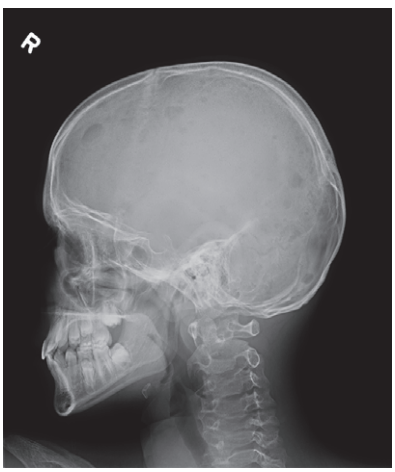
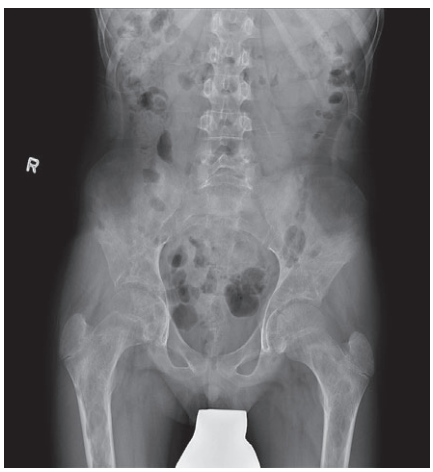
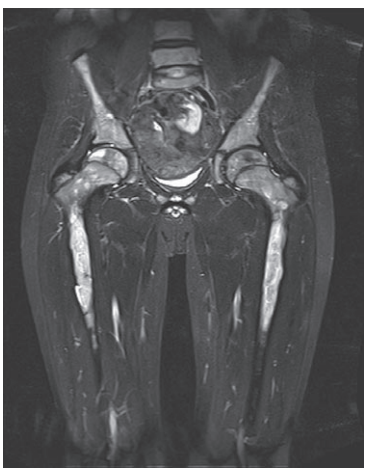
Paediatric acute lymphoblastic leukaemia mimicking Langerhans cell histiocytosis of bone

A 12-year-old boy presented with a 4-month history of worsening back pain and right hip pain, with limping and weakness following a fall while snowboarding. He had had transient hip pain 3 months previously, without trauma, but it had resolved. Physical examination revealed an abnormal gait, with a pronounced Trendelenburg limp on the right side. Manual motor testing showed weakness in the right hip abductors (Medical Research Council grade 3/5) with an otherwise unremarkable musculoskeletal examination. His full blood count (white cell count $5{\cdot}6 \times 10^9$/l, platelet count 241×10^9/l and haemoglobin concentration 138 g/l) and blood film were normal. The erythrocyte sedimentation rate was elevated at 20 mm/h and his serum chemistry was normal. An abdominal ultrasound and a chest X-ray were normal, but a skeletal survey showed profound osteopenia with multiple 'punched out' lesions in the skull (left), pelvis (middle), proximal femora, tibia and scapula with multiple vertebral compression fractures. These findings were suspicious for Langerhans cell histiocytosis. Magnetic resonance imaging of his pelvis (right) showed diffuse bilateral signal abnormalities involving the femora and pelvis, with patchy oedema and enhancement in the femoral heads. A bone marrow aspirate showed 44% blasts, which, upon immunophenotyping, expressed B-lineage markers CD10, CD19 and CD22; bone marrow biopsy showed positivity for cytoplasmic CD79a. The diagnosis of precursor B acute lymphoblastic leukaemia was confirmed.

The presence of large punched out lesions in the skeleton is expected in Langerhans histiocytosis of bone but is an unexpected finding in acute lymphoblastic leukaemia.

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