

Pott disease (tuberculous spondylitis) (ECR 2018 Case of the Day)

Published on 06.06.2018

DOI: 10.1594/EURORAD/CASE.15854

ISSN: 1563-4086

Section: Musculoskeletal system

Area of Interest: Thorax Musculoskeletal bone

Procedure: Education

Technique: Plain radiographic studies

Technique: MR

Technique: Conventional radiography

Technique: Digital radiography

Special Focus: Inflammation Abscess Infection Case

Type: Clinical Cases

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Patient: 81 years, female

Clinical History:

An 81-year-old woman was treated for pyometra and at clinical examination a 6-cm ulcerating carcinoma of the left breast was discovered. She underwent mastectomy with positive sentinel biopsy. Three months later she presented with severe back pain, paraplegia and incontinence. In laboratory findings only mild CRP elevation was observed (23 mg/L).

Imaging Findings:

Figure 1: 6 x 3 cm mass in the left middle zone (breast tumour). Additionally paravertebral masses may be observed bilaterally.

Figure 2: Only the remaining paravertebral masses are seen.

Figure 3. Disc space narrowing and irregularity of the Th11-12 vertebral endplates.

Figure 4. Multilevel involvement and mass effect displacing spinal cord posteriorly. (A) STIR images showing hyperintense marrow (level L2 and Th 11-12) and hyperintense signal of the spinal cord at Th 11-12 level. (B) T1W images showing hypointense marrow of the affected vertebrae (mild on the level L2, pronounced on the level Th 11-12). (C) Postcontrast T1W images showing marrow, ligamentous and dural enhancement with unenhancing collections.

Figure 5. Paravertebral fluid collections (A) T2W images showing hyperintense paravertebral masses. (B) T1W images showing hypointense marrow with hypointense paravertebral masses. (C) Postcontrast T1W images showing marrow and ligamentous enhancement with unenhancing collections.

Discussion:

Pott disease is also known as tuberculous spondylodiscitis and refers to vertebral body and intervertebral disc involvement with tuberculosis (TB) [1]. Spine is the most frequent location of the TB in the musculoskeletal system;

commonly related symptoms are back pain and lower limb weakness/paraplegia [1]. These symptoms were as well observed in our patient. The initial working diagnosis was vertebral metastasis, however, with MRI diagnosis of spondylitis was made with suspicion of TB involvement.

Due to ability of MRI to detect marrow changes before any bony destruction, MRI plays an important role in early diagnosis even in patients with normal radiographs [2]. An important imaging feature that characterises TB infection compared to bacterial infection is sparing of the intervertebral disc in the early stage of infection [2]. Other characteristic involvement of the subligamentous spread, anterior vertebral body corner, multiple vertebral bodies, extensive paraspinal abscess formation, abscess calcification, and vertebral destruction differentiates TB from bacterial spondylodiscitis [2]. With disease progression classic discovertebral involvement may be observed and the infective process can extend into the epidural space causing cord compression.

In the presented case on the MRI characteristic findings of the Pott disease may be observed such as multilevel involvement with early involvement on the L2 vertebrae and disease progression on the level Th11-12. Furthermore, the infective process causes cord compression and paraspinal abscesses may be appreciated. The features to differentiate spondylitis from metastasis in the current case are disc involvement and pathognomonic intraosseous abscess seen on Gd-enhanced images with paravertebral extension [3].

Batson venous plexus is a network of veins with no valves that connect deep pelvic veins draining the bladder, uterus and rectum to the internal vertebral venous plexus [4]. These veins are important because they are believed to provide a route for spread of pelvic cancer metastases or infections to the spine [5]. In our case the proposed spread is a logical explanation since the patient had pyometra three months prior the clinical presentation of spinal involvement. Unfortunately sampling from pyometra procedure was not available, however, the sample taken from spondylodiscitis surgery was positive for TB and the final diagnosis of Pott disease was made. Transpedicular desis Th9-L3 with intracorporeal cage Th11-12 was made. At three years follow-up the patient shows no TB relapse or metastatic spread.

Differential Diagnosis List: Pott disease (tuberculous spondylitis), Bacterial spondylodiscitis, Metastasis, Extramedullary haematopoiesis, Haemangioma, Pott disease (tuberculous spondylodiscitis)

References:

Spinal tuberculosis, natural history of disease, classifications and principles of management with historical perspective. Journal: Eur J Orthop Surg Traumatol, 2016, . Author: Kumar

Magnetic resonance imaging of bacterial and tuberculous spondylodiscitis with associated complications and non-infectious spinal pathology mimicking infections: a pictorial review Journal: BMC Musculoskelet Disord, 2017, .

