

Aneurysmal Bone Cyst in Töölö Hospital

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Objective

The purpose of this article is to present the patients with aneurysmal bone cyst (ABC) treated in Töölö Hospital and to discuss the problems encountered in diagnosis and treatment. We also present a case of malignant transformation.

Introduction

Aneurysmal bone cyst is a descriptive diagnosis, with no certain known pathogenesis. It is characterized by a blown out blood filled cavity hence aneurysmal bone cyst. It almost always has a fibrous component and macrophages and giant cells can be found. It was first described by Jaffe and Lichtenstein in 1942. The pathogenesis of ABC is still controversial but it is commonly accepted to differentiate between primary and secondary ABC. Primary aneurysmal cyst is believed to be a result from local circulatory abnormality, hemorrhage progresses to a destructive lesion. Certain chromosomal translocations have been found and may play a role in the development of primary ABC. Secondary aneurysmal cyst is a result of hemorrhagic degradative events from a preexisting lesion. The formation of blood filled spaces is observed in many vascularized tumors such as giant cell tumor, osteoblastoma, hemangioma, chondroblastoma, telangiectatic osteosarcoma and in fractured bone cyst. Thus ABC can be seen as secondary superimposed on a preexisting lesion. In approximately one third of the cases a preexisting lesion can be identified.

Patients

From our database of patients treated for tumors in Töölö hospital from 1978 up till now we did a search for primary ABC and found a series of 63 consecutive patients. Of these patients 34 were female (54%) and

29 (46%) male. All patients under the age of 16 are normally treated in the children's hospital, for various reasons 6 patient under 16 years of age were treated in our hospital.

Age ranges from 12 to 67 with a median of 26 years. Tibia (13), femur (12), pelvis (8) and humerus (7) were the most common locations accounting for 63% of the cases.

Recurrence of the disease leading to re-operation happened in 3 cases and transformation to high grade sarcoma in 1 patient leading to resection and prosthesis reconstruction. In most cases evacuation with allogenic or allogenic bone graft was performed and in 5 cases evacuation and filling with PMMA cement was done. In 4 cases (fibula, ulna and patella) resection was done and 1 patient was treated with sclerotherapy.

Diagnosis

ABC is more common in the two first decades, slightly more frequent in females. The major sites are femur, tibia, humerus, spine and pelvis. Usually it is found in the metaphyseal or diaphyseal area and mostly eccentric. It is a blowout lesion, has thinning of cortex in X-ray and CT and fluid levels on MRI. An inactive lesion has a complete periosteal shell and defined bone limits, while an active lesion presents with an incomplete periosteal shell and aggressive cysts have no margin and show osteolysis. In almost all cases it is recommended to take a biopsy

Treatment

Treatment is still controversial, inactive lesions can be monitored. Surgical treatment of active lesion depends on location, resection can be done in expendable bones, mostly used is curettage and insertion of PMMA cement or bone graft. Reported recurrence is

from 5% to 40%, curettage alone is associated with the highest recurrence rate. Local adjuvant therapy with phenol, liquid nitrogen, hydrogen peroxide, argon or high speed burr can reduce the recurrence rate. In uncontrollable disease resection with or without reconstruction can be necessary. In lesions where the size or localization makes other treatment options difficult selective arterial embolization should be considered. Finally sclerotherapy, i.e. an injection with an alcoholic solution of zein is lately an accepted alternative treatment option. However higher treatment failure and unacceptable complication rates have been reported.