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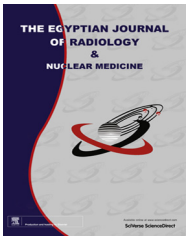

ORIGINAL ARTICLE

Pedicle involvement in tuberculous spondylitis and pyogenic spondylitis: Comparative magnetic resonance imaging study

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KEYWORDS

MRI;
Tuberculous spondylitis;
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Pedicle involvement

Abstract *Aim:* Magnetic resonance imaging (MRI) comparison of the pedicle involvement in TB spondylitis and pyogenic spondylitis in relation to degree of spinal deformity, degree of vertebral body and disc damage and paravertebral and epidural abscess formation.
Materials and methods: MRIs of 38 patients who had been diagnosed with and treated for spinal infection, 22 patients for TB spondylitis and 16 patients for pyogenic spondylitis were retrospectively evaluated for pedicle involvement, degree of spinal deformity, vertebral body and disc damage and paravertebral and epidural abscess formation.
Results: Incidence of pedicle involvement was highly significant more in TB spondylitis than in pyogenic spondylitis (P value <0.01). Incidence of vertebral body collapse in vertebral bodies with pedicle involvement was equal in both groups, however more than 50% vertebral body collapse only reported in TB spondylitis (P value $= 0.0001$). Kyphotic deformity was reported only in TB spondylitis. There was no significant difference in disc damage, paravertebral or epidural abscess formation between both groups.
Conclusion: Pedicle involvement is a common MRI finding in TB spondylitis, and significantly less common in pyogenic spondylitis. Kyphotic deformity and advanced degree of vertebral body collapse might play a significant role in pedicle involvement in cases of spinal infection.

1. Introduction

Spinal infection is an uncommon but important clinical problem that often requires aggressive medical and surgical management (1). Pyogenic spondylitis is the most common spinal infection and approximately 80% of the cases of spinal infection are caused by staphylococcus aureus (2). Spinal tuberculosis accounts for 50% of the cases of skeletal TB,

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15% of the cases of extrapulmonary TB and 2% of all cases of TB (3).

MRI continues to be the gold standard for the imaging diagnosis of spinal infections (4). Typical MRI findings in infectious spondylitis are involvement of two or more adjacent vertebral bodies with involvement of the intervening disc (5–7) but pedicle involvement has not been reported extensively. Few previous studies reported pedicle involvement especially in TB spondylitis (8).

In this study we attempted to asses and compare pedicle involvement in tuberculous spondylitis and pyogenic spondylitis in relation to the other MRI findings.

2. Patients and methods

We retrospectively analysed MR images in non-consecutive 38 patients. Their ages ranged between 24 years and 80 years with a mean of 58.8 years who had been diagnosed and treated with spinal infection, 22 patients with TB spondylitis (group A) and 16 patients with pyogenic spondylitis (group B). All patients were referred to MRI unit in Diagnostic Radiology Department at Sohag University Hospital between May 2011 and May 2012.

Cases of congenital spinal deformity, spinal trauma, osteoporotic collapse, spinal tumors and post-operative spine were

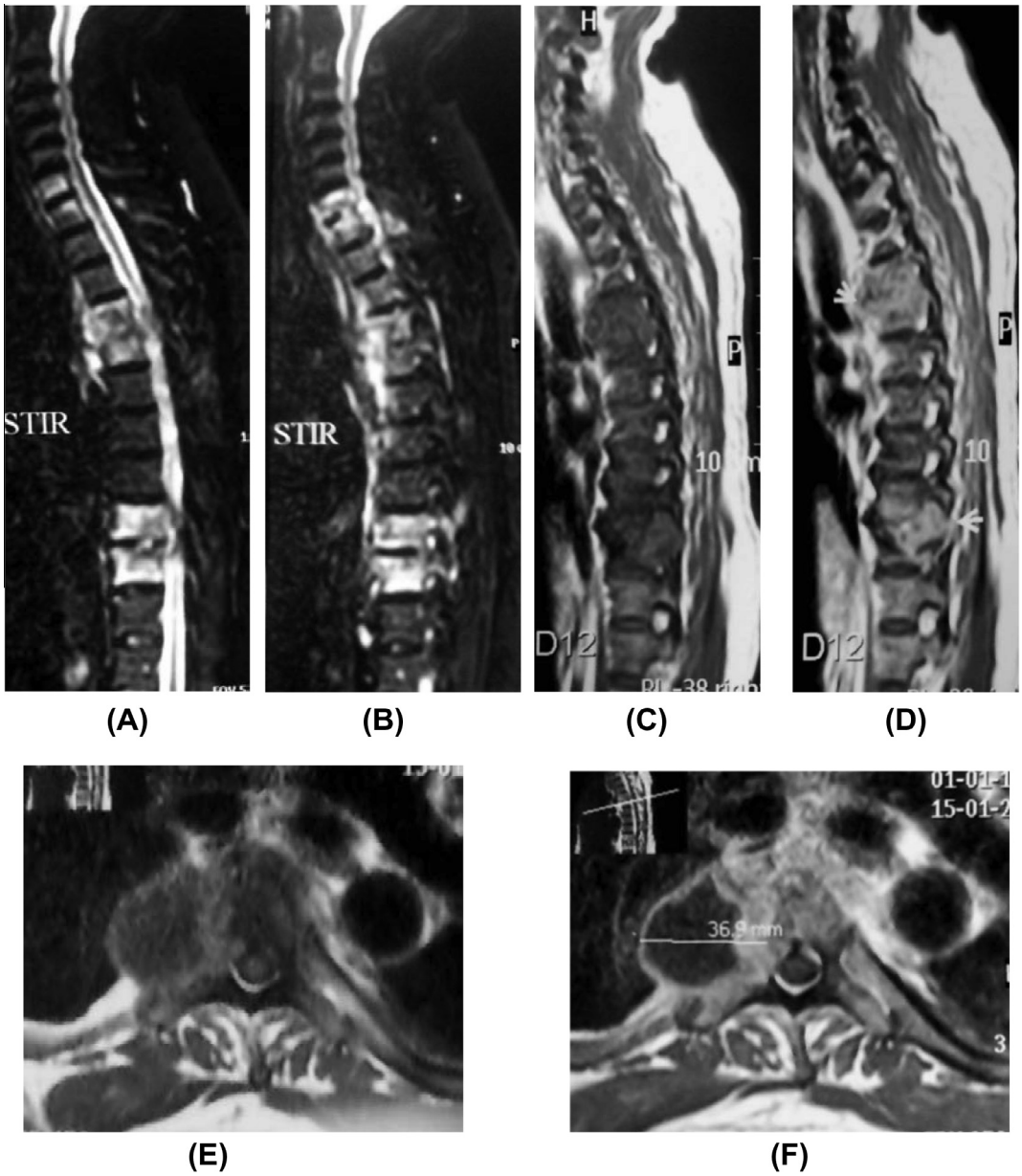

Fig. 1 57-year-old man with skipped lesions of tuberculous spondylitis A, midsagittal STIR. B, Right parasagittal STIR. C, Right parasagittal T1WI without gadolinium. D, Right parasagittal T1WI with gadolinium show the extension of the abnormal signal intensity to the right pedicles (arrows) and epidural collection opposite to D9 compresses the thecal sac (seen on midsagittal STIR image). E, Axial T1WI without gadolinium. F, Axial T1WI with gadolinium show the extension of the abnormal signal intensity and enhancement of D5 vertebral body to the right pedicle, right transverse process and adjacent right rib with marginal enhancing right paraspinal abscess.