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POSTER CASE REPORTS

CRYSTAL ARTHROPATHIES

25. A CURIOUS CAUSE FOR NECK PAIN: 2 CASE REPORTS

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Introduction: We present two cases of unusual presentations of pain in the cervical spine. Crowned dens syndrome is well characterised by recurrent neck pain related to radiodense calcium pyrophosphate dihydrate deposits in ligaments around the odontoid process, pseudogout. There are fewer cases of gout in the c-spine.

Case description: Case 1: A 54-year-old gentleman, originally from Ghana, was referred by his general practitioner with dizzy spells and tachycardia on standing up. His past medical history included type II diabetes mellitus, hypercholesterolaemia, hypertension, previous exposure to hepatitis B virus, iron deficiency anaemia and sickle cell trait. He complained of right knee pain and swelling with severe pain affecting the neck and occiput. He was afebrile, with pulse of 110 beats per minute, blood pressure of 138/81 mmHg, tender, hot, and swollen right knee with tender cervical spine and occiput. Neurological, cardiovascular and abdominal examination were otherwise unremarkable. Blood tests demonstrated: haemoglobin 90 g/dL, platelet count $551 \times 10^9/L$, white cell count $11.3 \times 10^9/L$, c-reactive protein (CRP) 118 mg/L, erythrocyte sediment rate (ESR) 122 mm/hour, creatinine $76 \mu\text{mol/L}$, urate $267 \mu\text{mol/L}$. Radiographs of the right knee showed a large effusion, no bony injury and no chondrocalcinosis. A radiograph of the cervical spine showed cervical spondylosis and a possible odontoid PEG fracture. A CT of the neck excluded a fracture but indicated degenerative disease. The right knee was aspirated and empirical antibiotics for possible septic arthritis commenced. Despite three days of intravenous treatment there was no improvement in symptoms. Synovial aspirate demonstrated 99% polymorphs with negatively birefringent crystals on polarised light microscopy and no bacterial growth. Antibiotics were stopped, colchicine commenced and the right knee was injected with corticosteroid (80mg depomedrone) and local anaesthetic (1ml of 2% lidocaine), the patient was discharged. Following discharge, the patient's neck pain persisted and disturbed sleep. Flares of neck pain occurred concurrently with flares of right knee pain. Magnetic resonance imaging (MRI) of the cervical spine demonstrated high signal at the atlanto-axial joint, with an effusion and associated marrow oedema (see Fig. 1). A course of oral corticosteroids (prednisolone 30mg daily) and colchicine was prescribed and this resulted in significant improvement in both neck and knee symptoms. On weaning steroids, the patient had another attack of gout in his knee which required aspiration and steroid injection. His progress has been good and is now walking unaided. He has returned to full time employment as a mental health nurse and is established on urate lowering therapy with allopurinol. Case 2: A 65-year-old gentleman presented to the emergency department with palpitations. His only past medical condition was hypertension. Electrocardiogram revealed atrial flutter and this was managed with beta blockade, followed by digoxin. The patient also reported left knee pain, swelling and warmth. Examination revealed a tender and warm left knee with a joint effusion. Turbid fluid was aspirated and microscopy confirmed urate crystals and 92% polymorphs, cultures were negative. There was minimal response to colchicine, so the patient underwent intra-articular steroid injection. He was discharged and followed up in the outpatient clinic four weeks later when he reported severe neck pain associated with a reduction in cervical spine extension and rotation. This also happened concurrently with knee pain. MRI of the cervical spine revealed high signal at C5-C6 (Fig. 2) and raised concerns of an infectious discitis. He was commenced on intravenous antibiotics with no clinical response. Inflammatory markers remained quiescent and serum uric acid level were elevated at $558 \mu\text{mol/l}$. Repeat MRI of the cervical spine showed persistent disc oedema at C5-C6 (Fig. 3) with heterotopic ossification in the alar and transverse ligaments. Ongoing outpatient management of gout was continued and the patient had a significant improvement in both knee and neck pain.

Discussion: The diagnosis in both cases is of gout affecting the cervical spine and peripheral joints. Exclusion of septic arthritis in both patients and evidence of monosodium urate crystals on polarised light microscopy

confirmed the presence of gout. The occurrence of neck pain at the same time as knee pain, along with clinical response to gout treatment and the MRI findings all supported the possibility of gout causing cervical spine disease. Gout usually affects peripheral joints, but axial skeleton involvement is rare. In a series of 129 cases of spinal gout (83% confirmed by surgery, needle biopsy or aspiration), over 50% involved the lumbar or lumbo-sacral spine, 25% affected the cervical spine, and the remainder the thoracic spine. Back pain was the most common symptom, and almost three-quarters had a history of gout or hyperuricaemia. Changes on plain radiograph were non-specific, 98.9% of those who had an MRI were reported as abnormal, but only 21% of those were reported as gout. A recognised challenge is distinguishing osteomyelitis or tuberculosis from gout on MRI. Of those who had CT scans, 96% were reported as abnormal, but only 18.6% were highly suspicious for tophaceous gout. A newer imaging modality, dual energy CT scanning (DECT) is able to identify subclinical tophi with reported sensitivity and specificity at 90% and 83% respectively. It helps in

Fig. 1



Fig. 2

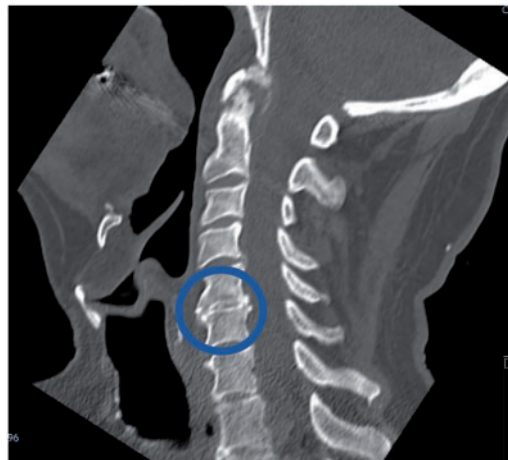


FIG. 3



diagnostic uncertainties when polarised light microscopy of synovial fluid fails to demonstrate monosodium urate crystals. Studies of DECT have thus far focussed on peripheral joints, there are case reports of using DECT for confirming urate deposition in the costovertebral joints of the thoracic spine and the lumbar facet joints. We await further investigations into the use of DECT to identify gout in the axial spine.

Key learning points: Spinal gout is rare, however it should be considered in the differential diagnosis for patients complaining of neck or back pain with risk factors for gout or known hyperuricaemia. Early diagnosis and prompt medical management can avoid neurological compromise and need for surgical intervention. A key learning point from these cases is the importance of combining the clinical presentation, interpretation of biochemical and radiological tests as well as response to treatment in order to diagnose crystal arthropathy in the cervical spine, which is a high risk area to attempt aspiration. At the conference, it would be valuable to see how rheumatologists utilise DECT with regards to case selection and consideration of cost-benefit of this test that is not yet widely available. Additionally, it would be interesting to hear if others have had experience in diagnosing and managing axial crystal arthropathy.