Author: Kumar Y, Gupta N, Chhabra A, Fukuda T, Soni N, Hayashi D

Infection versus neoplasm in the spine: differentiation by MRI and diagnostic pitfalls. Journal: Eur. Radiol., 1993, . Author: Haddad MC, Sharif HS, Aideyan O

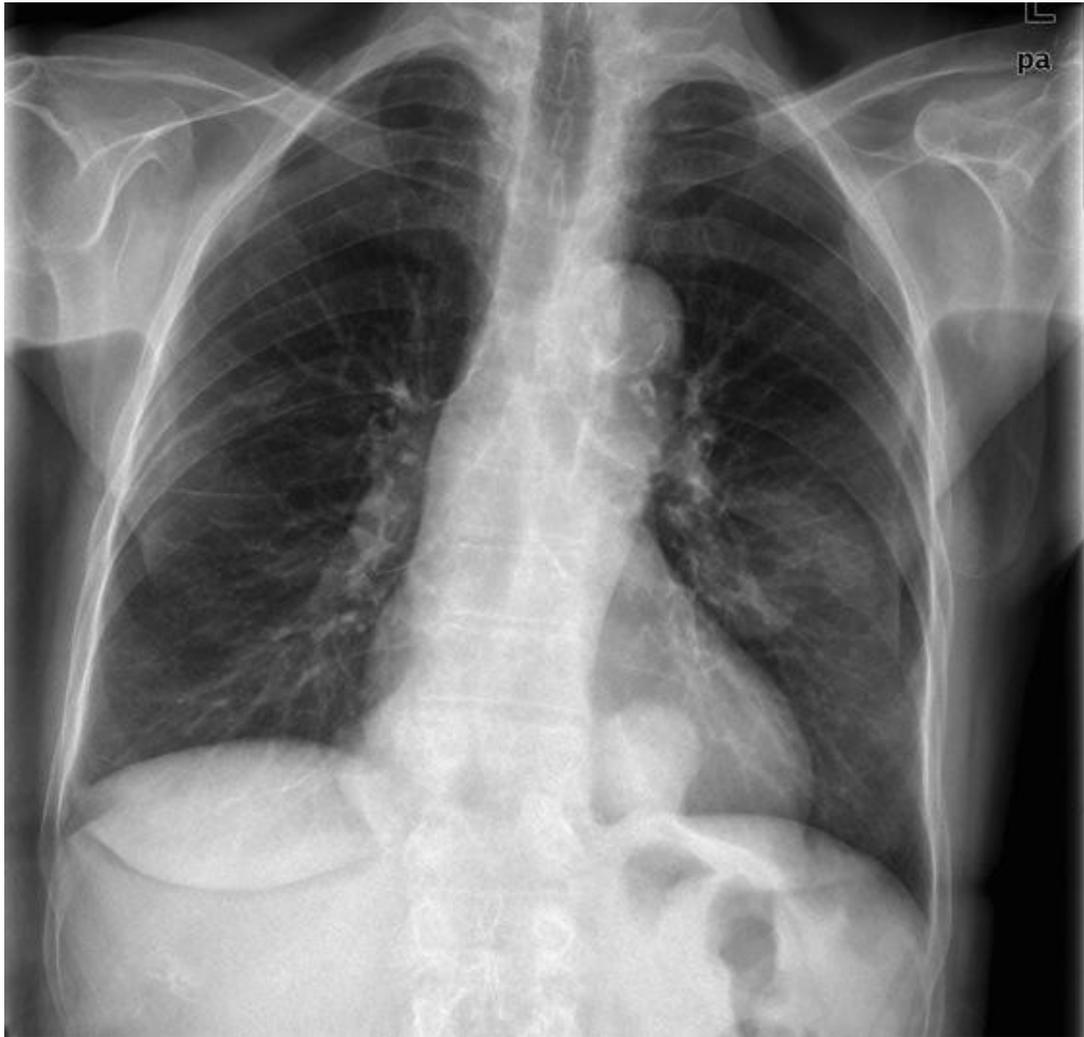
Relationship of the dura, Hofmann's ligaments, Batson's plexus, and a fibrovascular membrane lying on the posterior surface of the vertebral bodies and attaching to the deep layer of the posterior longitudinal ligament.

Journal: Spine, 1993, . Author: Wiltse LL, Fonseca AS, Amster J et al.

