

## Case Report

# Delayed Presentation of Septic Arthritis of a Lumbar Facet Joint After Diagnostic Facet Joint Injection

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**Summary:** We report the case of a 46-year-old, otherwise healthy, man with chronic lower back pain and no evidence of nerve root compression who underwent diagnostic facet joint injections to assist in establishing where his pain sources were located and to try to help his spinal rehabilitation program. He presented with a facet joint infection 2 months after injection, in a manner that was indistinguishable from an acute intervertebral disc herniation. The diagnosis was confirmed on magnetic resonance imaging, and he was successfully treated with surgical debridement and antibiotics. Septic arthritis of a lumbar facet joint with an associated paraspinous abscess is a rare complication of facet joint infiltration with only two similar cases reported in the literature. We propose that this diagnosis be considered in patients who have undergone diagnostic facet joint injection who subsequently deteriorate with back and leg pain without another apparent cause. **Key Words:** Facet joint injection—Intervertebral disc herniation—Septic arthritis.

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## INTRODUCTION

Facet joint infection is a rare clinical entity and is usually hematogenous in origin. Occasionally, it can be associated with lumbar facet joint injection; and although this is described in the literature, it is exceedingly rare (1,2). In view of the serious nature of the condition and potential fatal outcome (3) following what is a commonly performed and generally considered a safe procedure, we consider it worthwhile to present our case. What makes this case particularly unusual is the long delay in clinical presentation.

## CASE REPORT

A 46-year-old man was referred with low back pain that initially settled with physiotherapy but later recurred with

additional pain in the right thigh and calf. Although clinical examination suggested intermittent nerve root entrapment at L3–L4 and L5–S1, an MRI showed only degenerative change and slight loss of disc height at L4–L5 with no nerve root compression. He initially made good progress with further rehabilitation but still had episodes of pain. A set of diagnostic facet joint injections was performed under aseptic conditions using an image intensifier; 3 mL 0.5% bupivacaine and 20 mg triamcinolone were injected into each of the L3–L4, L4–L5, and L5–S1 facet joints. He was very well initially with no back or leg symptoms, confirming that his pain was indeed coming from the posterior elements, but 5 weeks later he developed back pain and thought he had pulled a muscle. He sought help from the physiotherapist who also thought he had pulled a muscle, but manipulation and further exercises failed to improve the situation. He remained systemically well, but the symptoms did not improve and 2 weeks after their onset he developed severe right buttock and posterior thigh pain. He had no neurologic symptoms or

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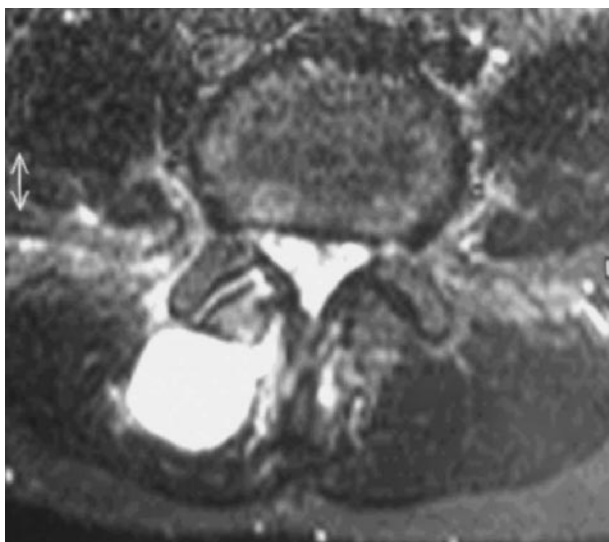
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objective neurologic loss, but his back was in spasm when reviewed and straight leg raising on the right was limited to 20° with a positive sciatic stretch test. A clinical diagnosis of a coincidental disc herniation was made, and a repeat MRI was performed.

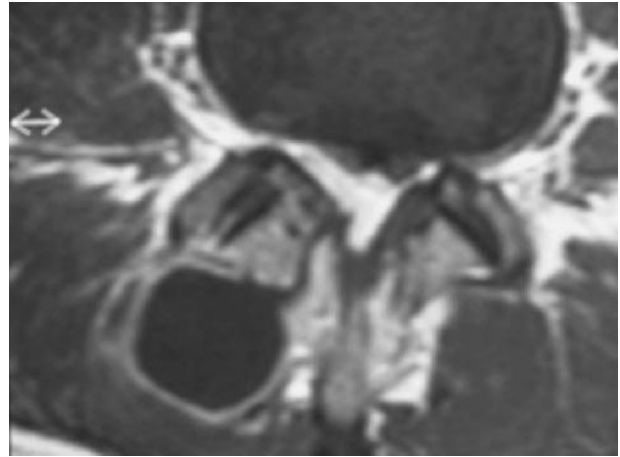
The scan showed a complex fluid collection on either side of the right pars at the level of L4–L5. The smaller component was lying epidurally beneath the ligamentum flavum and was markedly narrowing the canal at this level. The larger component was on the other side of the facet joint posteriorly adjacent to the spinous process (Fig. 1 and 2). The sagittal views showed the abscess pushing the ligamentum flavum anteriorly in the right lateral recess deviating the L5 nerve root (Fig. 3), which accounted for his severe sciatica.

A CT-guided aspiration was performed straight after the MRI, and 12 mL of creamy pus was obtained for microbiologic examination. He was treated blindly initially with flucloxacillin, but culture confirmed 48 hours later that the organism was *Staphylococcus aureus* and that it was sensitive to flucloxacillin.

