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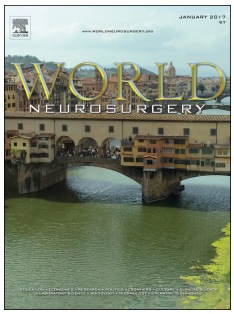

Degenerative disc disease mimicking spondylodiscitis with bilateral psoas abscesses

Alexandre Simonin, MD, Olivia Paris, Jean-Philippe Brouland, MD, Marc Morard, MD, Diego San Millán, MD

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Title: Degenerative disc disease mimicking spondylodiscitis with bilateral psoas abscesses

Authors: Alexandre Simonin[1] MD, Olivia Paris[2], Jean-Philippe Brouland[3] MD, Marc Morard[4] MD, Diego San Millán[5] MD

1. Neurosurgery, Department of Clinical Neurosciences, Centre Hospitalier Universitaire Vaudois (CHUV), Lausanne, Switzerland
2. Internal Medicine, Hôpital de Sion, CHVR, Sion, Switzerland
3. University Pathology institute, Centre Hospitalier Universitaire Vaudois (CHUV), Lausanne, Switzerland
4. Neurosurgery, Hôpital de Sion, CHVR, Sion, Switzerland
5. Neuroradiology, Service of Diagnostic and Interventional Radiology, Hôpital de Sion, CHVR, Sion, Switzerland

Corresponding Author: Alexandre Simonin, Neurosurgery, Department of Clinical Neurosciences, Rue du Bugnon 21, Centre Hospitalier Universitaire Vaudois (CHUV), Lausanne, Switzerland

Phone: 0041 79 681 02 22
Fax: 0041 21 314 12 90
Email: alexandre.simonin@chuv.ch

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Abstract

We describe a case of a 52-year-old male that returned from Togo after 2 years of living in precarious conditions. He was afebrile, complaining of lumbar back pain. MRI showed L3 and L4 vertebral body enhancement with bilateral psoas lesions in continuity with the disc space suggesting spondylodiscitis with a differential diagnosis of inflammatory herniated disc. A CT-guided biopsy of the right psoas lesion was performed to rule out spondylodiscitis. Histology was compatible with extruded disc material. Retrospectively, coronal images could have shown the continuity of bilateral herniated disc fragments mimicking psoas abscesses.

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Introduction

Degenerative lumbar disc disease is common, and herniated disc fragments can migrate rostrally, caudally, or laterally[11]. Occasionnally, a fragment can separate from the disc and become sequestered, resulting in an encapsulated lesion with some peripheral enhancement on MRI. This radiological finding is also most often consistent with an abscess.

The presence of sequestered disc fragments mimicking abscesses has been rarely described[1,4,8] and only once before in the psoas muscle compartment[8] but never bilaterally. Psoas abscess is relatively rare in occidental countries, but is not uncommon in Asia and Africa[2]. We describe the case of a 52-year-old male that returned from Togo, with an atypical presentation of degenerative disc disease with bilateral sequestered disc fragments mimicking psoas abscesses.

Case Report

History and Examination

A 52-year-old smoker known for coronary heart disease with previous stent implantation returned back home after 2 years spent in Togo. He was complaining of a 5-week history of low back pain, sometimes radiating to the right groin. He had spent the last two months in prison, living in precarious conditions.

On examination, he was afebrile. Palpation revealed tenderness in the lumbar region and in the right renal angle. There was a 1.5 centimeter laterocervical lymphadenopathy. Neurological examination was unremarkable, with symmetric normal strength, sensation and reflexes. The straight-leg raise test was negative bilaterally.

Blood tests showed normal complete blood count, electrolytes, erythrocyte sedimentation rate and C-reactive protein. Tuberculosis, Syphilis and HIV

serology tests were negative. Cytomegalovirus, Epstein-Barr, and Toxoplasmosis serologies were in favour of a past infection.

