Case Report

Tophaceous gout in thoracic spine mimicking meningioma: A case report and literature review

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INTRODUCTION

Gout is a common and complex form of arthritis characterized by classic signs of inflammation (i.e., dolor [pain], rubor [redness], calor [heat], and tumor [swelling] in the joint). Spinal involvement is rare, and very few cases of spinal gout have been reported in the literature. The authors present a rare case of axial gout with tophaceous deposits in the thoracic spinal canal resulting in cord compression and mimicking a meningioma.

Case Description: A 33-year-old male presented with chronic mid back pain and a progressive paraparesis. The presumed diagnosis was meningioma based on MR imaging with/without contrast that showed a posterolateral, right-sided, and T10-T11 intradural extramedullary lesion. Notable was hyperuricemia found on hematological studies. The patient underwent a decompressive laminectomy (T9-T11) for excision of the lesion, intraoperatively, an intraspinal, chalky, white mass firmly adherent to and compressing the dural sac was removed. The histopathology confirmed the diagnosis of a gouty tophus. Postoperatively, the patient’s pain resolved, and he regained the ability to walk.

Conclusion: A gouty tophus should be included among the differential diagnostic considerations when patients with known hyperuricemia present with back pain, and paraparesis attributed to an MR documented compressive spinal lesion.

Keywords: Axial gout, Meningioma, Spinal gout, Thoracic spinal gout, Tophaceous gout

ABSTRACT

Background: Gout is a common metabolic disorder of purine metabolism, causing arthritis in the distal joints of the appendicular skeleton. Spine involvement is rare, and very few cases of spinal gout have been reported. The authors present a rare case of axial gout with tophaceous deposits in the thoracic spinal canal resulting in cord compression and mimicking a meningioma.

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had a paraparesis (right side [3/5] and left-sided [4/5]), accompanied by hyperactive lower extremity reflexes (e.g., including Babinski responses), and paraesthesia below the umbilicus.

Laboratory investigation and imaging

The patient’s total leucocyte cell count was increased to 22,290/mm³, the serum creatinine was high at 1.82 mg/dL, and the serum uric acid level was elevated to 11.4 mg/dL. Notably, urine routine microscopy was normal and showed no “gouty” crystals.

Diagnostic studies

Although the thoracic x-rays were normal, the MRI showed a posterolateral right-sided lesion at the T10-T11 level. The vertebral/intracanalicular lesion was iso- to hypointense on T1W images and heterogeneous/low signal intensity on T2W images; it was also accompanied by a focal hyperintense cord signal [Figure 1]. The T1 contrast study further documented heterogeneous enhancement of the intracanalicular extramedullary intradural mass (measuring 3.0 × 1.6 cm in size). Based on these findings, a tentative diagnosis of meningioma was established.

Surgery

The patient underwent a T9 to T11 laminectomy. At surgery, the lesion was chalky/white, invaded the ligamentum flavum, adhered to the dura mater, and compressed the cord [Figure 2 and Video 1]. It was removed without incident. The histological examination showed nodules and islands of an amorphous, basophilic material, surrounded by chronic inflammation, and multinucleated giant cell, all of which confirmed the diagnosis of tophaceous gout [Figure 3].

Outcome

Postoperatively, the patient’s pain was resolved, and his neurological deficit improved. He was able to walk within 3 postoperative months as his motor examination in both lower extremities improved bilaterally to the 4/5 level. He was subsequently referred to a rheumatologist for further management of his gout.

DISCUSSION

We identified 25 similar cases of spinal tophaceous gout reported in the literature. As these lesions are rare and can mimic spondylitis, neoplasm, or abscess; a histopathological examination is critical for establishing the correct diagnosis and determining the appropriate treatment.
spinal tophaceous gout from other lesions. On MR, a tophus may appear hypointense/isointense on T1, which may show variable intensity on T2, while contrast studies may demonstrate homogeneous/heterogeneous peripheral enhancement. Typical CT scan findings include bone or joint erosions with well-defined sclerotic margins, facet or intervertebral bone neoformation, or juxta/intra-articular masses that were denser than the surrounding muscle. Although CT scans are more sensitive and specific than plain radiographs, they lack diagnostic accuracy.

Dual-energy CT (DECT)

DECT is a promising, noninvasive modality for the identification and volumetric quantification of tophaceous gout. It is both sensitive and specific for diagnosing gout and readily distinguishes urate crystals from calcium using specific attenuation characteristics. In patients with known tophaceous gout, it can be used for serial volumetric quantification of tophi to assess response to treatment.

Management of gout

Management of gout includes treatment of the acute attack, lowering uric acid levels to prevent additional flare-ups of gouty arthritis, and/or the further deposition of urate crystals. Acute medical treatment includes the administration of colchicine, nonsteroidal anti-inflammatory drugs, or both, while long-term therapy mandates urate-lowering therapy (e.g., allopurinol, febuxostat, or probenecid). For cases in which spinal gout contributes to neural-compressive syndromes, surgery for pathological diagnosis and decompression with/without fusion may typically warrant; subsequent pharmacological treatment is also typically indicated.

CONCLUSION

When patients with gouty arthritis or known hyperuricemia experience the new onset of neurological symptoms/signs in the presence of a spinal lesion, spinal tophaceous gout should be considered among the differential diagnostic considerations, warranting appropriate surgical management with the pathological confirmation.

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Declaration of patient consent

Patient’s consent not required as patients identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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