

Spontaneous Healing of Pathologic Humerus Fracture Caused by a Cartilaginous Tumor

Spontánní zhojení patologické fraktury kosti pažní v místě přítomnosti chrupavkového nádoru

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SUMMARY

Conservative treatment of pathologic fractures of the long bones have been reported very infrequently, especially when fracture is caused by an tumour. This report highlights the possibility of a nonoperative treatment of a pathologic humerus fracture caused by an cartilaginous tumour with radiographic criterions of an chondrosarcoma.

INTRODUCTION

Cartilaginous tumours are typically well recognized on radiographs, but differentiation between benign and low grade malignant cartilaginous tumours is a clinical problem and a radio-histologic challenge (1, 7, 11). The clinical relevance of differentiation is, that benign lesions do not usually require surgery, whereas the only curative treatment for chondrosarcoma is resection (5).

At time, a considerable number of conservative and operative opinions for treatment of a fracture of the shaft of the humerus exist. However, results of conservative treatment of pathologic fractures of tumours or tumour-like lesions have been reported infrequently (1, 3).

We describe the conservative treatment of a pathologic fracture through an cartilaginous tumour of the humerus in an 79-year-old woman.

CASE REPORT

A 60-year-old woman presented in 1979 complaining of aching in her right shoulder. Radiographs revealed an intramedullary lesion with popcorn-like densities and poor margination (Fig. 1). Histology diagnosed an enchondroma. She underwent resection and defect was filled with a bone graft.

18 years after the original operation patient presented in our hospital after a fall on her right shoulder. Clinically, shoulder was swollen, motion was painful. Diagnostic images revealed a destructive tumour in the humeral head and proximal shaft. Punctate calcification were present within the lytic area and cortex was thinned. Transformation of the previously diagnosed enchondroma into a secondary chondrosarcoma was suggested on radiological criteria. And, radiographs showed pathologic fracture (Fig. 2).

Because in such case tumour requires large, life-

threatening surgery, treatment was nonoperative. She was in cast for 6 weeks. The cast was removed after radiographs showed a bridging callus and union of the fracture. Control radiographs showed healed fracture after 8 weeks (Fig. 3). Several months after completion of healing and intensiv physical therapy, there was an



Fig. 1. Typical enchondroma of the proximal humerus (diameter 6 cm). Note the heavy popcorn-like calcifications of this tumour. The outer contour is lobulated and well defined.

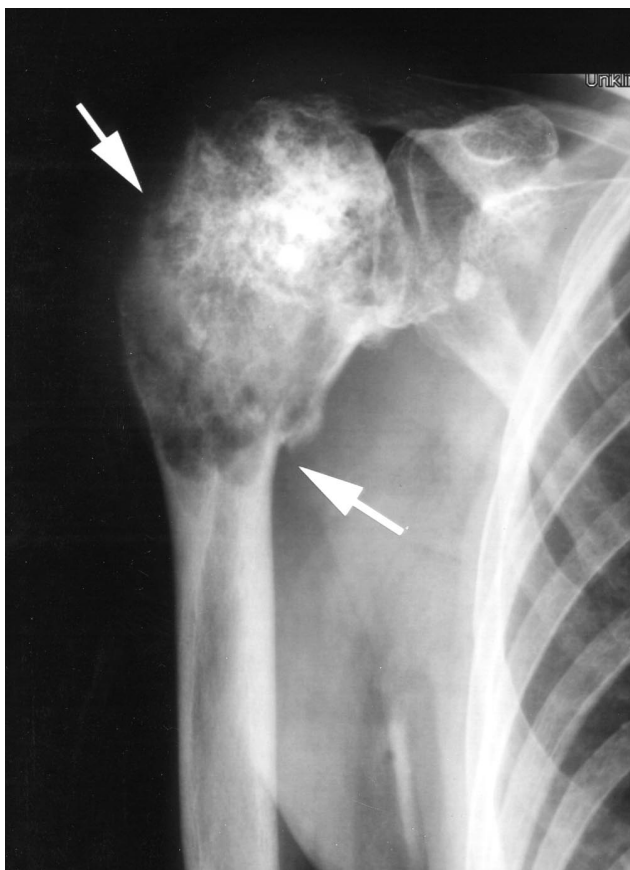


Fig. 2. A pathologic fracture through the tumour mass is evident. Note the deviation of the distal humerus axis of about 10 degrees.



Fig. 3. Two months later: Healing of previous described fracture.

increase in the range of motion and patient returned to near-normal function.

DISCUSSION

At time, a considerable number of conservative and operative opinions for treatment of a fracture of the shaft of the humerus exists, including an abduction splint, U-cast, hanging cast, and a Desault bandage for conservative management and nailing, plate osteosynthesis, external fixation, and shoulder arthroplasty as operative treatment.

Nonoperative management is the treatment of choice in most fractures of the humeral diaphysis (12), but 2nd and 3rd degree open fractures, lesions of the brachial artery, interposition of soft tissue, and pathologic fractures were indications for operative treatment.

Enchondroma of long bones that are small and asymptomatic require no treatment. In case of osteolytic and/or symptomatic (pain) enchondroma treatment is mostly surgical (6). When operating an enchondroma, lesion typically heal with consolidation after curettage and bone grafting (4), as done in our case 1979. In fact, a limited sampling could delete those tumoural areas in which initial malignant transformation may have taken place.

And, recurrence of enchondroma suggests malignancy especially in lesions that affect the long bones.

As a general rule, benign lesions associated with a pathologic fracture mostly require surgical management (8, 9). Spontaneous healing through benign tumour has been observed, e.g. in enchondroma in the hand (3) and in a juvenile bone cyst (2), respectively, but does not occur regularly (10). Treatment of a malignant tumour e.g. the chondrosarcoma includes excision, if this is technically feasible (4).

In our case, where a secondary chondrosarcoma arising from the previously histologically verified enchondroma was suggested concerning the recurrence, growth, thinning of the cortex, tumour requires large, life-threatening surgery including resection of humerus and scapula. Hence, the pathologic fracture of the humerus was treated conservatively by a cast. Consecutively the clinical and radiological follow-up showed healing of the fracture.

With all conservative fracture treatment, constant rest and internal contact of the bone is absent, and ossification takes place indirectly with temporary formation of connective and cartilaginous supporting tissue which later differentiates secondarily into bone. The reparative response is most pronounced about the edge of lesion,

but sclerosis do also occur within the tumour. Follow-up of 7 years showed minimal increase of the tumour and no lung metastases.

In conclusion this report is a document of a successful conservative treatment of a pathologic humerus fracture caused by a cartilaginous tumour and highlights the possibility of nonoperative treatment.

ZÁVĚR

Konzervativní léčba patologických fraktur je u dlouhých kostí popisována velice zřídka, obzvláště u takových, které vznikají v souvislosti s přítomností tumoru. Tato práce ukazuje možnost nechirurgického ošetření patologické fraktury kosti pažní v místě chrupavkového nádoru s radiologickým obrazem chondrosarkomu.

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