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Chondromyxoid fibroma of the foot

A report of a missed diagnosis

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A chondromyxoid fibroma in the calcaneus of an 11-year old girl was primarily diagnosed as a solitary bone cyst. During three years the tumor was curetted three times. Soft-tissue involvement increased with each local recurrence; finally a below knee amputation was necessary.

Chondromyxoid fibroma is a benign tumor in adolescents and young adults for which a wide excision usually results in complete cure (Enneking 1983). Its most frequent localisation is in the metaphysis of long bones of the lower limbs, and it often occurs in small bones of the hands and feet (Huvos 1979, Dahlin 1981). The first complaint of the patient is pain to which local swelling later is added.

We present a case in which the diagnosis of chondromyxoid fibroma in a young girl was missed. The tumor recurred after curettage and spread into the surrounding soft tissues which eventually resulted in a below knee amputation.

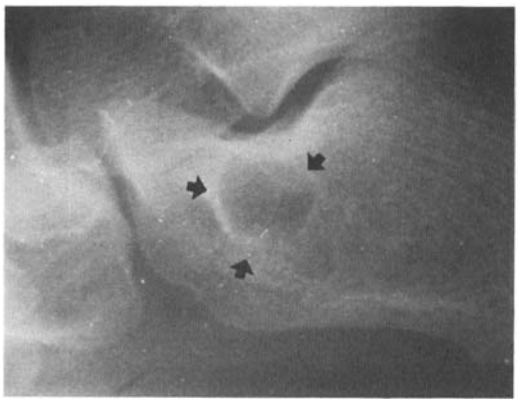

Fig. 1. November 1980 – lytic lesion in the anterior part of the right calcaneus.

Case history

An 11-year old girl had pain in her right heel for half a year. She was referred to a local orthopedic surgeon who diagnosed a solitary bone cyst radiographically (Figure 1). This was curetted in November 1980, and the curetted material sent to the pathologist, who described unspecific subchronic inflammatory changes, fibromatous, chondromatous callus and some formation of osteoid with no signs of malignancy.

Local recurrence resulted in progressive pain and swelling. A second curettage was done in March 1982. The lesion was packed with cancellous auto- and allogeneic bone. Again recurrence took place with progressive deformity of the right hindfoot. Local injections

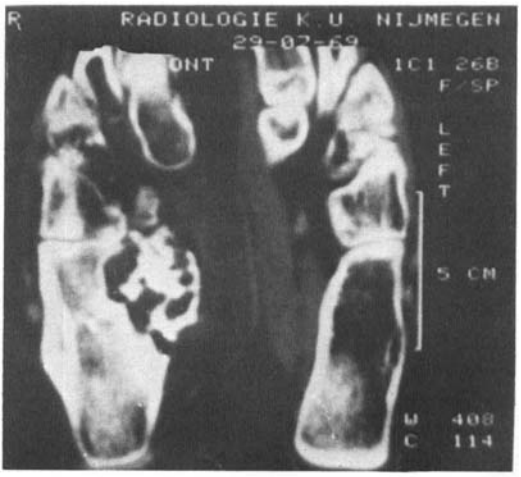

Fig. 2. Computed tomography 1983. There is a marked involvement of bone and soft tissues with a multicameral bone lesion.

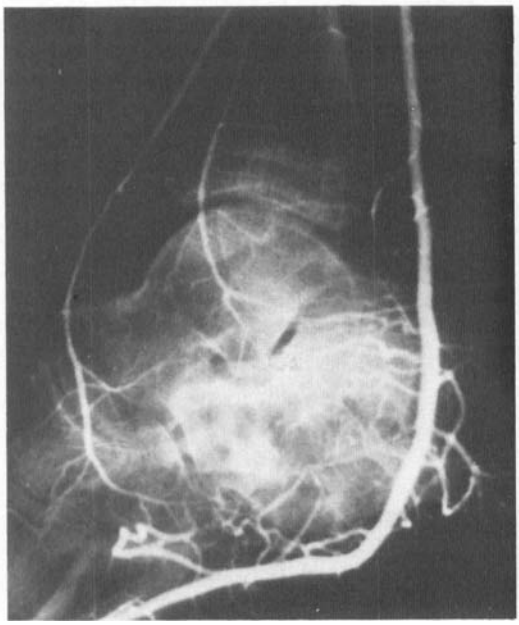

Fig. 3. Angiogram 1983. Extensive neovascularity, and displacement of tibial artery.

