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A Case Report of Multiple Aneurysmal Bone Cysts

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Case Report

A 30-year old male patient, admitted in our hospital for a fracture of the upper end of the left humerus in February, 2006, received treatment with curettage of the lesion in combination with an autologous bone graft from the right ilium plus internal fixation. A post-operative pathological examination indicated that there was a simple bone cyst in the area of the fracture, with a satisfactory postoperative recovery.

After reexamination in the clinic, a bone tumor at the inferior end of the left humerus was unexpectedly found by an X-ray examination. He was then hospitalized again in our hospital on February 7, 2007. A physical examination showed that there was no obvious mass or tenderness at the upper left arm, and also there was no apparent abnormal elbow-joint motion. An X-ray examination demonstrated the presence of a frosted glass-like sclerotic lesion at the distal ends of the left and right humeri and at the proximal end of the right radial bone, with an edge unsharpness, smooth periosteum and joint surface, and without an obvious stricture between the joint spaces. No engorgement was found in the surrounding soft tissue (Figs.1~3).

A bilateral curettage of the humeral lesions plus an artificial bone implantation was conducted, under brachial anesthesia, on February 16, 2007. During the operation, the tumor was scraped on both humeral lesions. It presented as a red and brittle granulomatous tissue, which was formed by the expanded spongiform capsular space, with a fibrous septum of unequal thickness between the capsular-spaces. Postoperative pathologic results showed that there were multiple aneurysmal bone cysts at the distal ends of the left and right humeri. No malignant components of the fibrous structure were seen in the sampled tissues.

Discussion

An aneurysmal bone cyst is a rare disease, comprising about 1% to 2% of primary bone tumors, and 13.7% of the tumor-like lesions. Most of the patients are teenagers. The most common site is the metaphysical position of the long bone of the extremities and spine. It has been suggested by some orthopedists that the

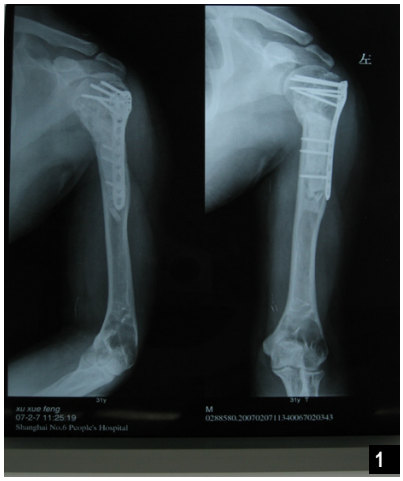

Fig.1. Distal bone tumor after curettage and bone implantation at the proximal end of the left humerus.
Fig.2. Distal bone tumor in the right humerus.
Fig.3. Lesion at the proximal end of the right radius.

etiological factors include the formation of a local venous thrombosis or abnormal arteriovenous communication on the basis of a regional lesion, resulting in a local hematological blockage which brings about a continuous increase of the intravenous tension, an expansion of the blood vessel lumen and secondary local bone absorption, thus forming the cyst. The expanded vessel lumen has the features of a thin wall and close adherence to the sclerotin that makes it difficult for the vessel to contract for hemostasis, therefore, there is usually a pale yellow fluid hemorrhage in the diseased region.

Owing to the lack of contractible vessel lumens, scraping of the lesions should first be conducted, in order to prevent an excessive blood loss. Further treatments should be performed, such as resetting the bone and conducting a bone graft etc. The X-ray examination usually indicates a local translucent area, an expanded or osteolytic destruction, and it sometimes presents an obscure boundary, with a pathologic fracture. It is easily confused with a malignant tumor. Therefore it should be distinguished, at diagnosis, from a giant cell bone tumor, angiectatic osteosarcoma and solitary bone cyst.

Previous reports in the literature[1] suggest that the preferred mode of treatment of a simple lesion should be a curettage plus a bone graft, as the cure rate with this treatment has accounted for approximately 70% to 90% of the patients. However, a second or even more operations are needed once a relapse occurs. A thorough intraoperative curettage of the lesion is the key for preventing a post-operative recurrence. Low dose radiation therapy (26~30 Gy) can be performed for some patients with a difficult resection or with a recurrence. With this treatment the rate of local control may also reach 90%.

Our patient was diagnosed as having a simple bone cyst on the left proximial humerus and a symmetric aneurysmal bone cyst on both distal humeri. To our knowledge a case similar to this has not been previously reported in the literature. At present, the patient has not received a treatment on the distal lesion of the right radial bone, while a follow-up of the case is still continuing.

REFERENCES

1 Mendenhall WM, Zlotecki RA, Gibbs CP, et al. Aneurysmal bone cyst. Am J Clin Oncol 2006;29:311-315.