a. <https://www.nice.org.uk/guidance/ng59>
3. Trauma Programme of Care: NHS England, National low back pain and radicular pain pathway 2017.
 - a. <https://www.ukssb.com/improving-spinal-care-project>