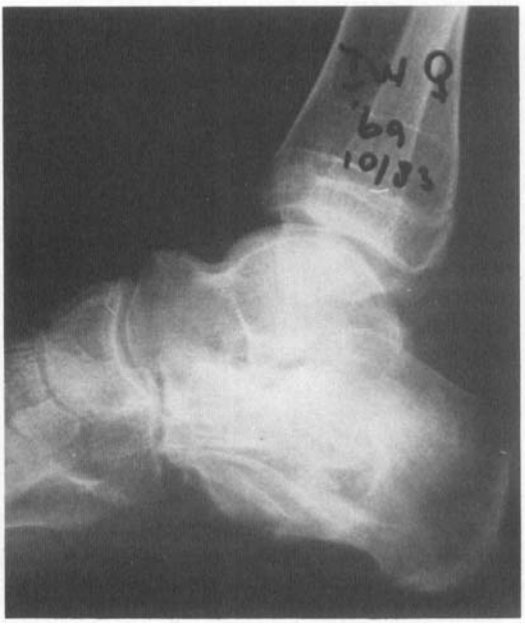

Fig. 4. Postoperative radiograph in 1983 after extensive resection and packing with corticospongious and spongious autogeneic bone.

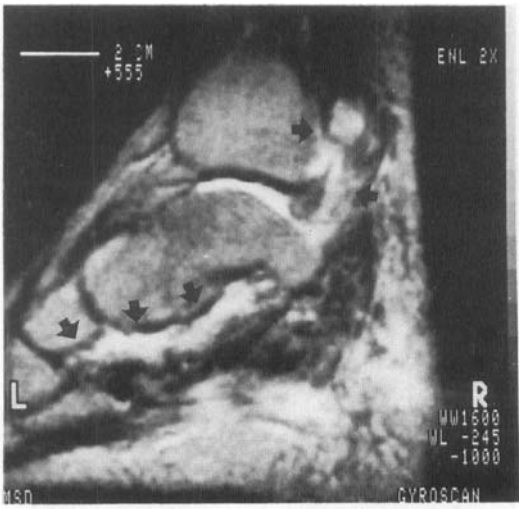

Fig. 5. MRI 1984 showing extension of the tumor, proximally along the tendon sheaths and distally invading the cuneiform bone. (Gyroscan 1.5 Philips).

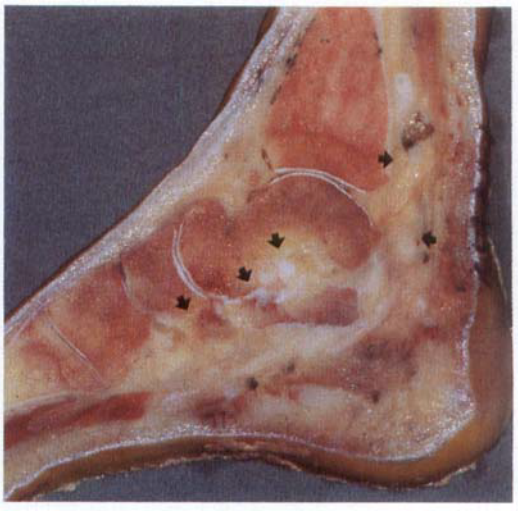

Fig. 6. Specimen after amputation. Extension of the tumor can be seen throughout the entire central section shown, involving cuneiform, navicular, talus, calcaneus and proximally along the flexor tendons with invasion of the ankle joint.

with Methylprednisolon acetate® were given in March and May 1983.

When referred to our orthopedic department, the girl had a painful swelling of her right foot. A firm 10 cm × 10 cm swelling was found distal to the right medial malleolus and medial in the longitudinal arch of the foot. No neurovascular involvement was detected. All movements in the hindfoot were painful. Re-examination of the first biopsy specimen proved the tumor to be a chondromyxoid fibroma. Radiographs showed a large multicameral osteolytic lesion in the calcaneus with scalloped margins; the lesion extended far into the soft tissues, which was confirmed by conventional and computed tomography (Figure 2). Arteriography showed increased vascularity with a large soft tissue component (Figure 3). In October 1983, an extensive local excision was performed, but removal of all disseminated tumor tissue proved impossible. Cortico-spongious grafts from the iliac crest were used for a reconstruction of the calcaneus (Figure 4).

Within 6 months there was another recurrence. Because of pain the patient was unable to walk and she could not wear a shoe.

Tomography and computed tomography confirmed progression of the tumor with extensive destruction of the calcanear and navicular bones and swelling of the soft tissues. Magnetic resonance imaging showed an extension of the soft tissue mass along the flexor tendons in the dorsal ankle compartment (Figure 5).

Biopsy now confirmed that the tumor extended 10 cm above the ankle joint. In view of this aggressive behaviour a lower leg amputation was carried out in November 1984, four years after the initial curettage. The examination of the amputation specimen showed diffuse dissemination of the tumor along the flexor tendons and the neurovascular bundle (Figure 6). The amputation margin was free of tumor.

The patient was free of local recurrence at one year follow-up.

Discussion

Chondromyxoid fibroma is an uncommon benign bone tumor, with a substantial risk of recurrence after curettage. Spilling of tumor material during incomplete excision may initiate growth along the planes between tendons and vessels. Amputation may then be the only alternative since neither radiation nor chemotherapy provide tumor control.

References

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