

Introduction

Musculoskeletal complaints are common in paediatric emergency settings and are often attributed to trauma or benign orthopaedic conditions. However, in rare instances, they may be the initial manifestation of a serious underlying disorder. Leukaemia, the most common childhood malignancy, can present with musculoskeletal symptoms. We report a case of an atypical presentation of Acute Leukaemia in the paediatric population in the emergency. This case highlights the importance of considering haematologic malignancies in children presenting with acute limb weakness.

Case Description

- A previously healthy 3-year-old Indigenous boy
- Presented to the Emergency Department with acute lower limb pain and an inability to weight bear
- The symptoms developed insidiously over three weeks following a minor fall, with progressive bilateral lower limb pain and difficulty ambulating.
- No fever, bruising, or any other systemic complaints.

Initial Examination

- Alert, afebrile, and mildly pale
- Haemodynamically stable
- Walked with an antalgic gait.
- Normal lower limb tone, reflexes, and sensation
- Muscle power was reduced to 3/5 bilaterally.

Differential Diagnosis

- Trauma related injuries
- Guillain Barré syndrome
- Spinal pathology
- Rickets



Thoracolumbar, lower limb and pelvic radiographs were unremarkable

As imaging results were unremarkable, a diagnostic laboratory workup was initiated

CBC revealed pancytopenia:
 - WBC of 122,000/mm
 - Hb of 2.6 g/dL
 - Plt of 22,000/mm

Peripheral blood smear showed 98% blasts

Referred to Oncology

Bone marrow aspiration confirmed ALL

Discussion

Neurological symptoms in leukaemia can arise from periosteal elevation caused by leukemic cell infiltration or bone infarctions. In some cases, cortical bone weakening can lead to limb weakness or pathologic fractures. In this patient, the lower limb weakness was likely due to spinal cord compression from leukemic infiltration or vascular compromise secondary to leukostasis. The absence of classic leukaemia symptoms underscores the need for a broad differential in paediatric acute weakness presentations. This case highlights an atypical presentation of ALL, where lower limb weakness and pain preceded classic leukaemia symptoms such as fever, loss of weight, or bleeding tendencies. The absence of overt haematological manifestations underscores the need for a broad differential when evaluating acute neurological symptoms in children.

Conclusion

This case emphasises the importance of considering leukaemia in paediatric patients presenting with acute limb weakness, even in the absence of classic systemic symptoms. Early recognition and prompt diagnostic workup in the ED can facilitate timely intervention, ultimately improving patient outcomes.

References:
 Silvia H, Moatasem E, Faten A Identifying fine motor difficulties in children with acute lymphoblastic leukemia: a scoping review 2024 Jul 5;32(7):488. doi: 10.1007/s00520-024-08667-