Management, Imaging and Pathological Findings

Initial MRI (Figure 1) showed diffuse lumbar spine degenerative disc disease. At L3-L4, there was mild disc height loss and T2 hyperintensity with adjacent endplate oedema (T2 TIRM hyperintensity and Gadolinium uptake). Axial T2 images revealed bilateral psoas muscle mass effect, more extensive on the right, from a well delineated hypointense or discretely hyperintense lesion extending from the L3-L4 disc space caudally along L4 vertebral body. On fat suppressed Gadolinium enhanced T1 the lesions were hypointense with peripheral ring enhancement in continuity with enhancing L3 and L4 endplates. There was minimal perivertebral soft tissue oedema and the epidural space was unremarkable. These findings were suggestive for spondylodiscitis and bilateral psoas-muscle abcess. However, because there were no biological nor clinical signs of infection, a differential diagnosis of inflammatory paravertebral disc herniation with Modic 1 adjacent endplate changes was also considered.
A CT-guided biopsy of the right psoas lesion was performed. Biopsy material was sent for microbiological and pathological analysis. Microbiology direct analysis, cultures and PCR were negative for typical and atypical germs causing spondylodiscitis. Pathological analysis revealed fragments of dystrophic cartilage with small degenerative cystic changes. There were no inflammatory cells nor pathogens detectable (Figure 2).
Patient was managed conservatively, with physical therapy (strengthening of abdominal wall and lumbar musculature) and NSAIDs with a good evolution.
On follow-up MRI at 15 months (Figure 3), the bilateraly herniated discs in the psoas had been reabsorbed. There was severe disc narrowing with endplate irregularities. Endplate and perivertebral inflammatory changes had nearly completely regressed. Moreover, the patient was nearly free of symptoms, and had stopped taking pain killers.

Discussion

An extruded disc fragment usually remains in continuity with the intervertebral disc. When there is no attachment to the parent disc it is referred to as a sequestered fragment[1,8,11]. Migration patterns of those fragments have been previously studied[4]. Most commonly, they migrate postero-laterally, causing compression to the exiting nerve root. They can also migrate caudally, or less commonly, cranially[4]. However, the presence of a sequestered fragment in the psoas muscle compartment has been, to the best of our knowledge, described only once before[8].

Psoas abscess is considered as an uncommon condition in developed countries[2,3,6] but are more prevalent in Asia and Africa[2,3,6]. Immunodeficient individuals, suffering from HIV or diabetes, are particularly vulnerable. The clinical presentation of iliopsoas abscesses is non-specific: lumbar pain and fever raise clinical suspicion[2]. Normal levels of inflammatory markers do not rule out the

diagnosis[9,14,15]. A CT-guided biopsy and/or drainage is usually performed as a diagnostic and therapeutic procedure[15].

MRI findings of sequestered disc fragments are very similar to abscesses[1]: They tend to show low to isointense signal on nonenhanced T1 MRI, T2 hyperintensity (contrary to our case), and a rim enhancement because of vascularized granulation tissue surrounding the sequestered fragment[1]. Some authors state that abscesses can be distinguished from disc fragments by the signal changes observed at the infected disc level and vertebral endplates[10]. Diffusion weighted imaging (DWI) may represent an additional discriminating tool in cases of diffusion positive (diffusion restriction) pyogenic psoas muscle abcess[12].

In the present case, this patient had low back pain without signs of nerve compression/irritation. There was no clinical signs of infection. Though the first diagnostic hypothesis was that of spondylodiscitis with bilateral psoas abscesses, bilateral paravertebral inflammatory disc herniation and degenerative inflammatory endplate changes could not be ruled out. Moreover, initial MRI coronal views were not carefully reviewed, and the continuity of the disc fragments with the disc space was only identified retrospectively. CT-guided disc biopsy was negative for infection after microbiological analysis. Histopathology was consistent with inflammatory disc. In contrast with a previous report describing a sequestered disc fragment within the psoas muscle[8], in our case, the herniated disc was actually in continuity with the intervertebral disc space in the coronal plane. Because there was no description of coronal images in other reports, it is questionable whether disc fragments were truly sequestered[8]. Favorable clinical and imaging outcome without antibiotherapy supported the diagnosis of inflammatory disc herniation and degenerative disc disease.

