

Percutaneous Rupture of a Facet Joint Synovial Cyst using a Two-Needle Technique

Ali S. Malik, D.O., M.S.B.E.⁽¹⁾, Kevin D. Cairns, M.D., M.P.H.^(1, 2)

⁽¹⁾ Physical Medicine and Rehabilitation Residency Program, Larkin Community Hospital

⁽²⁾ Department of Interventional Spine and Pain Medicine, Florida Spine Specialists



Introduction

While facet joint arthropathy is common, facet joint synovial cyst formation is relatively rare. In a retrospective review of 303 magnetic resonance imaging (MRI) scans performed on patients referred for back pain or radiculopathy, Doyle et al reported a 2.3% prevalence of anterior facet joint synovial cysts.² When present, facet joint synovial cysts may be associated with axial pain, radiculopathy, neurogenic claudication, or even cauda equina syndrome.⁴ Management may include steroid injection, cyst aspiration, percutaneous rupture, or surgical excision. Percutaneous rupture of a symptomatic facet joint synovial cyst has been correlated with avoiding subsequent surgery, and has a long-term outcome similar to surgical excision.³ Attempted rupture of a facet joint synovial cyst utilizing a single-needle technique has been reported, however attempts were not successful in all cases.^{1, 3}

Case Presentation

We present a case of a 60-year-old female who presented with low back pain, as well as severe right lower extremity pain and paresthesias. MRI revealed an 11 mm synovial cyst projecting from the right L5-S1 facet joint, which deformed the thecal sac and displaced the right L5 nerve root (Fig. 1). Prior to presentation, the patient failed an attempted single-needle percutaneous rupture, which was performed at an outside institution. Risks, benefits, and alternatives of two-needle percutaneous rupture were discussed with the patient, and informed consent was obtained.

The procedure was performed under IV sedation, and utilized fluoroscopic guidance. The patient was placed in a prone position, and the right L5-S1 facet joint was visualized with both cephalocaudal and oblique positioning of the C-arm. 1% Lidocaine was used to raise a skin wheal directly over the right L5-S1 facet joint. A 22-gauge needle was then advanced until the facet joint was entered.

