Amyloidosis of the spine in a patient on long-term hemodialysis

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Summary. A 54-year-old man with a history of renal failure treated with hemodialysis for over 10 years presented with clinical signs and symptoms and plain radiographic, computed tomographic and magnetic resonance imaging features of cervical vertebral osteomyelitis with spinal cord compression. Decompressive surgery revealed amyloid deposition. In the setting of chronic hemodialysis, differentiation between amyloid deposition and osteomyelitis may not be possible on an imaging basis necessitating biopsy for diagnosis.

Key words: MR - Spine - Infection - Amyloid - Hemodialysis

When lesions suggestive of destructive spondyloarthropathy occur in patients undergoing long-term hemodialysis, possible etiologies include infection, secondary hyperparathyroidism, crystal deposition, and neuropathic change. We report a case where such a lesion was caused by amyloid deposition with imaging characteristics indistinguishable from infection. Similar cases have been described by Sebert et al. [1], Orzincolo et al. [2], and Naidich et al. [3]. The plain radiographic, computed tomographic, and magnetic resonance imaging characteristics of this lesion are described.

Case report

A 54-year-old man with end-stage renal disease secondary to hypertension who had been treated by hemodialysis for over ten years presented with a 2 month history of grad-

Fig. 1a, b. Suspected, but not definitely proven amyloidosis of the mid-thoracic spine. Lateral thoracic radiograph (a) demonstrates loss of the T7–8 intervertebral disc space with endplate destruction and vertebral body compression involving predominantly the superior portion of T8, but also the inferior portion of T7. Noncontrast CT at this level (b) demonstrates bilateral paraspinal extension of abnormal soft tissue (arrows). Findings are most consistent with infection. However, biopsy (N = needle) was culture-negative. Special stains (congo red, crystal violet) were suspicious (see text) for amyloid
Fig. 2a-c. Biopsy proven amyloid of the cervical spine. Lateral cervical spine radiograph (a) demonstrates endplate destruction, intervertebral disc space narrowing and minimal retrolisthesis at C5-6. Sagittal T1-weighted (TR/TE = 600/25) MR (b) demonstrates decreased signal from the C5 and C6 vertebral bodies and the intervening intervertebral disc (arrows). Sagittal T2-weighted (TR/TE = 2000/80) MR (c) demonstrates subtle increased signal from these vertebrae and the C5-6 disc (arrows). Spinal cord compression is also seen at this level. The plain film findings are most suggestive of infection and while somewhat atypical, the MR findings are also consistent with infection. Surgical decompression with biopsy was culture negative; stains were positive for amyloid.

Discussion

Patients undergoing long-term hemodialysis suffer from various problems of the bones and joints including renal osteodystrophy, infections, and acute arthritis or inflam-