A painless bony lump in the arm of a 4-year-old girl

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Osteochondroma is the most common benign bone tumour, which can often present as an incidental finding on an x-ray.

Case presentation

A 4-year-old girl presents with a one-year history of a painless bony lump in her upper arm.

Discussion

What is the diagnosis?

This patient was diagnosed with a sessile osteochondroma of the proximal humerus. Osteochondroma is the most common benign bone tumour (35% of benign bone tumours and 9% of all bone tumours). They often present as an incidental finding on an x-ray. The aetiology is unclear but probably represents a developmental abnormality or trauma to the edge of the physis, the perichondrial ring.

Osteochondromas are usually solitary but can occur as part of autosomal dominant condition, known as multiple hereditary osteochondromatosis or diaphyseal aclasis.

The clinical presentation is usually of a nontender lump close to a joint, most commonly the knee. Osteochondromas can form in any bone that is preformed in cartilage. X-rays show either a pedunculated, or a sessile lesion as in the case described (Figures 1a and b). X-rays did not show the cartilage cap that covers the bony lesion. The exostosis grows by classic enchondral ossification from the deep surface of the cartilage cap in a similar fashion to a physis. It generally ceases growing at skeletal maturity.

What is the treatment?

The treatment of osteochondromas is often nonoperative. The indications for surgery include interference with function and occasionally pressure on adjacent neurovascular structures. These tumours can interfere with local tendons and can occasionally develop a painful overlying bursa. The parents of this patient will need reassurance that this bone tumour is benign. The phrase 'bone tumour' itself is often a cause of great anxiety and parental distress. The risk of these tumours becoming malignant is very small, probably less than 0.25% in solitary osteochondromas. The risk of diaphyseal aclasis is higher and is in the order of 5 to 25%. Pain and increasing size in an adult is suggestive that malignant transformation to chondrosarcoma has occurred. Increased thickness of the cartilage cap on an MR1 scan (over 2 cm in an adult and over 3 cm in a child) is also suggestive of malignant transformation.

Risks of surgery in children include damage to the physis and recurrence of the tumour, both of which are reduced as the child nears skeletal maturity. As the osteochondroma grows, it tends to move away from the physis. Therefore, if surgery is contemplated it is best delayed until the patient is as close to skeletal maturity as possible. MT

Further reading

Bone tumours: evaluation and treatment. Orthop Clin North Am 1989 Jul; 20(3): 273-518.

Herring JA, ed. Tachdjian's paediatric orthopaedics. 3rd ed. Philadelphia: WB Saunders; 2001.

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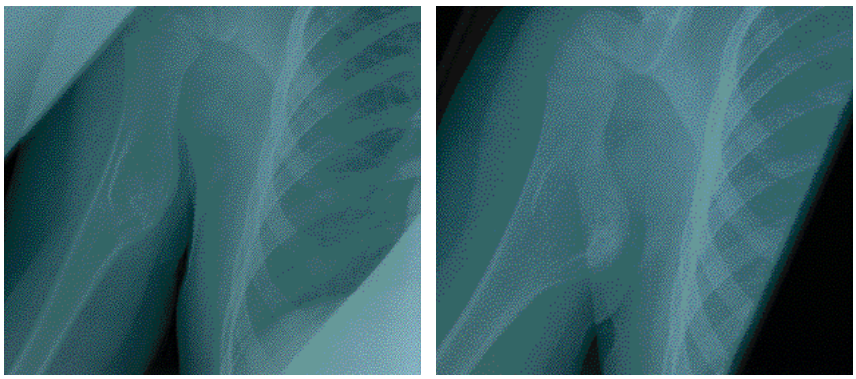
COMPETING INTERESTS: None.



Figures 1a and b. Anterior–posterior x-ray (a, left) and lateral x-ray (b, right) revealing sessile osteochondroma.

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