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CASE REPORT

Granulocytic sarcoma: a rare cause of sciatica

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SUMMARY

We describe a case report of a man aged 56 years with a 4-month history of right-sided sciatica-type pain with subclinical disc prolapse evident on MRI. Worsening pain together with the appearance of a tender mass in his right buttock prompted further imaging, which demonstrated an infiltrative mass engulfing the lumbosacral plexus. This was later shown to be a granulocytic sarcoma on biopsy. Intervertebral disc herniation can be an incidental finding and is not always the cause of sciatica.

had not been present on previous visits to his general practitioner, but on discovery, he was promptly referred to the emergency department for further assessment.

He developed myelodysplastic syndrome (RAEB-2) aged 49 and underwent chemotherapy (daunorubicin+cytarabine) and allogeneic bone marrow transplant. This subsequently failed and he required more chemotherapy (FLAG-Ida+cytarabine) and a second allogeneic bone marrow transplant. He had been in remission until the time of presentation.

On examination, a hard, smooth tender mass was palpable in the upper half of the right buttock. The posterolateral aspect of his right buttock and thigh were very painful to touch. He had weak right knee flexion with total loss of movement in the ankle and on knee extension. The right ankle reflex was absent. The left lower limb was neurologically normal. The SLR test was negative bilaterally. Admission blood test results are shown in [table 1](#).

An MRI of the lumbar spine performed 6 weeks prior to admission had shown mild lumbar disc protrusions at L3/4 and L5/S1 with a disc prolapse at L4/5. There was no evidence of significant neurological compromise or bone marrow abnormality. On admission, after detecting the buttock mass on clinical examination, an informal ultrasound scan was performed in the emergency department and showed a 4×10 cm heterogeneous hypoechoic mass in the right buttock ([figure 1](#)). Subsequent MRI of the right buttock revealed a heterogenous enhancing soft tissue mass lesion along the right lateral wall of the pelvis extending through the sciatic and obturator foramina into the thigh and engulfing the lumbosacral plexus measuring 18×12×10 cm ([figure 2A, B](#)). A second mass lesion involving the gluteal muscles was also identified and seen to communicate with the pelvic mass. Unfortunately, the first MRI examination of the lumbar spine did not extend caudally enough to capture the mass, leading to a delay in diagnosis.

A biopsy performed at a tertiary orthopaedic centre demonstrated a granulocytic sarcoma. He was subsequently referred to haematology for further investigations and treatment.

- ▶ RAEB-2: refractory anaemia with excess blasts 2
- ▶ FLAG-Ida: a combination of fludarabine, cytarabine+idamycin

DISCUSSION

Granulocytic sarcoma is a rare extramedullary manifestation of haematological malignancy and is most commonly associated with acute myeloid leukaemia. Involvement of the nervous system is rare and there are only a handful of cases of peripheral

BACKGROUND

Sciatica is an archaic term with a nebulous meaning.¹ For most clinicians, it refers to a radiculopathy affecting the sciatic nerve but confusingly is used more generally to describe pain that radiates from the lower back down the leg. It is a common condition with a lifetime incidence of 13–40% and in up to 90% of cases, it occurs due to intervertebral disc herniation.^{2–3} On rare occasion, mass lesions involving the sciatic nerve or lumbosacral plexus can also produce sciatica-like symptoms. Diagnosis of sciatica and its aetiology in the clinic can be challenging. The straight leg raise (SLR) test is often thought to be pathognomonic for sciatica caused by lumbar disc herniation; however, it has poor sensitivity and specificity compared with MRI of the lumbar spine, which is the gold standard investigation.⁴

Granulocytic sarcoma, also known as myeloid sarcoma or chloroma, is a rare solid tumour consisting of haematological cells from the myeloid lineage. It is known to be an extramedullary manifestation of acute myeloid leukaemia and can present de novo or as a relapse of acute myeloid leukaemia following stem cell transplantation.^{5–6} Less commonly, it is seen in patients with myelodysplastic syndrome and chronic myeloid leukaemia.^{7–8} The locations affected are diverse, with the most common being bone, periosteum, soft tissue, lymph node and skin.⁹ More rarely, the genitourinary system and nervous system can be involved.^{10–21}

CASE PRESENTATION

A man aged 56 years presented to the emergency department with a 4-month history of right buttock pain radiating down the right leg treated as sciatica in the community. Two weeks prior to admission, the pain had worsened to the extent that he needed a walking stick to mobilise. He had also developed nocturnal pain and allodynia throughout the outer aspect of the right leg and noticed a tender lump in his right buttock. This

