A Disconcerting Sarcoidosis, When The Spine Gets Involved ...

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Abstract

Introduction: Osseous involvement in sarcoidosis can cause inflammatory back pain and may resemble malignant disease on imaging.

Observation: A 52-year-old woman with chronic cough and basithoracic pain had mediastinal-hilar lymphadenopathy and perilymphatic pulmonary nodules on chest CT. The diagnosis of sarcoidosis was supported by an iliac lymph node biopsy showing an epithelioid-giant cell granuloma. She also had intense inflammatory back pain, sometimes causing insomnia. Spinal MRI showed multiple nodular marrow lesions with low T1 signal and enhancement after gadolinium administration. The case report describes rib fractures, while bone densitometry was normal.

Conclusion: MRI demonstrated the extent of skeletal involvement but did not independently establish the cause of the lesions. Findings should be interpreted together with the clinical and histological evidence. Persistent inflammatory spinal pain in sarcoidosis warrants assessment of skeletal involvement and multidisciplinary discussion of treatment.

Keywords: bone sarcoidosis; inflammatory back pain; spinal MRI

Introduction

Bone involvement in sarcoidosis is rare, occurring in around 3% according to the literature [1]. All bones can be affected. The spine is the most common location at 47%, followed by the pelvis at 40% [2], and this pelvic-spinal involvement is almost always associated with mediastinal-pulmonary involvement [3,4]. Back pain is pauci-symptomatic and generally has a good prognosis. Consequently, bone lesions are detected incidentally in half of patients by imaging data [5].

MRI and PET can demonstrate the extent of skeletal involvement and assist the differential diagnosis. However, osseous sarcoidosis cannot be reliably distinguished from metastases on routine MRI alone; the findings require clinical and histological correlation [6,7].

We will describe the case of a patient suffering from atypical bone sarcoidosis with paradoxically intense inflammatory back pain and worrying imaging in the form of staged lytic lesions in therapeutic abstention due to the pulmonary grading of the sarcoidosis.

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Case Report

This is the patient T.N, aged 52, with a history of hypertension under β blockers and operated uterine fibroids, who was hospitalized in pulmonology due to the appearance of a chronic dry cough dating back ten months accompanied by basithoracic pain. Pulmonary auscultation was normal; however, a thoracic CT scan had found mediastinal-hilar adenopathies with perilymphatic pulmonary nodules, noting some lytic bone lesions of the T4, T5 and T11 vertebrae.

Indeed, the patient's main complaint was intense insomnia-causing inflammatory back pain predominantly at the dorsolumbar junction without any notion of trauma or general signs. The possibility of mediastinal sarcoidosis was confirmed: the IDR found tuberculin anergy, the converting enzyme was at 104 U/L, the BAL was 20% lymphocytic and the epithelial-giantocellular granuloma was present on the CT-guided iliac biopsy.

The investigation of the spinal symptoms included tumor marker testing, which was reported as normal. Thoraco-abdominopelvic CT showed the pulmonary, lymph node and rib findings described below.

The thoraco-abdominopelvic CT revealed scattered pulmonary nodules with irregular contours not exceeding 9 mm associated with bilateral mediastinal-hilar adenopathies, iliac adenopathies grouped into clusters, the largest of which measured 22 mm in short axis, a condensing lesion of the posterior arch of the 7th left rib and costal fractures of the 3rd and 7th ribs on the left.

The scintigraphy found an expression with regard to the vertebral lytic lesions, discrete spots of hyperfixation of the 2nd and 6th left ribs and the 7th right. There was a biological inflammatory syndrome with ESR at 79 mm and CRP at 12 mg/L. Nevertheless, the calcium and vitamin D levels being normal, the mammography, cervical ultrasound, ENT examination as well as the vaginal smear were without particularity. Given the absence of involvement of the pulmonary parenchyma without repercussions (functional capacity at 80%, normal walking test and normal cardiac ultrasound), the patient was discharged without any treatment. The fracture risk assessment showed a normal densitometry and VFA.

Spinal MRI demonstrated diffuse lesions involving the spine, pelvis, and proximal femora, appearing as nodular lesions with low signal intensity on both T1- and T2-weighted sequences. These lesions were not suppressed on fat-saturated sequences and showed enhancement following gadolinium administration. The lesions varied in size, mostly measuring a few centimeters, with some larger foci: the largest measured 26 mm in the lumbar recess, 20 mm in the thoracic spine, 45 mm at the sacral alae, and 35 mm in the pelvis (Figures 1, 2a, and 2b). Figure 3 shows the sagittal spinal CT reconstruction.

