

In children, infections primarily affect the intervertebral disc. *Staphylococcus aureus* and tuberculosis are common infectious sources of the spine. Tuberculosis creates typical destructive changes of vertebral bodies, especially anteriorly, leading to a gibbous deformity. Skip lesions are seen as the infection spreads beneath the anterior longitudinal ligament, sparing some discs. Paraspinal abscess is commonly present.

Tumors such as vertebral metastasis and lymphoma may mimic vertebral infections, although the intervertebral disc is less commonly involved with tumors. The basivertebral vein can serve as an entry site for hematogenous spread of metastasis.⁴⁸ Several findings have suggested that metastasis in vertebrae occurs as follows: convex posterior cortex, epidural mass, diffuse low signal in vertebral body and pedicle on T1W, and high or inhomogeneous signal after contrast medium injection and on T2W images.

However, vertebral collapse due to osteoporosis may mimic metastasis, especially since both conditions are common in elderly patients. In contrast to metastasis, collapse due to osteoporosis commonly shows retropulsion of bone fragments and preservation of a normal signal on T1W and postcontrast-enhanced images, especially in the chronic phase.⁴⁹ However, differentiation is needed at the acute phase. Both types of vertebral collapse generally exhibit low signals on T1W images. Further research on dynamic contrast-enhanced MR studies may be helpful in drawing an accurate diagnosis.

PROSPECTIVES

Currently, conventional MR imaging has been without question the most powerful noninvasive tool to diagnose disorders of joints and the spine. Several reports proposed applications for 3-dimensional rendering of MR data in the last few years.⁵⁰⁻⁵⁴ In the future, increasing computation speed will considerably facilitate development of new imaging techniques and their applications. The author believes that clinicians will not only rely heavily on MR imaging in their clinical practice, but will also improve their understanding of mechanisms of diseases in the future.

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