Despite the aspiration, his symptoms deteriorated over the next 7 days, and he was therefore taken to the operating theatre where incision and drainage were performed. A tense abscess was found to the right of the spine outside the L4–L5 joint and going up toward L3–L4 and down toward L5–S1. The epidural elements of the abscess were drained and with this some necrotic fat from the surface of the dura. Improvement was rapid after this, and the antibiotics were continued following discharge from hospital for 3 months. Three months after surgery, he was well with no symptoms attributable to the abscess, but his old backache had returned, although to a less severe extent.



**FIG. 1.** T2 axial image at L4–L5 showing an abscess communicating with the right-sided facet joint.



**FIG. 2.** T1 axial image with gadolinium showing the abscess, which communicates directly with the spinal canal through a narrow channel, and the facet joint, which has fluid within it consistent with pus.

## DISCUSSION

Facet joint injections as a stand-alone treatment of back pain are controversial. When they are used as a diagnostic tool, they can be helpful in managing chronic low back pain as they can act as an identifier of potential pain sources in the lumbar spine. Some patients have good enough relief of their back pain to be able to pursue a vigorous physiotherapy program that would otherwise be beyond them and so can get lasting relief. In our practice, we tell patients that facet joint injections are primarily diagnostic, but as an added bonus, may be therapeutic and might give them a “window of opportunity” during which they can concentrate on functional restoration and hopefully achieve a resolution of their pain. In this case, the symptoms suggested that L3–L4 and L5–S1 were the likely sources of pain, but imaging pointed to L4–L5 as the index level. Therefore, all three levels were treated.

Septic arthritis of the facet joints is a rare condition and usually presents clinically with fever and lower back pain at rest and with activity. Radicular symptoms occur in 44% and severe neurologic symptoms are detected in 9% of cases (4,5). The average duration of symptoms before making the diagnosis is approximately 4 weeks, but this can be delayed up to 5 months (4). The differential diagnosis includes vertebral osteomyelitis and pyogenic discitis (5).

There are some isolated cases related to therapeutic facet joint injection reported; thus, the condition can be recognized as a complication of this intervention (1,2). However, most cases are caused by hematogenous spread.

The causal organism is typically *Staphylococcus aureus* or *Streptococcus* species (3,4,6,7). In cases of hematoge-



**FIG. 3.** T2 sagittal image taken through the right lateral recess showing the abscess deviating the L5 nerve root at L4-L5.

nous spread, the organism can usually be cultured from the blood, which may make aspiration of the joint to confirm the diagnosis unnecessary (7). In up to one third of cases, the portal of entry is uncertain (e.g., chronic osteomyelitis, dental abscess, urinary tract infection) (3).

Plain radiographic evidence of infection is typically absent on initial examination of the spine and may take 2–3 weeks before the changes of osteomyelitis can be visualized (5,6). MRI, however, has been shown to be both sensitive and specific in diagnosing pyogenic facet joint

infections as early as 2 days after onset of symptoms, especially when enhanced with gadolinium (4,8).

The recommended treatment consists of 6–8 weeks of parenteral antibiotics continued by up to 3 months of oral antibiotics. Surgical intervention is required when an infection is unresponsive to antibiotic therapy or when neurologic symptoms are present (6,9,10). The prognosis of the condition is usually favorable, but infrequently the disease can prove fatal within 24–72 hours with high fever, cyanosis, and shock (3).

This unusual case, in which a facet joint infection presented late, in an identical manner to a prolapsed intervertebral disc, demonstrates the value of MRI as a sensitive and specific means of confirming the diagnosis and ruling out other causes of back and leg pain. Surgical treatment was necessary because antibiotic and percutaneous abscess drainage had failed. There was a rapid response to a combination of debridement, irrigation, and appropriate antimicrobial management.

In a case of facet joint infection, in which symptoms deteriorate after an initial early favorable response, consideration should be given to facet joint infection even if systemic signs such as fever and malaise are absent.

#### REFERENCES

1. Cook NJ, Hanrahan P, Song S. Paraspinal abscess following facet joint injection. *Clin Rheumatol* 1999;18:52–3.
2. Magee M, Kannagara S, Dennien B, et al. Paraspinal abscess complicating facet joint injection. *Clin Nucl Med* 2000;25:71–7.
3. Pascale A, Rombauts, Patrick M, et al. Septic arthritis of a lumbar facet joint caused by *Staphylococcus aureus*. *Spine* 2000;25:1736–8.
4. Muffoletto AJ, Ketonen LM, Mader JT, et al. Hematogenous pyogenic facet joint infection. *Spine* 2001;26:1570–6.
5. Baltz MS, Tate DE, Glaser JA. Lumbar facet joint infection associated with epidural abscess. *Clin Orthop* 1997;339:109–12.
6. Dauwe D, van Oyen J, Samson I, et al. Septic arthritis of a lumbar facet joint and sternoclavicular joint. *Spine* 1995;20:1304–6.
7. Peris P, Brancos MA, Gratacos J, et al. Septic arthritis of a spinal apophyseal joint: report of two cases and review of the literature. *Spine* 1992;17:1517–8.
8. Fujiwara A, Tamai K, Yamato M, et al. Septic arthritis of a lumbar facet joint: report of a case with early MRI findings. *J Spinal Disord* 1998;27:179–83.
9. Roberts W. Pyogenic vertebral osteomyelitis of a lumbar facet joint with associated epidural abscess. *Spine* 1988;13:948–52.
10. Dunn LT, Javed A, Findlay G, et al. Iatrogenic spinal infection following epidural anaesthesia: case report. *Eur Spine J* 1996;5: 418–20.