



## Audit

# Hip osteoarthritis: where is the pain?

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**Background:** Pain radiating below the knee is typically thought to originate from the lumbosacral spine rather than degenerative hip pathology. We investigated the lower limb distribution of pain using body image maps in 60 patients awaiting primary hip arthroplasty and in 60 patients awaiting spinal decompression for confirmed spinal stenosis. The perception of 33 orthopaedic registrars regarding distribution of hip pain was also assessed.

**Results:** Groin and buttock pain are significantly more common in hip osteoarthritis. The presence of groin pain is 84.3% of those sensitive for hip dysfunction with a specificity of 70.3%. Patients with hip osteoarthritis had pain below the knee in 47% of cases whereas 88.5% of orthopaedic trainees believed hip pain did not radiate below the knee. Radiographic features of osteoarthritis within the hip joint, visual analogue pain score or Oxford Hip Score have no significant association with a patient's distribution of hip pain.

**Conclusions:** Hip pain referred below the knee is common with a degenerate hip joint and follows the distribution of the saphenous nerve, which branches from the femoral nerve. Radiographic deterioration of a hip joint does not correlate with pain distribution or patient dysfunction as measured by the Oxford Hip Score.

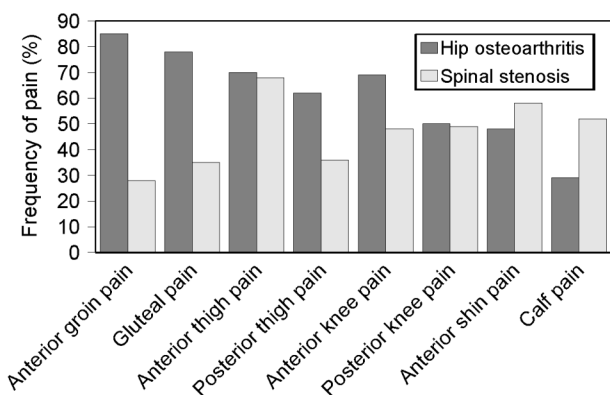
**Key words:** Hip osteoarthritis – Pain location – SpR perceptions

An increasing number of patients present for joint replacement surgery of lower limb joints including the hip, but accurate diagnosis remains important as it is possible to be confused by symptoms which might arise in other structures. The distribution of pain is an important factor in reaching an accurate diagnosis of arthritis of the hip.<sup>1</sup> Pain in the groin, thigh and knee are generally accepted components of such pain, but pain radiating below the knee is typically thought to originate from the lumbosacral spine rather than the hip.<sup>2</sup> In particular, the pain arising from lumbar spinal stenosis (calf and leg pain, worse on walking) may be difficult to differentiate from hip pain.

We assessed the distribution of pain in 60 patients on a waiting list for primary hip arthroplasty and compared the pain distribution with an equal number of patients awaiting decompression for spinal stenosis. We compared these findings with the beliefs of senior orthopaedic trainees in the Northwest Region regarding pain distribution with a degenerate hip joint.

### Patients and Methods

A pain map was filled in by two groups of 60 patients awaiting total hip replacement or decompression for spinal stenosis. The map for patients awaiting a primary



**Figure 1** Pain distribution in hip osteoarthritis and spinal stenosis.

*Table 1 Sensitivity and specificity of pain location for hip osteoarthritis*

Location of pain	Sensitivity for hip pain (%)	Specificity for hip pain (%)
Groin pain	84.3	70.3
Buttock pain	76.4	61.1
Anterior thigh pain	58.8	25.9
Posterior thigh pain	43.7	59.9
Anterior knee pain	68.6	48.1
Posterior knee pain	50.9	44.4
Shin pain	47	35.2
Calf pain	29.4	40.7