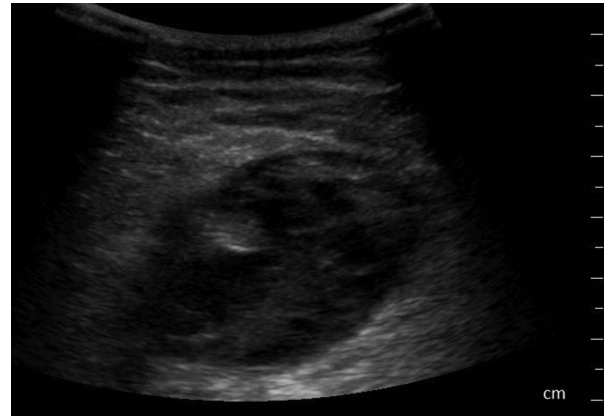
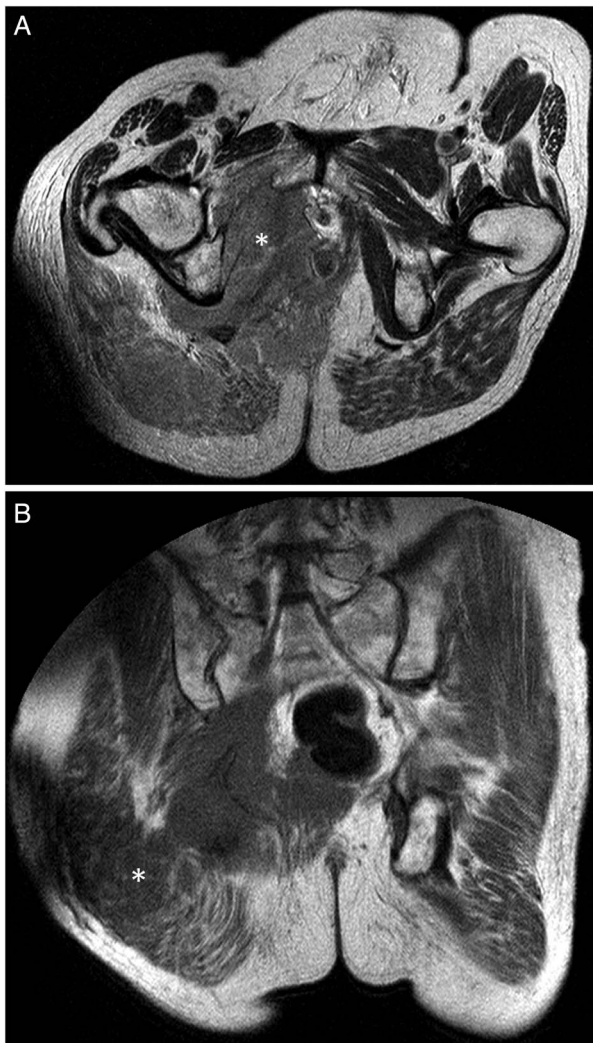


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Table 1 Blood results on admission

	Units	Value	Normal range
White blood count	$\times 10^9/L$	8.5	3.80–11.00
Neutrophils	$\times 10^9/L$	5.3	1.80–7.50
Lymphocytes	$\times 10^9/L$	2	1.50–4.00
Monocytes	$\times 10^9/L$	0.9	0.20–0.80
Eosinophils	$\times 10^9/L$	0.2	0.04–0.50
Basophils	$\times 10^9/L$	0.1	0.00–0.20
Red cell count	$\times 10^{12}/L$	3.56	4.30–5.70
Haemoglobin	g/L	116	130.00–180.00
Mean cell volume	fL	102	77.00–95.00
Platelets	$\times 10^9/L$	381	150.00–400.00
CRP	mg/L	13	0.00–5.00
Sodium	mmol/L	142	133.00–146.00
Potassium	mmol/L	4.4	3.50–5.30
Creatinine	mmol/L	102	59.00–104.00

**Figure 1** Ultrasound scan demonstrating heterogeneous hypoechoic mass in the right buttock.**Figure 2** (A) Axial T2-weighted MRI demonstrating an ill-defined mass lesion* along the right lateral wall of the pelvis adjacent to the seminal vesicles, lower rectum and anal canal extending through the sciatic foramen into the thigh and through the obturator foramen. (B) Coronal T1-weighted MRI demonstrating a right gluteal mass* communicating with a right pelvic mass.

nerve involvement presenting as sciatica in the literature to date.^{14–20} These mainly describe intradural and extradural spinal lesions or report disease in paediatric patients. We present a unique report of an adult patient with a progressive right-sided lumbosacral plexus neuropathy secondary to extensive infiltration by a granulocytic sarcoma of record size.

Our patient was treated for presumed sciatica with analgesia and physiotherapy. The MRI of the lumbar spine performed prior to admission showed only mild disc protrusions and prolapse but no neurological impingement to account for his symptoms. However, given the progressive worsening of his pain and marked weakness, which is atypical for sciatica, especially with no obvious cause on MRI lumbar spine, he required further investigations to identify the aetiology of his pain. It is well known that incidental protrusions and prolapses are commonplace in lumbar MRI studies and this increases with age. The prevalence of asymptomatic disc herniation on MRI has been found to be ~30% at 20 years of age and to increase to as high as 84% at 80 years of age.²¹ In our case, a significant diagnosis to exclude would be non-traumatic avascular necrosis of the femoral head, which can complicate chemotherapy and radiotherapy for solid and haematological tumours.²² Meticulous assessment of a patient's clinical presentation is therefore vital when presenting with sciatica symptoms. In patients with a previous history of haematological malignancy, atypical symptoms should raise suspicion for disease recurrence or therapeutic complications. Furthermore, caution must be exercised when attributing sciatica symptoms to intervertebral disc herniation in the presence of atypical symptoms with MRI evidence of sub-clinical disc herniation.

Learning points

- ▶ Granulocytic sarcoma involving the nervous system is extremely rare.
- ▶ Clinicians should have a low threshold for imaging in patients with known haematological malignancy, either active or in remission, who present with neuropathic pain.
- ▶ Intervertebral disc herniation is a common incidental finding on MRI lumbar spine scans and may be completely unrelated to the cause of sciatica.
- ▶ If findings during history taking and examination are not corroborated by imaging findings, rarer causes for sciatica must be considered.

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Competing interests None declared.

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