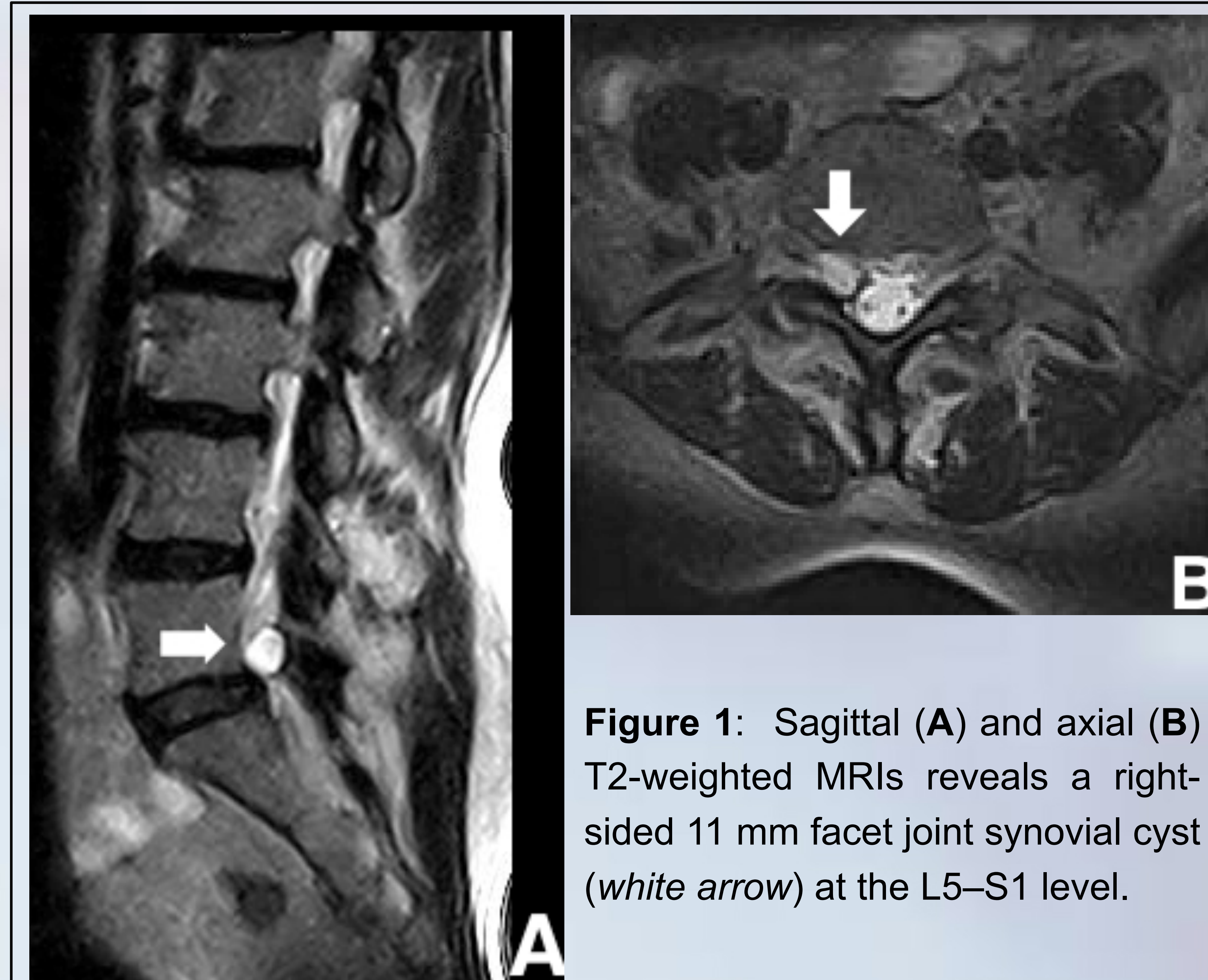


Figure 1: Sagittal (A) and axial (B) T2-weighted MRIs reveals a right-sided 11 mm facet joint synovial cyst (white arrow) at the L5–S1 level.

1% Lidocaine was then used to raise a skin wheal caudal to the right L5-S1 interlaminar space. A 25-gauge spinal needle was advanced to the sacrum, to anesthetize deep tissue, and a Tuohy needle was then advanced through the anesthetized tract. Tuohy needle was directed into the cyst, which was now visualized under fluoroscopy. A solution of 20 mg methylprednisolone and 2 cc hyaluronidase was injected through both syringes, and the cyst was intentionally over-pressurized (Fig. 2). Loss of resistance was noted, and rupture of cyst was achieved. Contrast was injected into the facet joint, revealing normal lumbar epidurogram, and confirming rupture of cyst (Fig. 3). The patient tolerated the procedure well, and was transferred to the recovery area in stable condition. She reported significant pain relief immediately post-procedure. At 4-month follow-up, the patient reported continued relief of facet-mediated pain, and denied any radicular symptoms.

