

Unusual Presentation Of An Aneurismal Bone Cyst In The Patella With Fracture – A Case Report

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Citation

M Todkar. *Unusual Presentation Of An Aneurismal Bone Cyst In The Patella With Fracture – A Case Report*. The Internet Journal of Orthopedic Surgery. 2012 Volume 19 Number 3.

Abstract

We report about a 25-year old man having an aneurysmal bone cyst in the patella presenting with fracture after falling from a height of 3 feet. He was asymptomatic before the fall. He was treated with curettage, bone grafting and internal fixation using tension band wire technique. Bone cysts are very unusual in the patella. Around 1% of primary bone tumours are aneurysmal bone cysts.(1) They are common in metaphyses of long bones of the lower extremity. Less than 1% of aneurysmal bone cysts occur in the patella.

INTRODUCTION

Aneurysmal bone cysts are rare and are less than 1% of all primary bone tumours. Less than 1% of all cases are seen in the patella.(2) 13 cases of aneurismal bone cysts of the patella have been reported.(1–12) They are slightly more common in females and usually occur in the first or second decade of life. They have a predilection for the metaphyses of the long leg bones; the distal femur and proximal tibia are the most common sites, followed by the spine and pelvis.(13)

Histologically aneurysmal bone cysts are expanding osteolytic lesions, consisting of a blood-filled space of variable size separated by connective tissue containing bone trabeculae or osteoid tissue and osteoclast giant cells.

CASE REPORT

A 25-year-old man presented with transverse fracture of the right patella after falling from a height of 3 feet. It was a trivial fall. He was asymptomatic before the fall. Physical examination revealed tenderness and swelling over the patella. Crepitus was palpable and range of movement was restricted and painful. Radiographs of the right knee showed an osteolytic lesion involving whole body of the patella with a displaced transverse fracture. Endosteal scalloping and cortical thinning with mild expansion, and a multi-loculated appearance was seen. A midline anterior incision was used to expose the fracture. The cyst in the patella was exposed and thorough curettaged with a burr and alcohol (99.9%); cauterisation was performed. The defect was filled

with an autogenous cancellous bone graft. The fracture was internally fixed with tension band wire technique.

Histopathologic examination showed that the cystic space contained extravasated red blood cells. Septa contained giant cells and loosely arranged spindle cells, and bony trabeculae were anastomosing and showed prominent osteoblastic activity.

The knee was placed in a long leg cast for 4 weeks, followed by full weight bearing and joint movement exercises. At the 6 months follow-up, the bone graft had incorporated well, and the patient experienced no pain or tenderness and had a full range of knee movement.

Figure 1

Fig. 1 Preoperative radiograph of pathological fracture patella with bone cyst



Figure 2

Fig.2 Post operative radiograph showing fixation of fracture patella



DISCUSSION

Primary aneurysmal bone cysts are not associated with other lesions. Secondary aneurysmal cysts that occur along with other benign or malignant lesions are considered to be more aggressive and have a higher recurrence rate. Primary aneurysmal bone cysts are twice as common as secondary cysts and are often associated with a history of trauma.(2,13)

Radiologically aneurysmal bone cysts appear as an eccentric or central osteolytic lesion with cortical expansion, giving a 'blown-out' appearance with extension into soft tissues. Trabeculae are coarse at the periphery of the lesion but become delicate toward the centre.(2) Osteolytic lesions are surrounded by bony septa and the surface of the intra-osseous border shows periosteal and new bone formation.

Most patients with primary patellar tumours are young and active, and give a history of knee pain, swelling, and related trauma. An osteolytic lesion can be diagnosed and staged using radiography, bone scanning, computed tomography, and magnetic resonance imaging.(2) Differential diagnoses include chondroblastomas and giant cell tumours.(7,9,13)

The Enneking surgical staging system can be used to standardise the operative treatment for patellar tumours. Among benign lesions, stage-I lesions have a well-defined cortex and stage-II lesions have a thinned cortex, which may be partly broken but limited to the periosteum. Stage-III tumours penetrate the cortex with small breaches around the perimeter. Curettage and autogenous grafting, and sometimes chemical adjuvants should be considered in stage-I and -II lesions,(1,2,5) whereas total patellectomy may be satisfactory for aggressive benign lesions. Stage-III lesions with pathologic fractures should be excised with wide margins and reconstructed using joint sparing surgery with an endoprosthesis or bone graft, or using an arthrodesis with an autograft or allograft. A case involving the articular surface was treated with a plastic patellar prosthesis after curettage, with good results at the 3.5-year follow-up.(11)

Our patient had a stage-II lesion, with a thinned but intact cortex. Aneurysmal bone cysts of the patella can be differentiated from other expansile osteolytic lesions radiologically. They are eccentric and multi- septate osteolytic lesions with multiple fluid-fluid levels. Thorough curettage, alcohol cauterisation, followed by filling of the defect with cancellous bone graft and internal fixation was a successful treatment option.

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