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MEDICAL IMAGE

Pain and swelling in a child's thumb

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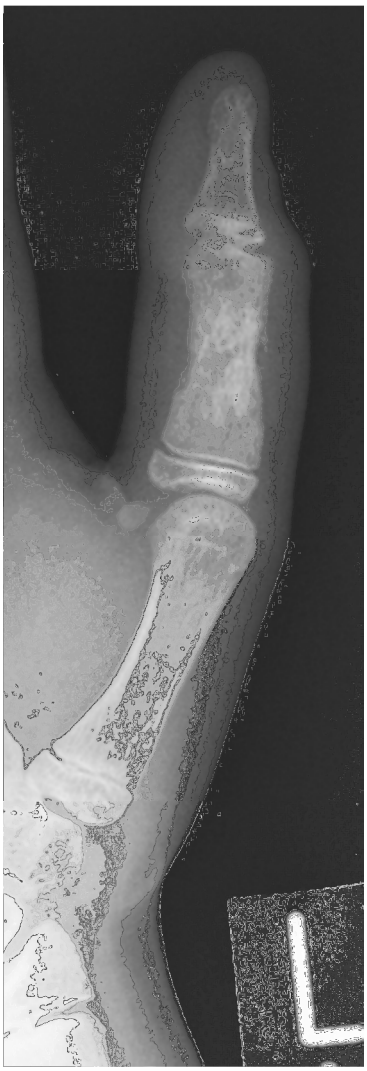
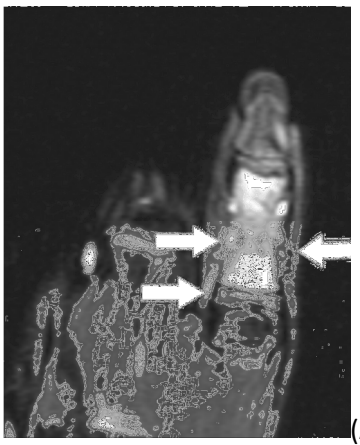
Clinical—A 10-year-old girl presented to the Emergency Department with a 2-week history of pain and swelling of the thumb. There was no history of trauma nor signs of sepsis. Plain radiographs revealed an aggressive lesion in the proximal phalanx of the thumb (Figure 1). MRI showed the lesion to have breached the cortex, but confirmed sparing of the adjacent epiphysis (Figure 2 A and B). *What is the diagonosis?*

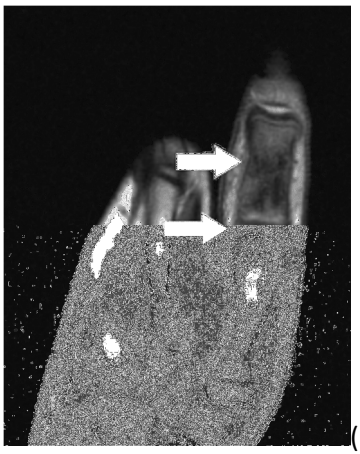
Figure 1. Oblique view of the left thumb showing a mixed sclerotic and lytic lesion in the proximal phalanx, with associated periosteal new bone formation



Figures 2A & 2B: Coronal MR images of the left thumb (A) STIR, and (B) T1-weighted



(A)



(B)

Note: There is a destructive lesion in the proximal phalanx, which has breached the cortex and elicited periosteal new bone formation (respectively indicated by the opposing arrows on the STIR image. Cortical destruction is signalled by the uppermost arrow on the T1-weighted image). The lesion is heterogeneous and there is associated marrow oedema. The adjacent soft tissue involvement is minimal. The proximal phalangeal epiphysis remains normal (more inferiorly placed arrows on both STIR and T1-weighted images).

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Answer—*Ewing sarcoma of the proximal phalanx of the thumb*

Biopsy confirmed a diagnosis of *Ewing sarcoma*. The thumb was surgically removed and the patient received adjuvant chemotherapy; she continues to do well more than 15 months later.

Discussion—Ewing sarcoma is the second most common malignant tumour of bone but it occurs only rarely in the extremities. Within the exception of lesions in the calcaneus, the prognosis for extremity tumours is excellent when compared with axial tumours. The Intergroup Ewing Sarcoma Study document the radiological findings of a combination of permeative bone destruction, irregular areas of sclerosis and a soft tissue mass as the most oft reported findings in primary extremity tumours. Bone expansion, a cystic or honeycomb pattern, and a lack of a laminated periosteal reaction are also described. The radiological differential diagnosis includes osteomyelitis and biopsy is required to confirm the diagnosis.[1,2]

Learning point:

- In the absence of clinical signs of sepsis, malignancy must be considered when an aggressive bone lesion is encountered, even in an unusual anatomic location.

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2. Escobedo EM, Bjorkengren AG, Moore SG. Ewings sarcoma of the hand. Am J Roentgenol. 1992;159:101–2.