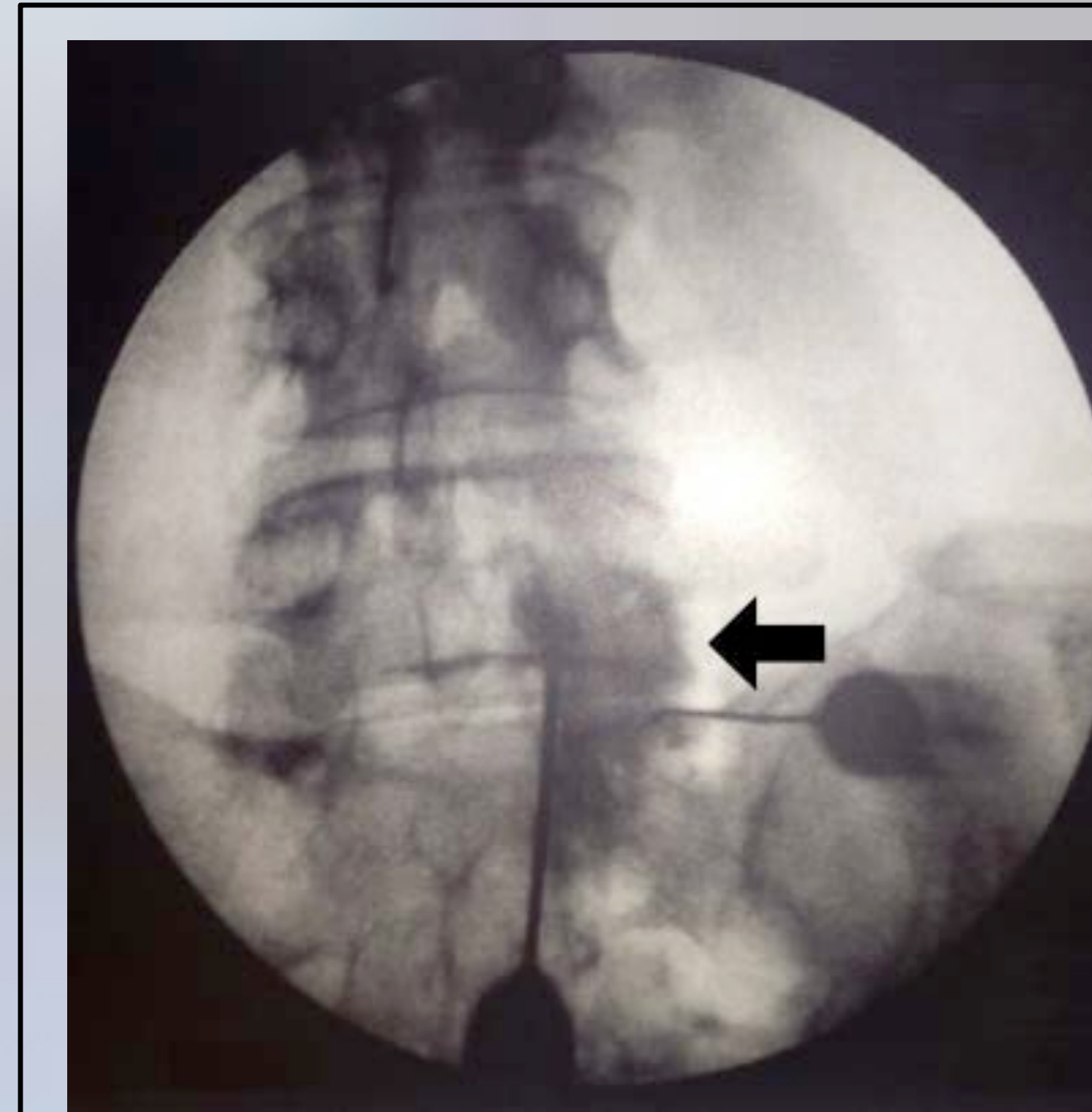


Figure 2: Fluoroscopic view of facet joint synovial cyst distention (black arrow) using 22-gauge needle and Tuohy needle.

