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ANEURYSMAL BONE CYST OF THE TALUS

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Aneurysmal bone cysts localized in the talus are extremely rare. Such a case is described and the histological findings are analysed in relation to those in aneurysmal bone cysts in general. The pathomechanism of the lesion is discussed.

Key words: aneurysmal bone cyst; talus; giant cells

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Localized fibrocystic disease is a generic term for a group of nine lesions which have a number of features in common, but each of which is a distinct entity: 1) Unicameral bone cyst, 2) fibrous dysplasia, 3) fibrous metaphysical defect, 4) nonosteogenic fibroma, 5) aneurysmal bone cyst, 6) giant cell tumour, 7) osteoblastoma, 8) chondroblastoma and 9) chondromyxoid fibroma.

All nine lesions are often referred to as bone lesions containing giant cells. A radiolucent lesion (cyst) is the characteristic picture.

The usual site for all these lesions is the long bones or the spine, but they can be discovered in many other parts of the human body. However, in a review of the literature we have been unable to find more than one report describing a unicameral bone cyst localized in the talus (Ogden & Griswold 1972). There was also one report describing an alleged case of aneurysmal bone cyst in the talus (Buchs 1963), which actually was a giant cell tumour, and only one report of an authentic aneurysmal bone cyst in the talus (Slowick et al. 1968).

Aneurysmal bone cyst is a benign lesion of bone, first described by Jaffe & Lichtenstein (1942). The lesion has been observed in many parts of the skeleton, but occurs most often in the shafts of the long bones, and in the vertebral column.

This paper presents one more case of aneurysmal bone cyst of the talus.

CASE REPORT

R.I., 30-year-old surveyor's assistant; no illness in previous history. Three months before admission (September 1971) the patient noticed pain in the right foot mostly on the lateral aspect, when he had been walking some distance in the pursuit of his work. He ascribed this to a sprained ankle, but when the symptoms persisted he consulted a doctor. An X-ray revealed a cyst in the talus and the patient was consequently referred to the Department of Orthopaedic Surgery at the Karolinska Hospital for further examination.

On examination here the patient's general condition was found to be good. He walked without a limp. There was no tenderness on palpation, nor was there any noticeable clinical abnormality in the right foot.

X-ray

The dorsal portion of the trochlea tali contained a multiocular cystic space, which posteriorly broke through the cortical bone of the posterior process of the talus.

Figure 1.

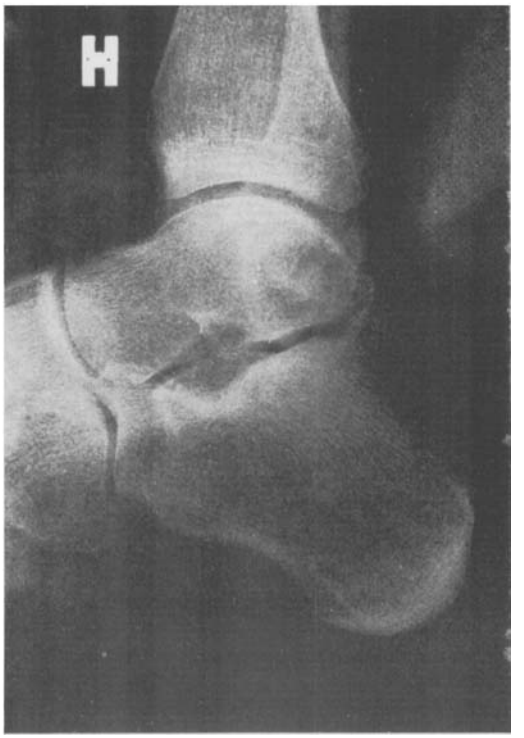

Figure 2.

Figures 1 and 2. Radiological appearance of the lesion at the time of admission to hospital.

The patient was operated upon for a neoplasm, tentatively diagnosed as a giant cell tumour.

Operation (September 1971)

Through an incision between the fibula and the Achilles tendon, the talus was opened and the processus posterior tali dissected free and penetrated with a chisel, giving easy access to the soft bone. An almond-sized cavity filled with grainy red tumour tissue was scraped out until solid bone was encountered on all sides. The cavity was filled with a finely cut mass of heterologous bone (Kieler Knochenspan). The wound was sutured and the tissue removed from the cavity was sent off for pathologic diagnosis.

Postoperative course

The postoperative course was uneventful. At an examination in 1974 there were no subjective complaints and a progressing organisation of the graft was seen.

Pathology

The histology was consistent with aneurysmal bone cyst. The cyst presented a somewhat unusual picture with large solid portions containing osteoid tissue and numerous benign giant cells.

DISCUSSION

Aneurysmal bone cyst is a well-known lesion. Ewing (1940) referred to it as an aneurysmal giant cell tumour, and Coley (1949), Thompson (1954) and others as an atypical or subperiosteal giant cell tumour. However, apart from the presence of giant cells, an aneurysmal bone cyst bears little resemblance to a typical giant cell tumour, which has larger and multinucleated giant cells in a vascular spindle-celled stroma. The fibrovascular

tissue of an aneurysmal bone cyst is honeycombed by vascular spaces, and the giant cells are small and placed around areas of haemorrhage.

Whereas a giant cell tumour is invasive and aggressive, an aneurysmal bone cyst has a tendency to heal after incomplete removal or even without treatment. This suggests that it may not be a true tumour, and it is possible that the lesion is a peculiar response to a circumscribed subperiosteal haemorrhage, supporting the concept of trauma as a possible aetiological factor (Barnes 1956).

Others believe that the pathomechanism underlying this lesion may be a disparity between arterial inflow and venous drainage, a point of view which is suggested by the findings of Lindbom et al. (1961).

The histological appearance of our case supports the idea that "the fibro-osseous stroma of an aneurysmal bone cyst is reactive and reparative rather than a primary part of the lesion. A reparative fibro-osseous response associated with correction of the altered hemodynamics could also explain the variability of the degree of vascularity found at surgery." (Slowick et al. 1968).

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