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Case Report

A gas filled intradural cyst associated with disc degeneration

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A case of a lumbar intradural, extramedullary gas filled cyst is described. This was associated with degenerative disc disease and presented with radicular signs and symptoms. The radiological differential diagnosis of such a mass includes infection and tumours. The association of intradural gas with degenerative disc disease is previously reported. This case further illustrates the association of degenerative disc disease with an intradural gas filled cyst and provides an interesting radiological differential diagnosis for an extramedullary intradural mass.
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Case report

A 61 year-old man presented with a 9-month history of unremitting right sided sciatica associated with parasthesia on the dorsum of his right foot and an absent right ankle jerk. Full blood count, erythrocyte sedimentation rate and C-reactive protein were all within normal limits. Anteroposterior radiographs showed extensive degenerative changes from L1 to S3 with a reduction in spinal canal dimensions. A period of conservative treatment was unsuccessful.

A CT myelogram showed spinal stenosis affecting the lower three lumbar discs (Figure 1a). In addition there was a large intrathecal filling defect at L3/L4, the contents of which had the radiological density of air (Figure 2a).

A spinal decompression was performed from L2 to L4. A 1.5 cm intradural gas filled cyst was identified which communicated with the L3/L4 disc space through a small tract in the posterior longitudinal ligament. The cyst lay in the midline and was densely adherent to a number of nerve roots. The cyst was excised and a decompression performed. Pathological analysis showed a degenerative cyst formed of hyaline connective tissue in which there was calcification, haemosiderin and chronic inflammatory cells. Microbiology cultures taken at the time of surgery yielded no growth. Clinical review, post-operatively, confirmed that the patient's presenting symptoms and signs had resolved.

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Discussion

The radiological differential diagnosis in cases of intraspinal masses lies between extra dural masses and intradural extramedullary lesions.

Intradural extramedullary spinal masses include infection, metastasis from CNS tumor, neurofibroma meningioma, lipoma, dermoid, neuroenteric cyst, arachnoid cyst, angioma, ependymoma, blood clot and traumatic cysts. Masses may be cystic[1–3] or solid.

Intradiscal gas is a common radiological finding and causes include disc degeneration, infection, tumours and spinal canal procedures. Knuttson[4] first recognised the relationship between intradiscal gas and disc degeneration. The composition of intradiscal gas is mainly nitrogen with oxygen and carbon dioxide. Gas within the spinal canal has been reported less commonly although some believe that gas occurs more frequently than is reported.[5] Of the 48 cases reported in the literature describing intraspinal gas, many were associated with lumbar disc herniations.[6–9] Intraspinal gas is also associated with intradural herniation,[10] however computed tomography has shown gas within the spinal canal in the absence of disc herniation in the form of free gas[7] or a pseudocyst[11] and may be secondary to osteomyelitis, Shuermans disease, spondylosis deformans or vertebral collapse as well as from degenerative disc disease. Gas within the spinal canal may come from a tear in the annulus fibrosus of the disc, the site of a vacuum phenomenon,[7] or may have leaked from a number of sources including the facet joints.[12] The air filled

