Neurochirurgie xxx (2017) xxx–xxx

Disponible en ligne sur
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

Update

Tophaceous gout causing thoracic spinal cord compression: Case report and review of the literature

Y. Ding[a,1,*], W. Wang[b,1], W. Jiang[c], L. Zhang[d], T. Wang[a], Z. Li[b]

[a] Department of neurology, Xuanwu Hospital, Capital Medical University, 100053 Beijing, Republic of China
[b] Department of pathology, Xuanwu Hospital, Capital Medical University, 100053 Beijing, Republic of China
[c] Department of anatomy, histology and developmental biology, School of Basic Medical Sciences, Shenzhen University Health Science Centre, 518060 Shenzhen, Republic of China
[d] Department of neurology, The Second Hospital of Hebei Medical University, 050000 Shijiazhuang, Republic of China

ARTICLE INFO

Article history:
Received 9 August 2017
Received in revised form 19 October 2017
Accepted 5 November 2017
Available online xxx

Keywords:
Tophaceous gout
Tophus
Thoracic spine
Thoracic spinal cord compression
Back pain

ABSTRACT

Objective. – To improve neurologists' awareness of spine gout by showing a rare case of tophaceous gout in thoracic spine and a summary of vertebral gout in order.
Material and methods. – We reported a case of a 36-year-old male with a 2-year-history of hyperuricemia. Neurological examination suggested that the strength of his lower limbs decreased. Bilateral Babinski's sign and ankle clonus were positive. He had no bladder or bowel dysfunction. Computed tomography of the thoracic spine showed occupied lesions at the T9, T10 levels which led to the spinal stenosis. Magnetic resonance imaging of the thoracic spine revealed epidural disease at T9, T10 levels. A resection of the occupying lesion in the thoracic spinal canal was performed, tophaceous gout was diagnosed by the pathological examination. We also provide a brief review of literature on 30 cases of spine tophaceous gout.
Result. – Spinal tophaceous gout is rare, gout can involved in any spine level, but the probability of occurrence of thoracic spine is the least. Most patients had a history of hyperuricemia or peripheral tophus, the most common symptoms are back pain, when the pain stone compression spinal cord or nerve root, there will be the corresponding neurological symptoms or signs.
Conclusions. – The spinal gout should be considered when a patient has chronic or acute back pain and/or neurological symptoms, with mass on sides of the vertebras on MRI, especially when the patient has a history of hyperuricemia, the pathology examination can confirm the diagnosis.

1. Introduction

Gout is a type of common metabolic disease caused by deposition of monosodium urate crystals.

When the concentration of uric acid in the blood surpasses the human physiological dissolution threshold value, urate crystals appear and form deposits in the joints, bursa synovialis, subcutaneous tissue, kidney and urinary tract, resulting in the characteristic arthritis, tophi or renal injury, etc.

As the occurrence of gout in the spine is rare, there is a lack of systematic information published in the literature. The prevalence, specific clinical manifestation and imaging characteristics still remain unknown, making the diagnosis difficult. A recent cross-sectional study showed that 35% of the patients who had a history of gouty arthritis had CT scan evidence of spinal erosions and tophi, and the proportion with tophi was 15% [1]. Spinal tophaceous gout is usually diagnosed by an orthopedic surgeon, and often neglected by neurologists. We presented the case of a young patient with thoracic spinal cord compression caused by tophi, and present a brief review of the literature associated with the aim of improving the clinical approach in the diagnoses of spinal tophaceous gout.

2. Case report

A 36-year-old male with a previous 2-year-history of hyperuricemia presented with a weakness and numbness of bilateral lower extremities which began 2 months previously. The patient's symptoms had recently progressed over a two-week period, which included back pain and a pain in the right leg radiating from the buttocks. He had no bowel or bladder dysfunction throughout the

* Corresponding author.
E-mail address: dingyandoctor@126.com (Y. Ding).
[1] These authors contributed equally to this study and share first authorship.

https://doi.org/10.1016/j.neuchi.2017.11.002
0028-3770/

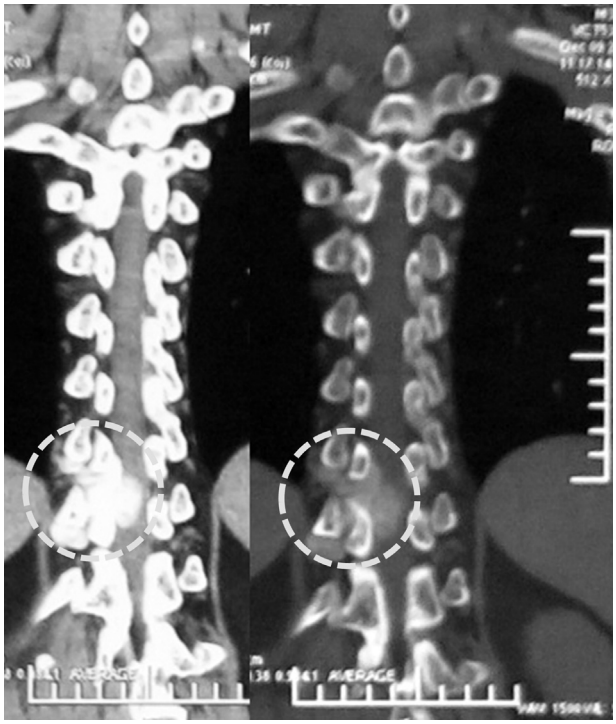

Fig. 1. Computed tomography of the thoracic spine. There was a random-shaped lesion with slightly high density in the spinal canal at level T8–T9. It eroded tissues outside the spinal canal along the right foramina; the bone of the right articular process was involved.

course of the disease and no previous medical history of a tumour or any spinal injuries.

