



RECONSTRUCTION OF PATHOLOGICAL FRACTURE DUE TO ANEURYSMAL BONE CYST BY CURETTAGE,ALLOGRAFT, LOCKING COMPRESSION PLATE

Oncology

**Dr.Mohammed
Iftekar Ali**

M.S. Orthopaedics Associate Professor Prathima Institute Of Medical Sciences.
Karimnagar Telangana.

ABSTRACT

Introduction: A study of 15 cases of pathological fracture due to aneurysmal bone cyst treated by curettage and bone graft, locking plate fixation.
Material and Methods: The lesions were principally located in the tibia, femur, humerus, and, in most cases, presented the imaging appearance originally described by Jaffe and Lichtenstein as a blowout with thin cortices.

Results: The patients were treated primarily with curettage and implantation of allograft chips, locking plate fixation. The local recurrence rate was 20%. Toronto Extremity Salvage Score (TESS) is 90.8.

Conclusion: Aneurysmal bone cysts are enigmatic lesions of unknown cause and presentation and are difficult to distinguish from other lesions. Overall, the treatment is satisfactory by curettage and bone graft, locking plate fixation.

KEYWORDS

INTRODUCTION

Despite a descriptive history of more than 60 years, the nature, character, and optimal treatment of aneurysmal bone cysts remain obscure. The lesion was first described by Jaffe and Lichtenstein in 1942, was subsequently further defined by both of these authors,^[2,3].

Despite attempts on the part of investigators to establish a relationship of the disorder to other entities, the term aneurysmal bone cyst remains purely descriptive. It does not provide any concept of pathogenesis or causation mechanisms, and efforts on the part of a number of investigators to discover a genetic or neoplastic cause have failed.^(4,5) Examination of the tissue at the time of surgery has, in the past, demonstrated a blood-filled cavity within an expanded region of the bone, and the cells that line the cyst wall show fibrous components, macrophages, giant cells, and islands of bone. The term aneurysmal seems to relate to the blowout distension, and the word cyst reflects the fact that the tumor often presents as a blood-filled cavity.^[1,5]

- The lesions are more common in patients in the first two decades of life rather than in later years and seem to be slightly more frequent in females than males. The major sites of occurrence, according to a number of authors, are the femur, tibia, humerus, spine, and pelvis, and although tumors arising in the small bones of the hands and feet are seen occasionally, there are fewer of such instances in most series. The tumors are usually metaphyseal or diaphyseal and are most often eccentrically located, which is an important distinguishing radiographic feature from unicameral bone cyst in patients in their second decade. The appearance of the lesions support the word blowout and show marked thinning of the cortex over the site, with only minimal bone formation; all of which are sometimes best seen on a computed tomography (CT) or a magnetic resonance imaging (MRI) scan. Controversy exists regarding optimal treatment, and regardless of techniques reported, there remains a recurrence rate that ranges from 5% to greater than 40%. At present, curettage and insertion of bone graft or polymethylmethacrylate and locking compression plate are the principal techniques used.

MATERIAL AND METHODS

Our purpose in presenting this material is to review the data obtained over the last 5 years regarding patients with aneurysmal bone cysts to define the appearance, anatomic site, complications, and results of various forms of treatment.^[6].

Nine of the 15 patients were male, and 6 were female. The mean age of the patients was 18 ± 12 years, with a range of 3 to 62 years. The mean follow-up time for the patients was 6 ± 7 years (range, 1 to 20 years).

- The patients' complaints at the time of the initial visit were almost always concerning pain at the site and sometimes indicated pain and numbness extending down the limb. The patients were often disabled by the pain and almost always presented with tenderness over the site of the lesion. Examples of the imaging studies are

shown in Figures 1, and as noted, the lesions are metaphyseal or diaphyseal in location, are usually eccentric with thin cortices, and, in most cases, present the classic blowout appearance. oss structure is shown in displays the thin cortices, the expansion, and the chambers often filled with blood. The patterns demonstrate thin cortices; blood elements in the central portion of the tumor; and an array of benign-appearing macrophages, lymphocytes, fibroblasts, bone-forming cells, and giant cells, which are sometimes atypical in terms of structure and nuclear distribution.^[7,8].

Ten of the patients had an excision or resection of the lesion, and 4 of these patients received an intercalary allograft transplantation.