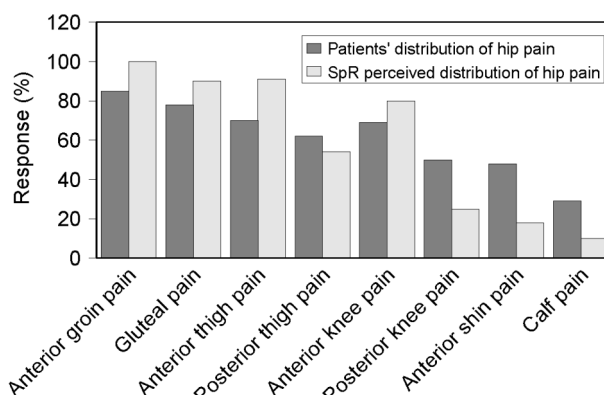
hip arthroplasty for osteoarthritis was administered to 60 patients randomly selected from a hip replacement waiting list. The pain map had been completed as part of clinical management in patients awaiting spinal decompression, and this was retrieved from 60 patients who had undergone spinal decompression for lumbar stenosis. In both cases, patients were requested to mark on the map the areas of the limb that experienced pain. For analysis, the anterior surface of the leg was divided into the groin, anterior thigh, knee and shin. The posterior surface of the leg was divided into the gluteal area and the posterior surfaces of the thigh, knee and calf

Orthopaedic trainees' perception of hip pain distribution was evaluated by asking them to shade the areas of a body image pain map 'where pain from the hip may be felt'.

The pain distribution in the two conditions was compared to determine whether it is possible to differentiate between them on the basis of the pain distribution.

**Results**

From the 51 patients awaiting a primary hip arthroplasty who replied to the questionnaire, 32 were female with a mean age 61.7 years (range, 22–85 years) and 29 were male



**Figure 2** Actual distribution of hip pain and perception of distribution of hip pain among trainee orthopaedic surgeons.

with a mean age of 63.8 years (range, 33–86 years). All 60 patients awaiting spinal decompression responded to the questionnaire. The mean Oxford Hip Score was 52.9 (range, 24–63), mean visual analogue scale for pain was 108.9 (range, 14–128) and the mean Kellgren and Lawrence score of the hip radiographs was 12.4 (range, 5–24). No scoring system showed a difference between the two sexes.

Figure 1 demonstrates the distribution of pain in the leg and its frequency in patients with osteoarthritis of the hip joint in comparison to patients with spinal stenosis. A Mann-Whitney test showed that the presence of groin pain and buttock pain was statistically more common with hip dysfunction, and calf pain is statistically more common in spinal stenosis ( $P < 0.05$ ). The location of pain elsewhere in the lower limb was not significantly different in the two patient groups. Table 1 shows that groin pain has a sensitivity of 84.3% and specificity of 70.3% for differentiating hip osteoarthritis from spinal stenosis.

Pain in hip osteoarthritis is clearly not confined to the level of the knee or above since 47.1% of the patients experienced anterior shin pain and 29.4% also experienced calf pain. Figure 2 illustrates the actual distribution of hip pain and the perceptions of orthopaedic SpRs in the Northwest Region of the NHS. Only 15.8% of the orthopaedic trainees believed that hip pain radiated below the knee joint in comparison to the patients' response of 47.1%.

**Discussion**

Pain arising from a degenerate hip joint is clearly not restricted to and above the level of the knee as believed by the majority of orthopaedic trainees. A distribution of pain limited to the level of the knee is also typically described in orthopaedic textbooks.<sup>3</sup> In this study, 47.1% of the patients described anterior shin pain. The source of this pain may be

explained by referral of pain along the saphenous branch of the femoral nerve (which supplies the hip joint). Pain below the knee in a patient presenting with a clinical history suggestive of a hip dysfunction should not lead to distraction or the request of lumbosacral radiographs unless supported by additional clinical history.

The data suggest that although the history is important in assessing hip arthritis, careful examination is also required and correlation with X-rays made. Given this overlap in the distribution of pain, in patients with combined hip osteoarthritis and lumbar spondylosis, it may still be difficult to be confident of the source of the pain. This supports the increasing use of diagnostic hip injections under this circumstance;<sup>4</sup> if patients receive dramatic symptom relief after injection (even if only for a short period), this confirms that the site of the principal pain is likely to be in the hip and that hip arthroplasty may be of benefit.

The only region of pain that we identified which differentiates hip pain from a lumbosacral condition was the

presence of pain within the groin. The remaining pain distribution was not significantly different in the two cases.

### Conclusions

These results confirm the potential diagnostic difficulty of assessing patients with co-existing hip and back disease, and emphasise the value of careful clinical examination and of intra-articular blocks for correct diagnosis.

### References

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