

Case Report

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Tophaceous gout of the spine resulting in cauda equina syndrome: a rare presentation

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Abstract

Introduction: Cauda equina syndrome due to spinal gout is an uncommon presentation of gout. Tophaceous deposits in the spinal canal compressing the nerve roots leads to this condition.

Case Presentation: We report a case of cauda equina syndrome due to spinal gout in a 36-year-old Sri Lankan male who was presented with symptoms for two-month duration. Patient was having radicular pain, urinary and bowel incontinence and erectile dysfunction for two-month duration with saddle anesthesia. Magnetic resonance imaging (MRI) showed cauda equina compression at L5, S1 vertebral levels. Patient underwent laminectomy and it was found to have whitish chalky material compressing the dural sac which was confirmed as tophaceous gouty deposits by histology.

Discussion: Although the success rates are low in delayed surgery for cauda equina syndrome our patient showed improvement of bladder functions and reduction in radicular pain.

Keywords: *cauda equina syndrome, gout, incontinence, saddle anesthesia, tophaceous*

INTRODUCTION

Gout is the most common crystal arthropathy worldwide. It is becoming more prevalent in past few decades. It has a prevalence of <1% to 6.8% and an incidence of 0.58–2.89 per 1,000 person-years^{1,2}. It is more prevalent in males than in females of advancing ages and of certain ethnic groups. Gout is characterized by the deposition of monosodium urate crystals in the synovium of joints. These crystals have low solubility in low temperatures. Thus, the most affected joints are peripheral joints. Spinal gout is a rare presentation and the most commonly affected is the lumbar spine³. Spinal gout can present in many forms including spinal stenosis, lumbar radiculopathy,

spondylolisthesis, or cauda equina syndrome. We report a rare case of spinal gout which presented as cauda equina syndrome.

CASE PRESENTATION

A 36-year-old Sri Lankan patient with a history of gouty arthritis for 6 years but not on regular follow up presented to National Hospital Kandy, Sri Lanka, with a history of fever and dysuria for 4 days. Patient was having on and off lower back pain for 1 year and it was radiating down the lower limbs. There was no pain in the joints. He complained of



urinary incontinence for past two months with loss of bladder sensation and control. There were altered bowel habits with loss of bowel control with fecal incontinence for the same duration. He complained of inability to have an erection and loss of sensation over pubic area.

On examination patient was conscious and alert. There were no joint swellings, joint deformities, subcutaneous nodules or spinal tenderness. Straight leg raising test was normal bilaterally. Muscle tone, power and knee jerks were normal in bilateral lower limbs. But both ankle jerks were absent. Pain and touch sensations were absent over S1 to S5 dermatomal distribution. Anal sphincter tone was diminished with absent anal reflex.

Initial investigations showed neutrophil leukocytosis in full blood count and 40-50 pus cells

in urine full report. C reactive protein(CRP) was elevated (196mg/l) and serum creatinine (SCr) was also elevated (1022umol/l). Uric acid level was 12.53mg/dl, which is also higher than normal. Liver transaminases, bilirubin, electrolytes, calcium and phosphate were normal. Patient was treated as for urinary tract infection and acute kidney injury with intravenous antibiotics while investigating for lower limb pain and sensory impairment. Three cycles of haemodialysis were arranged. Patient's urinary symptoms were improved and SCr gradually decreased with the management. CRP decreased to 75mg in 15 days after treatment with antibiotics.

Meanwhile MRI of the lumbar and sacral spine was performed, and it showed cauda equina compression at L5, S1 vertebral level (Figure 1).