Statistical studies used analysis of variance and Mantel-Haenzel and Fisher's exact tests using χ^2 analysis. The systems were provided by BMDP Statistical Software (Los Angeles, CA). $P < .05$ was considered statistically significant^[2,3,4,5].

RESULTS

None of the patients died of disease, and there were no amputations. The principal problem that the patients encountered with their treatment of the aneurysmal bone cysts was local recurrence, which occurred in (20%) of the 15 patients at 1.2 ± 0.7 years (range, 0.3 to 3 years) after discovery of the lesion. There was no statistical difference for sex. Patient age did not seem to have a significant effect on outcome, although the rate of local recurrence was slightly increased in younger patients.. Anatomic site seemed to make some difference in rates of local recurrence...

- The recurrence rate of the patients who were treated with curettage and packing with either allograft chips or polymethylmethacrylate was 22%, which was considerably greater than the 5% recurrence rate for patients who underwent resection and either an autograft or an allograft implantation.

DISCUSSION

As stated in the Introduction, despite the long experience of radiologists, pathologists, and orthopedists with aneurysmal bone cysts, there is limited knowledge regarding the cause of the lesion, its natural history, and the results of treatment. The concept that the lesion represents a vascular degenerative process for some benign bone lesions is an attractive one, but the pathologic findings, with rare exception, do not really support this proposal. Few pathologic specimens contain tissues that are highly characteristic or diagnostic of giant cell tumor, chondroblastoma, hemangioma, osteoblastoma, nonossifying fibroma, fibrous dysplasia, chondromyxoid fibroma, and other tumors. ^[1,2].

Of some importance is the difficulty that can occur in diagnosing these lesions. The imaging studies, even CTs and MRIs, sometimes do not provide clearly diagnostic criteria for the diagnosis of aneurysmal bone cyst, and aneurysmal bone cyst is sometimes added on to a list of diagnoses including eosinophilic granuloma, giant cell tumor,

nonossifying fibroma, unicameral bone cyst, fibrous dysplasia, chondroblastoma, chondrosarcoma, chondromyxoid fibroma, Ewing's tumor, and, in older patients, metastatic carcinoma or myeloma. The lesions are often eccentric and irregular in structure and sometimes show As a rule, the cortex is thin, but there is rarely a cortical defect or a soft tissue mass. CT and MRI are often helpful in defining the extent of the lesion and establishing the diagnosis. A biopsy is often helpful, and many of our patients underwent a needle biopsy before definitive treatment.

Needle biopsies are sometimes a problem because the material obtained may consist of mostly blood elements. Often, an open biopsy and frozen section are necessary to establish the diagnosis.

CONCLUSION

Of all discussed procedures, curettage of tumor mass with bone grafting and locking plate fixation is one of the safest procedures with good clinical outcome for aneurysmal bone cyst.

Identifying the correct tumor margin and filling the void with adequate bone graft are the key factor for achieving success, and by this method, we can avoid hampering the adjacent joint function and nearby soft tissue complications.

FIGURE 1



REFERENCES

1. Koskinen EV, Visuri TI, Holmstrom T, RoukkulaM AB. Evaluation of resection and of curettage in 20 cases. *Clin Orthop* 1976;118:136-46.
2. Kotwal PP, Jayaswal A, Singh MK, Dave PK. Aneurysmal bone cyst in the metacarpal of a child a case report. *J Hand Surg Br* 1988;13:479-80.
3. Lichtenstein L. Aneurysmal bone cyst; Further observations. *Cancer* 1953;6:1228-37.
4. Biesecker JL, Marcove RC, Huvos AG, Miké V. Aneurysmal bone cysts. A clinicopathologic study of 66 cases. *Cancer* 1970;26:615-25.
5. Buraczewski J, Dabska M. Pathogenesis of aneurysmal bone cyst. Relationship between the aneurysmal bone cyst and fibrous dysplasia of bone. *Cancer* 1971;28:597-604.
6. Dabezies EJ, D'Ambrosia RD, Chuiard RG, Ferguson AB Jr. Aneurysmal bone cyst after fracture. A report of three cases. *J Bone Joint Surg Am* 1982;64:617-21.
7. Fuhs SE, Herndon JH. Aneurysmal bone cyst involving the hand: A review and report of two cases. *J Hand Surg Am* 1979;4:152-9.
8. Burkhalter WE, Schroeder FC, Eversmann WW Jr. Aneurysmal bone cysts occurring in the metacarpals: A report of three cases. *J Hand Surg Am* 1978;3:579-84.