Interspinous bursitis (Baastrup's disease)

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Section: Musculoskeletal system
Area of Interest: Musculoskeletal spine Musculoskeletal soft tissue
Procedure: Contrast agent-other
Procedure: Diagnostic procedure
Imaging Technique: Fluoroscopy
Imaging Technique: MR
Imaging Technique: CT
Special Focus: Inflammation Case Type: Clinical Cases
Authors: Nicholas Napier, Noel Napier
Patient: 19 years, female

Clinical History:

19-year-old female patient, keen amateur runner and gaelic football player, presented with acute on chronic symptoms of non-radicular lower back pain. Symptoms were exacerbated by sporting activities and on hyper-extension. On examination there was vague tenderness over the lumbar region in the midline. An MRI was performed.

Imaging Findings:

MRI of lumbosacral spine (Fig. 1): On the T2 weighted sequence (Fig. 1b and 1c) there is a focal area of abnormal high signal intensity in the soft tissues between the L4 and L5 spinous processes. The use of fat suppression (Fig. 1c) improves the contrast between the focal area of abnormality and adjacent normal tissues. On the T1 weighted sequence (Fig. 1a) findings are much more subtle and consist of slight reduction in T1 signal and osteophyte formation of the undersurface of the posterior process of L4. Axial T1 and T2 slices (Fig. 2a and 2b) through the site of clinical interest reveal similar signal changes.

Fluoroscopic assessment (Fig. 3a, b) of the abnormal focus identified on MRI was performed as part of a therapeutic procedure. A small volume of iodinated contrast was injected which demonstrated a small contained potential space/fluid collection.

Discussion:

Interspinous bursitis or Baastrup’ disease is caused by chronic contact between adjacent spinous processes [1], repetitive flexion and extension is thought to strain the spinous ligaments. Chronic contact results in changes to the bone with hypertrophy, sclerosis, inflammatory changes and bursae can develop between affected spinous processes. [2] Repetitive activity aggravates symptoms and is thought to impair a normal healing process. [1]

Bursae formation as occurred with our young patient, most commonly occur at L4-L5. [1]

Degenerative changes of the spine including Baastrup's disease are generally considered to be a disease of the older population [2, 3] and in symptomatic populations the condition is not infrequent. [2] Symptoms are typically those of pain on hyperextension [2] The condition has also been described with increased frequency in young
athletes. [1]

Radiographic changes include enlargement of the spinous processes, reduced distances between adjacent spinous processes and reactive sclerotic changes.

Lumbar interspinous bursitis can be diagnosed on MRI as fluid signal between opposing spinous processes with high signal on T2 weighted sequences and low signal on T1 weighted sequences. [1, 2, 3, 4] Sagittal fat suppressed sequences can be useful adjunct to the standard imaging sequences of the lumbar spine. Associations have been demonstrated with anterolisthesis and central canal stenosis. [2]

Bone SPECT studies and PET scanning have also been shown to demonstrate increased uptake in this disease process related to osteoblastic activity and inflammatory changes respectively. [1]

Bursography is rarely necessary in the diagnosis of interspinous bursitis, it was performed in this patient to confirm appropriate location for thereaupheutic steroid injection and confirmed the presence of a bursae.

Treatment options include conservative measures with rest and targeted steriod injection. [1] In patients with persistent symptoms surgical options can be considered.

Teaching points

Although unusual in younger patients this condition should be considered among the differential of low back pain, particularly if pain is exacerbated by hyperextension and if there is a history of regular athletic activity.

MRI allows detection of interspinous abnormalities [1] and diagnosis of interspinous bursitis. Fat suppressed T2 weighted sequences can be helpful in identifying areas of inflammation/bursae formation.

Steroid injection has been demonstrated to be a successful form of conservative treatment. [1, 2, 4]

**Differential Diagnosis List:** Interspinous bursitis (Baastrup's disease), Trauma, Posterior epidural cyst

**Final Diagnosis:** Interspinous bursitis (Baastrup's disease)

**References:**


Description: Essentially normal sagittal T1, subtle low signal between L4 and L5 spinous processes and early osteophyte formation on the undersurface of the L4 posterior process. Origin: Department of Radiology, Musgrave Park Hospital, Belfast, UK.
Description: T2 high signal intensity changes are evident between the L4 and L5 spinous processes.
Origin: Department of Radiology,
Musgrave Park Hospital, Belfast, UK
Description: T2 high signal between the posterior processes of L4 and L5. Fat suppression helps to identify the inflamed region. Origin: Department of Radiology, Musgrave Park Hospital, Belfast, UK.
Description: Lateral view of the interspace between the posterior processes of L4-L5 demonstrates contained contrast filling of a bursa, this image was obtained just prior to steroid injection. Origin: Department of Radiology, Musgrave Park Hospital, Belfast, UK
Description: AP view of the interspace between the posterior processes of L4-L5 demonstrates contained contrast filling of a bursa, this image was obtained just prior to steroid injection. Origin: Department of Radiology, Musgrave Park Hospital, Belfast, UK
**Figure 3**

Description: Axial T2 slice at level of clinical interest

Subtle area of high signal in the midline posterior to the spinous process is the region of abnormality identified on Fig 1a-c. **Origin:** Radiology Department, Musgrave Park Hospital, Belfast, UK
Description: Axial T1 at level of clinical interest.

Matching slice level from the T2 weighted sequence, note the now corresponding T1 low signal. Origin: Radiology Department, Musgrave Park Hospital, Belfast, UK