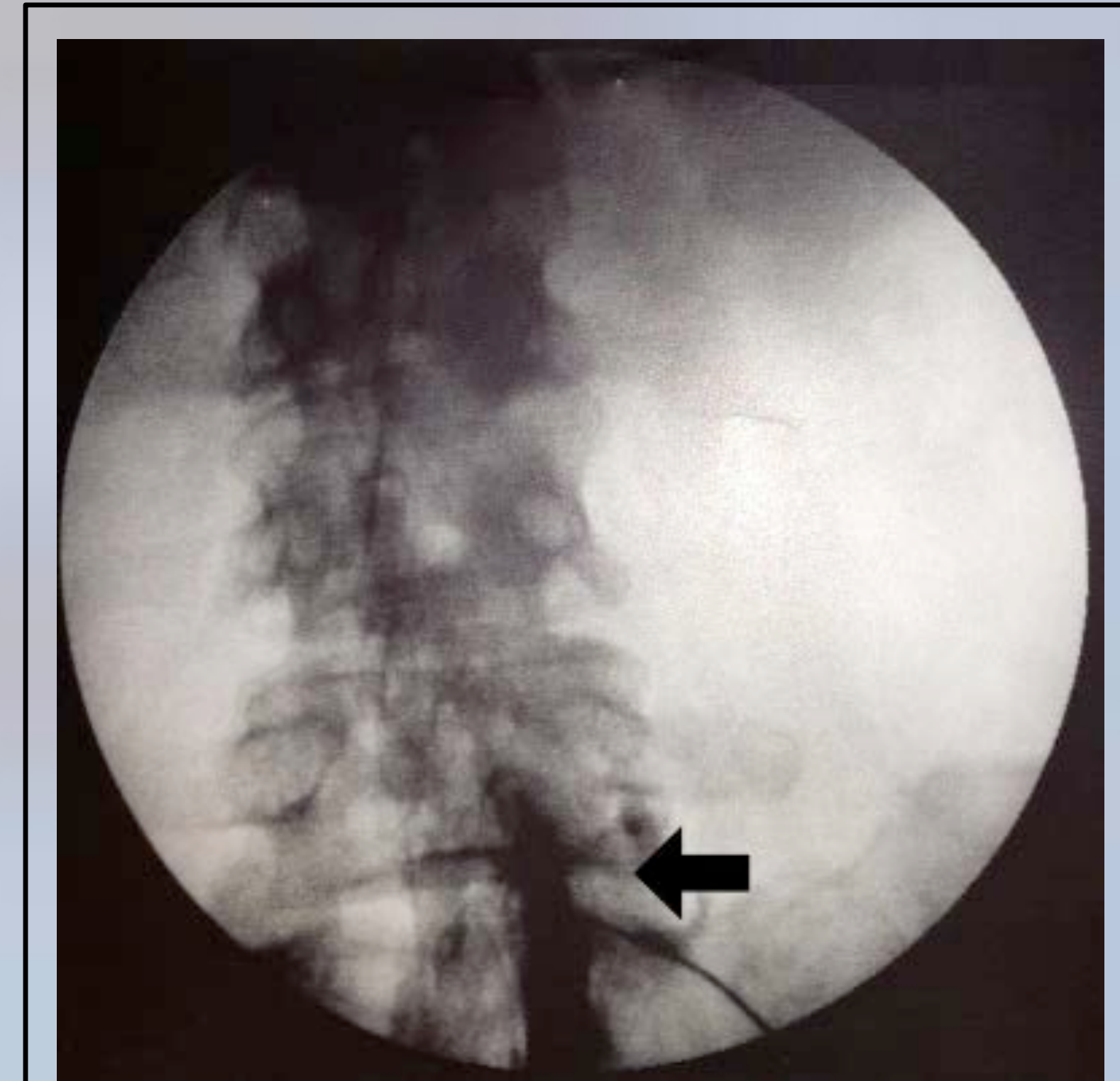


Figure 3: Fluoroscopic view of facet joint synovial cyst rupture with normal epidural spread of contrast (black arrow).

Discussion

Single-needle percutaneous rupture of a facet joint synovial cyst has been validated as an efficacious form of management.^{1, 3} In a retrospective review of 101 patients with facet cysts who underwent single-needle percutaneous rupture, Martha et al reported a failure rate of approximately 20%.³ Our case report suggests that a two-needle technique may be more effective than a single-needle technique for percutaneous rupture of a facet joint synovial cyst.

References

- 1) Allen TL, Tattli Y, Lutz GE. Fluoroscopic percutaneous lumbar zygapophyseal joint cyst rupture: a clinical outcome study. *The Spine Journal* 2009; 9:387-395.
- 2) Doyle AJ, Merrilees M. Synovial cysts of the lumbar facet joints in a symptomatic population: prevalence on magnetic resonance imaging. *Spine* 2004; 29:874-878.
- 3) Martha JF, Swaim B, Wang DA, Kim DH, Hill J, Bode R, Schwartz CE. Outcome of percutaneous rupture of lumbar synovial cysts: a case series of 101 patients. *The Spine Journal* 2009; 9:899-904.
- 4) Muir JJ, Pingree MJ, Moeschler SM. Acute Cauda Equina Syndrome Secondary to a Lumbar Synovial Cyst. *Pain Physician* 2012; 15:435-440.