Mimicks of infectious spondylodiscitis[7] include microcrystaline disease such as calcium pyrophosphate dehydrate deposition (CPPD)[5]. Inflammatory disc degeneration with erosive changes may also mimick infectious spondylodiscitis. In our case, the presence of paravertebral psoas muscle disc herniation was also in favor of this diagnosis. CT-guided biopsy confirmed herniated disc material and ruled out infection, but could have been avoided with careful analysis of MRI coronal views.

Conclusion

We present a case of degenerative disc disease with bilateral disc herniations mimicking spondylodiscitis with bilateral psoas abscesses. Herniated disc fragments should be considered as a differential diagnosis of psoas abscesses.
Coronal plane images may show continuity of the lesions with the intervertebral disc space.

Legends

Figure 1: Intial MRI (*a, sagittal plane T2-TIRM; b-c, axial plane TSE-T2; d-e, axial plane Gadolinium enhanced fat suppressed T1; f-g, coronal plane Gadolinium enhanced fat suppressed T1*) showing a T2-TIRM hyperintensity in the L3-L4 intervertebral disc and adjacent endplate consistent with oedema (arrow). Lesion in the psoas muscle (arrowheads b-g)) isointense or slightly hyperintense T2 to muscle (b-c), hypo-intense on fat suppressed T1 with peripheral ring enhancement (d-g) in continuity with the L3-L4 endplate enhancement (f-g).

Figure 2: *a (HE stain)*: fragment of dystrophic cartilage with small degenerative cystic changes. *b (HE stain)*: dystrophic cartilage exhibiting irregularly distributed chondrocytes, focal calcification deposit around some chondrocytes and clumps of regenerative chondrocytes. *c (HE stain)*: fragment of fibro-tendinous connective tissue with some microcalcifications *d (HE stain)*: small blood vessels are numerous without any inflammatory cells or pathogens detectable

Figure 3: Follow-up MRI at 15 months showing near complete regression of inflammatory changes and disappearance of bilateral herniated disc fragments (*a, sagittal plane T2-TIRM; b, axial plane TSE-T2; c, axial plane Gadolinium enhanced fat suppressed T1; d, coronal plane Gadolinium enhanced fat suppressed T1*)

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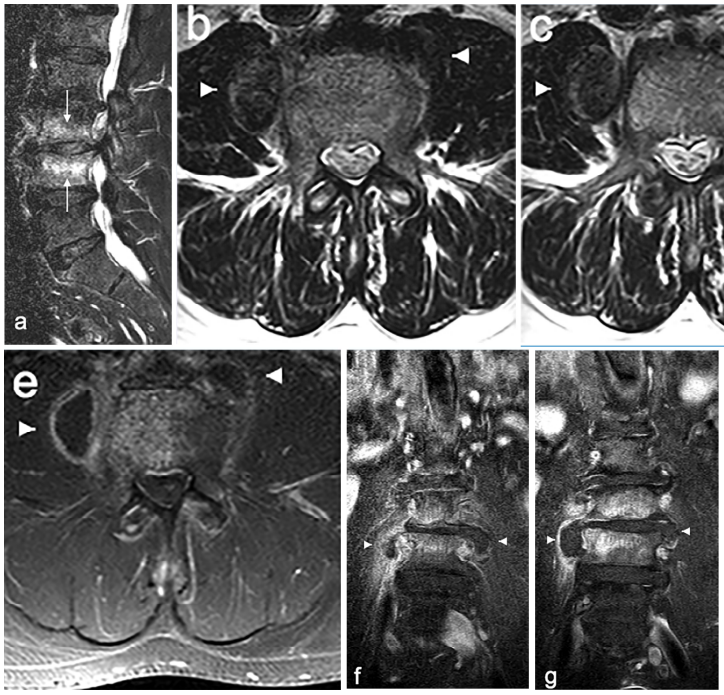