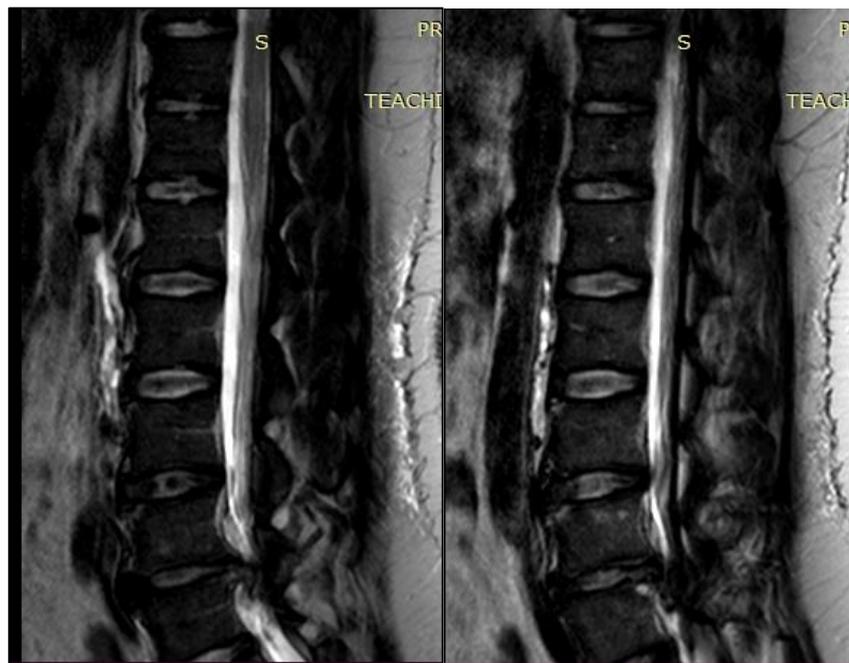


Figure 01: MRI showing cauda equina compression

Patient was referred to neurosurgical unit and L4, L5 laminectomy was done to release the compression. Ligamentum flavum hypertrophy and whitish chalky material was noted at L4, L5 level compressing the dural sac. Microscopically polarized crystals were noted which is suggestive of tophaceous deposits of gouty arthritis. There were no caseous granuloma or malignant cells.

Following the surgery patient showed improvement of symptoms. Back pain was improved and had the bladder sensation after clamping the urinary catheter. He was started on alopurinol and planned to change to febuxostat later. His renal functions were monitored throughout. But unfortunately, despite of all the management patient left hospital against medical

advice 5 days after surgery due to some family issues and lost in follow up.

DISCUSSION

Gout is characterized by deposition of monosodium urate crystals in the presence of high serum uric acid concentrations. When serum urate concentrations exceed 6.8 mg/dL it reaches the solubility limit and tends to deposit especially in synovium of the joints leading to forming tophi⁴. Arthritis occurs due to the inflammatory response for monosodium urate crystals in the synovium. Gout is commoner in males than females and incidence is high in post-menopausal women and in older population. A study shows almost 12% of males between ages of 70–79 in USA affected compared with <3% in men younger than 50 years⁵.

Tophi in peripheral joints are easily noticeable whereas in spine it is not easily apparent as well as rare. The current incidence of spinal gout is still not clear. Lumbar spine is mostly affected followed by thoracic and cervical spine. Clinical presentation of spinal gout is diverse and nonspecific. They can present with fever, back pain, and neurological signs such as radicular pain, myelopathy, claudication or cauda equina syndrome⁶.

MRI shows hypointense signal on the T1-weighted MRI and heterointense signals on the T2-weighted MRI. Cytological or histopathological studies give definitive diagnosis of spinal gout⁷.

Pharmacotherapy for spinal gout is as like gout in peripheral joints. Acute attacks are treated with non-steroidal anti-inflammatory drugs (NSIDs). Colchicine is an alternative for patients who are unable to use NSAIDs like in chronic kidney disease, duodenal or gastric ulcer, heart disease or hypertension, NSAID allergy, or anticoagulant treatment. For the prevention of acute attacks xanthine oxidase inhibitors, such as allopurinol, febuxostat, and oxypurinol are used to reduce uric acid production. Second line prophylactics such as probenecid and sulfinpyrazone are used to increase uric acid excretion⁷.

Acute onset of cauda equina syndrome due to a compression is considered as medical emergency and decompression should be done urgently to

prevent permanent neurological damage. However, some studies have shown that delayed surgery may also provide satisfactory outcome⁸. Our patient also had radicular pain with symptoms of corda equina syndrome. But he presented 2 months after the symptoms first appeared. He showed improvement of the symptoms following surgery despite of the late presentation. A similar presentation was described in a 68-year-old man who presented with chronic back pain for one-year duration, symptoms of corda equina for six-weeks duration and found to have vertebral destruction of L5/S1 end plates due to gouty tophi⁹.

It is observed that almost three quarters of patients continued to have bladder symptoms at long-term follow-up and almost 40% had sexual dysfunctions following surgery for cauda equina syndrome¹⁰. But long-term assessment of our patient was not possible as he did not return for follow up.

Author declaration

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Author contribution

KVDRC wrote the case report, drafted and edited the manuscript, KJ contributed to writing the case report and editing the manuscript, and JD contributed to editing the manuscript.

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Data availability

Data is available on request from corresponding author

Ethical approval and consent to participate

Informed written consent was taken from the patient

Competing interest

The authors declare no competing interests

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