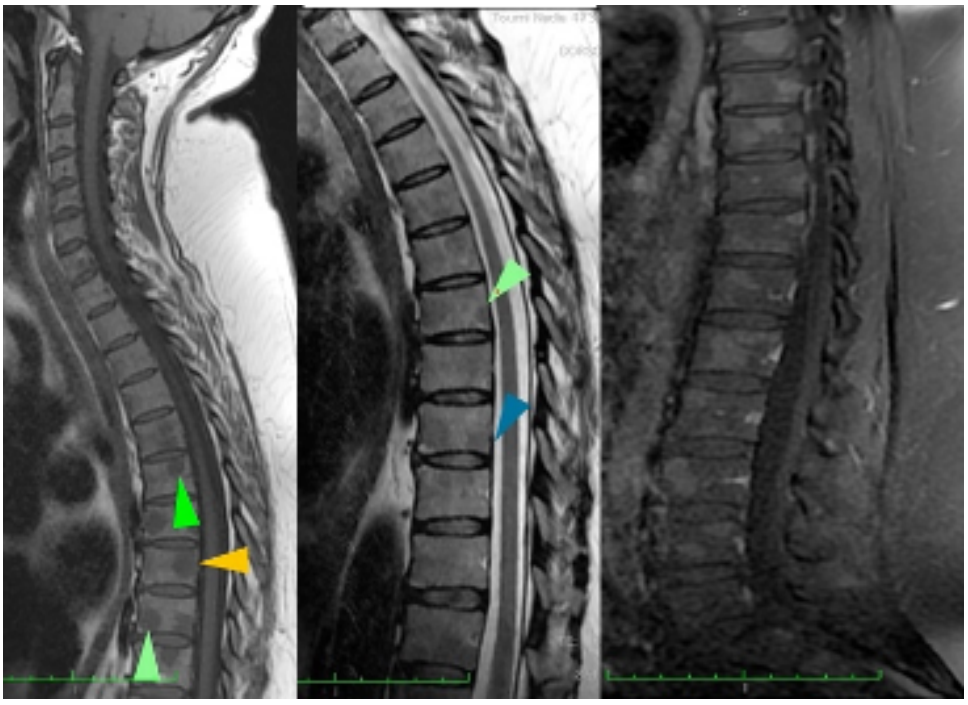


Figure 1. Appearance of bone lesions on spinal MRI: T1 and T2 hypointense signal and STIR hyperintense signal.

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Imaging Findings



Figure 2a. Enhanced spinal nodular lesions.

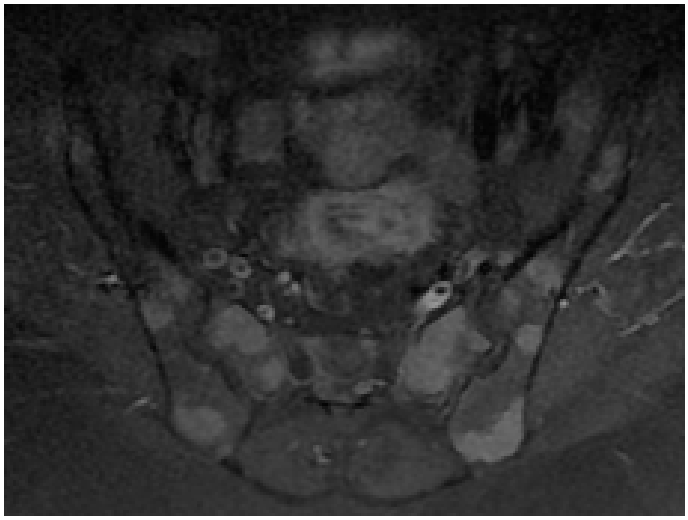


Figure 2b. Axial T1FS MRI with contrast media: enhanced nodular lesions of the sacral and iliac parts.

Discussion

Many studies suggest that spondyloarthritis should be investigated in the presence of inflammatory back pain during sarcoidosis. Indeed, the non-fortuitous association between spondyloarthritis and sarcoidosis has already been described in the literature. Kobak S. [8] observed 14.3% of sacroiliitis in 42 sarcoidosis patients. Recently, comparative studies have found a high prevalence of thyroid diseases (OR: 1.3), Sjögren's syndrome (OR: 11.6) and spondyloarthritis (OR: 3.80) in 1237 sarcoidosis patients compared to 4948 subjects without sarcoidosis [9]. Another cross-sectional study of 64 sarcoidosis cases showed that 45.3% had inflammatory back pain, 19% had magnetic sacroiliitis, 7.8% had radiographic findings, and 10.9% had radiological syndesmophytes [10,11].

Establishing a correlation between clinical and imaging findings remains difficult: Perispinal involvement is asymptomatic in half of cases and has a relatively good prognosis [12], despite sometimes very worrying imaging findings. The radiological appearance is not specific and does not allow the elimination of other diseases such as bacterial infections or malignant lesions [4,13].

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MRI is the key diagnostic examination; it shows nodular, micronodular, or beach-like bone marrow replacement lesions, sometimes combined in T1 hyposignal (often pronounced) and T2 hypersignal, enhanced after gadolinium injection. On PET, we find diffuse heterogeneous hyperfixation [14].

Complications of the neurological compression type requiring surgical stabilization remain exceptional [12]. CT and MRI findings should be interpreted together with the clinical and histological context; a normal CT appearance alone does not establish a diagnosis of osseous sarcoidosis [6,7]. Bone biopsy may be indicated in difficult cases. The risk of fracture in this type of injury must be taken into consideration; therefore opportunistic screening and, at best, upstream prevention is required. Moreover, vitamin D supplementation is part of the management of bone fragility while ensuring, however, that it is adapted to the risk of hypercalcemia inherent in the disease.

This fragility can itself be responsible for the alteration of functional respiratory pulmonary performance. This risk is increased when the patient is on corticosteroid therapy or has chronic respiratory failure [4]. For our patient, back pain is symptomatic; a basic antirheumatic treatment such as hydroxychloroquine or methotrexate should be discussed, as should anti-osteoporotic treatment (bisphosphonates) for rib fractures.



Figure 3. CT sagittal total spine reconstruction.

Conclusion

Osseous sarcoidosis should be considered in patients with sarcoidosis and inflammatory spinal pain. In this patient, MRI demonstrated extensive skeletal lesions, while the diagnosis of systemic sarcoidosis was supported by iliac lymph node histology. MRI findings alone do not reliably exclude metastatic disease. Persistent symptoms warrant multidisciplinary discussion of treatment.

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Declarations

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