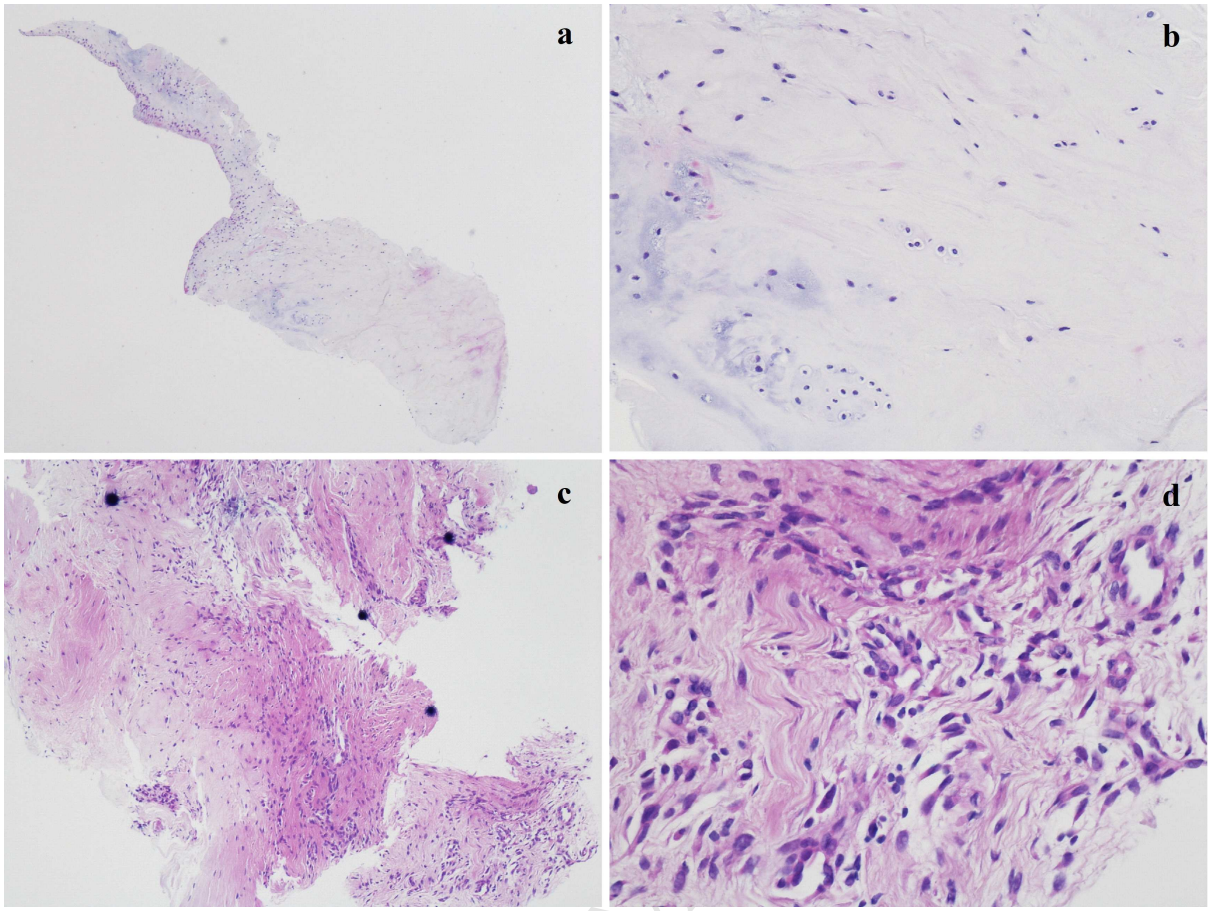

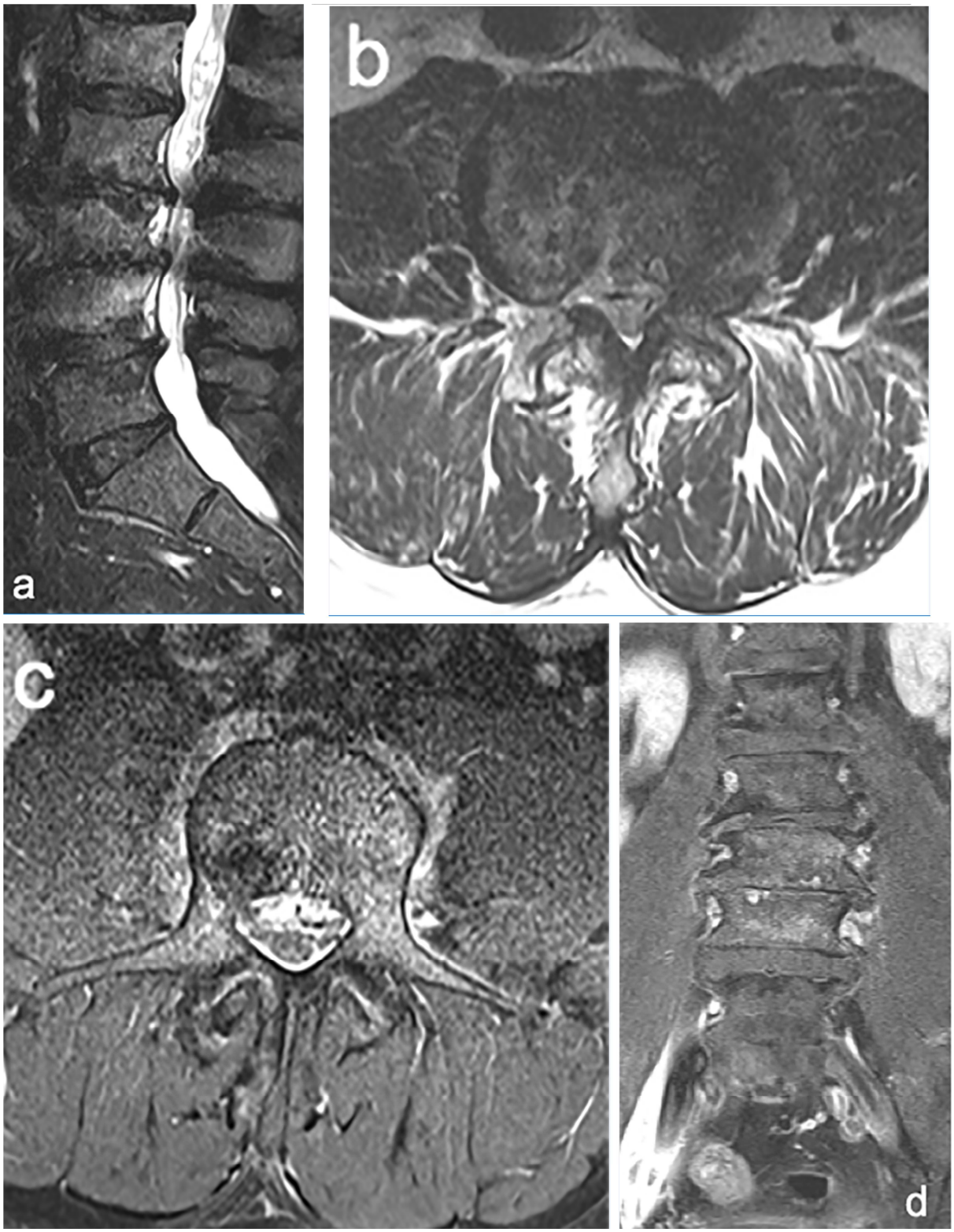
a
b
c
d

- Herniated disc fragments should be considered as a differential diagnosis of psoas abscesses.
- Coronal plane images may show continuity of the lesions with the intervertebral disc space.

List of abbreviations :

MRI : magnetic resonance imaging
CT : computed tomography
HIV : humand immunodeficiency virus
DWI : diffusion-weighted imaging
CPPD : calcium pyrophosphate dehydrate deposition