Physical examination confirmed that the patient had no fever. Multiple tophi were observed in both auricles. Severe tenderness was found in his back at the T9, T10, T11 levels. Neurological examination showed that the strength and tendon reflexes of his upper limbs were normal with no Hoffmann sign. Bilateral lower limb strength decreased: grade 3+/5 on the left and Grade 3−/5 on the right. The tendon reflexes were exaggerated. The patient had two-sided ankle clonus and the bilateral Babinski's sign was positive. The laboratory test showed that the concentration of uric acid was

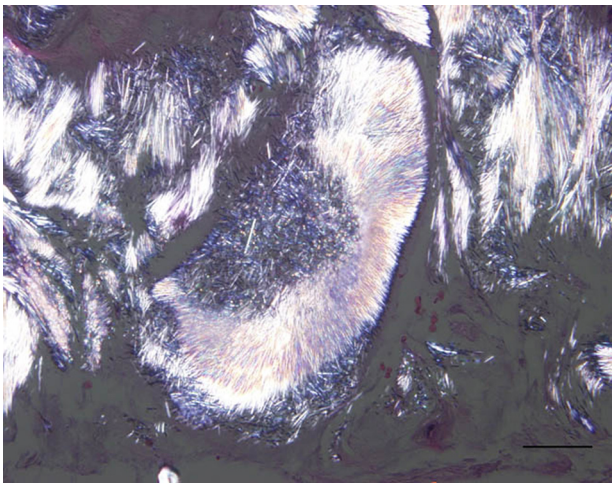

Fig. 3. Polarized light microscope showed birefringence, which were sharp on both sides and radially-1ike arranged. (hematoxylin and eosin, × 400).

667 μmol/L (normal level 155–428 μmol/L), and the triglycerides level 2.50 mmol/L (above the normal level). Other standard tests included blood, urine and stool, erythrocyte sedimentation rate, C-reactive protein, tumour markers, thyroid function, hepatorenal function and electrolyte were in the normal range.

The brain CT scan was normal, whereas the CT scan of thoracic spine revealed occupied lesions at the T9, T10 levels leading to spinal stenosis (Fig. 1). The magnetic resonance imaging (MRI) of thoracic spine revealed an epidural disease at T9, T10 levels, which might be a neurogenic tumour, as well as spinal stenosis, spinal cord ischemia or degeneration (Fig. 2).

The patient had a resection of the occupying lesion in the thoracic spinal canal. A chalky white material was observed in the spinal canal and outside the duramater (Fig. 3). A complete pathological examination showed that the brown needle-shaped deposits of monosodium urate crystals were surrounded by multinucleated giant cells and monocytes. Brown needle-shaped monosodium urate crystals showed bright negative birefringence under the compensated polarized microscopy and were dissolved when preserved in the formalin. According to the pathological

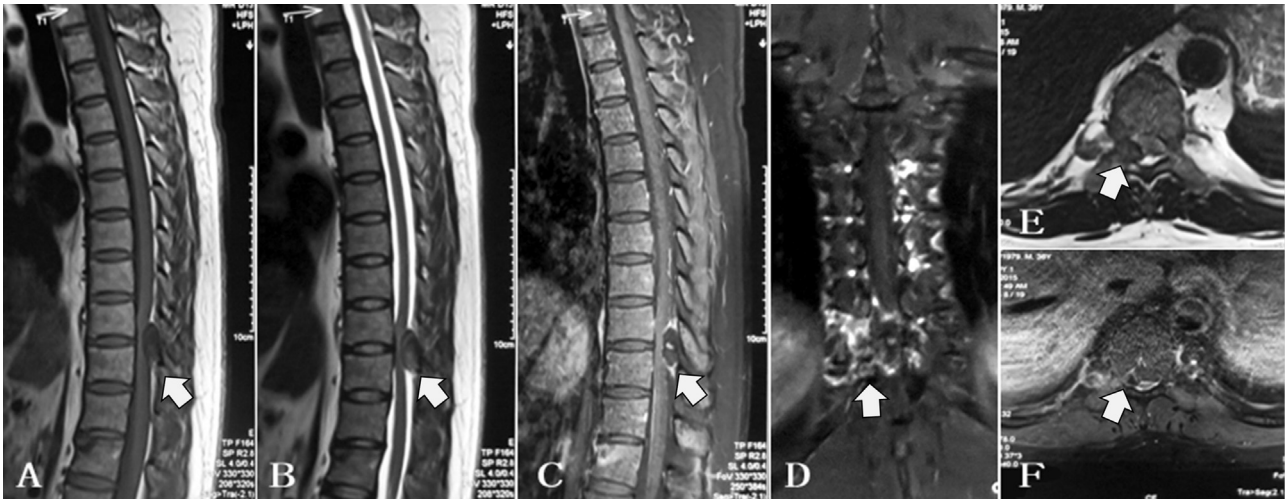

Fig. 2. Magnetic resonance imaging of thoracic spines. A. Sagittal plane T1-weighted section. B. T2-weighted section. C. Contrast enhanced T1-weighted section. D. coronary plane T1-weighted section. E. Axial plane T1-weighted section. F. Axial contrast enhanced T1 section. The images show an oval, intraspinal, intradural mass in the dorsal part of the spinal canal at the level L9, L10 which caused the spinal stenosis. The mass showed peripheral were slight heterogeneous enhancement. The tissues on the right of the lesion outside the spinal canal showed slight enhancement (see arrow).

Please cite this article in press as: Ding Y, et al. Tophaceous gout causing thoracic spinal cord compression: Case report and review of the literature. Neurochirurgie (2017), https://doi.org/10.1016/j.neuchi.2017.11.002