The function of the vertebral veins and their role in the spread of metastases. Journal: Ann. Surg., 2007, . Author: Batson OV

Figure 1

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Description: Preoperative chest radiograph **Origin:** Oncology Institute Ljubljana, Slovenia

Figure 2

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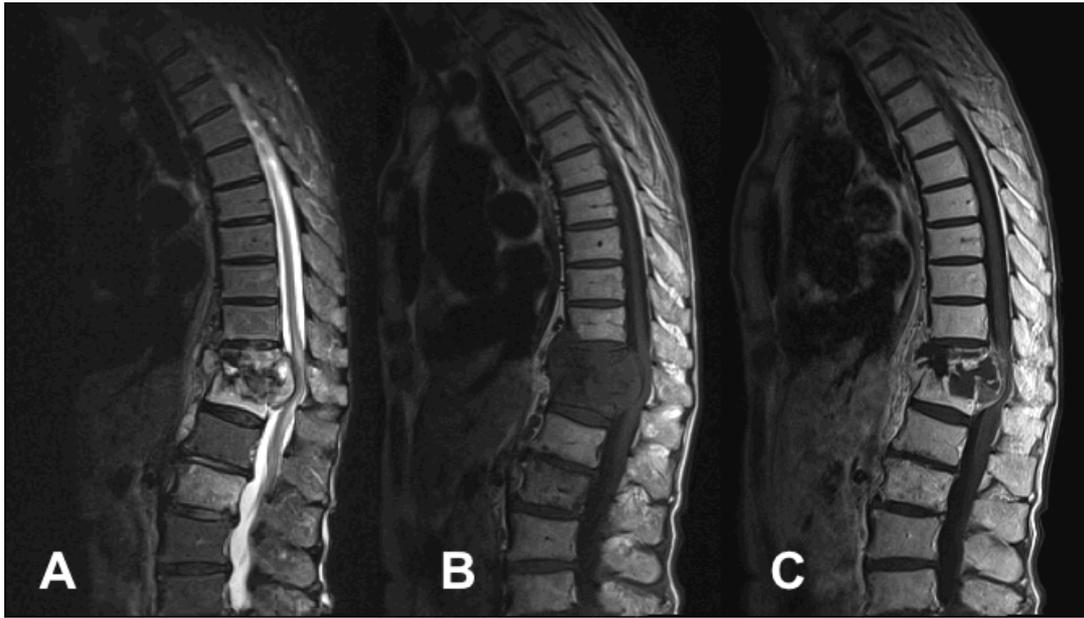


Description: Disc space narrowing and irregularity of the Th11-12 vertebral endplates.

Origin: Oncology Institute Ljubljana, Slovenia

Figure 3

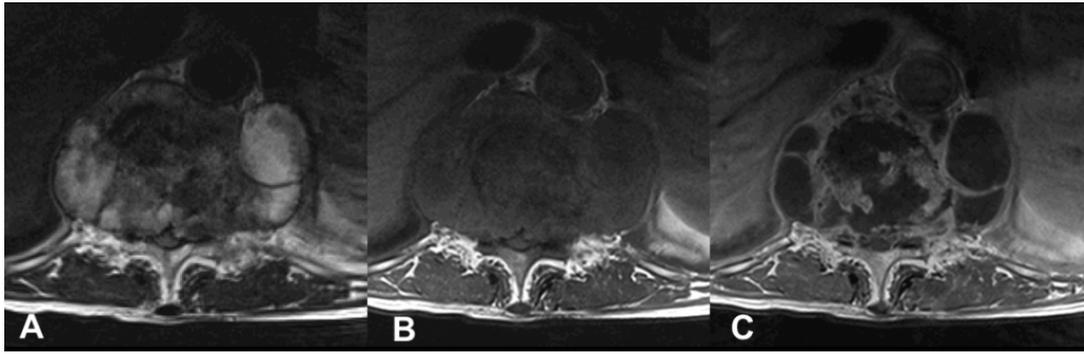
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Description: Multilevel involvement with early involvement of the L2 vertebrae and disease progression on the level Th11-12 with vertebral and intervertebral disc destruction and mass effect displacing spinal cord posteriorly. **Origin:** Oncology Institute Ljubljana, Slovenia

Figure 4

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Description: Paravertebral fluid collections corresponding to paravertebral masses observed on the chest radiograph. **Origin:** Oncology Institute Ljubljana, Slovenia

Figure 5

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Description: Only the remaining paravertebral masses are seen. **Origin:** UMC Ljubljana, Institute of Radiology, Slovenia