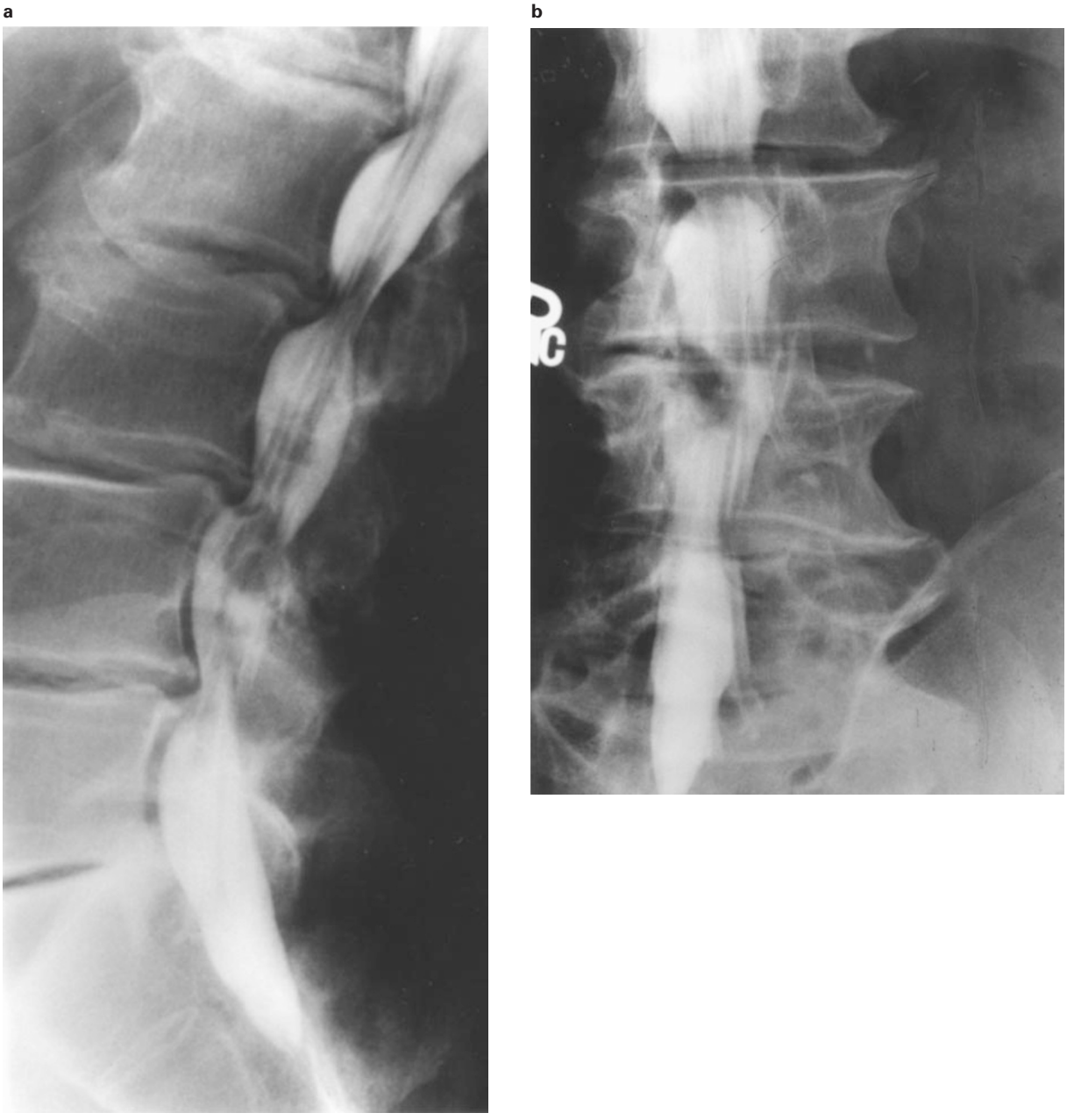

Figure 1 (**a**) A lateral myelogram of the lumbar spine showing spinal stenosis at multiple levels and a filling defect at the L3/4 level. (**b**) An oblique myelogram of the lumbar spine showing an air filling defect at the L3/4 level

cyst may be at a different level from the leak and the gas may track up or down (Figure 2b) as we suspect in this case.

In a series of 19 cases of intraspinal gas associated with disc herniation the L4/L5 or L5/S1 levels were involved in every case.[5] Patients with intradural extramedullary cysts often present with progressive myelo-radiculopathy which may be associated with enterogenous, facet and arachnoid cysts.[1] Lumbar root compression by a gas-containing cyst in the extradural space is also reported[13] and was related to the vacuum disc phenomenon.

This case is one of an intradural extramedullary gas filled cyst at L4/L5, associated with degenerative disc disease and presenting with radicular signs and symptoms. Intraspinal gas associated with disc disease probably occurs more commonly than has been reported and such a cyst represents a differential diagnosis of an extra medullary intradural mass.

Figure 2 (**a**) CT showing apparent intrathecal air. (**b**) A CT myelogram showing air tracking in the retrovertebral space

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