

Case Report

Clavicle Tumor - A Rare Site for Bone Neoplasm: A Case Report

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Abstract:

The clavicle which is a unique bone due to its embryological and functional characteristics is a rare site for bone tumors. This bone shares its oncological characteristics with flat bones rather than long bones. Though diagnosis of clavicle tumour is delayed due to low level of suspicion but it's important because most of them are malignant. The surgical prognosis of clavicle tumor is good because clavicle is a bone that can be resected without causing significant disability. The case reported here is such a rare case of clavicle tumour. The patient is a 30 years old male with history of small bony swelling over left clavicle for 5 years. The swelling was solid palpable in mid clavicle region of left side, round to oval in shape, well circumscribed from overlying skin, hard in consistency, smooth, non-pulsatile and trans-illumination test was negative with no associated neurological and vascular deficit. X-ray finding was a large osteolytic lesion over lateral half of left clavicle with thin cortex. FNAC report was Aneurismal Bone Cyst. At surgery a pearl shaped semisolid mass was found with cheesy material. The mass was removed carefully then curettage and autogenous cortical bone graft from fibula was done. Histological report was 'Non-ossifying fibroma' that is a rare benign tumor of clavicle. Appropriate preoperative diagnosis by histological and radiological means is important to avoid the over and under treatment as well as complication of clavicle tumor.

Keywords: Clavicle tumor, Biopsy, Curettage, Bone graft and fixation

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Introduction:

Being the first bone to ossify in the embryo, the clavicle is a unique bone due to its embryological and functional characteristics. The clavicle forms the anterior portion of the shoulder girdle, acting as the only fulcrum enabling the muscles to provide lateral motion to the arm. From an oncological stand point, the clavicle is a rare site for tumors.

Orthopaedic oncologists consequently have limited experience in the diagnosis & management of tumors and tumorous conditions of the clavicle. The clavicle shares its oncological characteristics with flat bones and not with other long bones^{1,2}. Clavicle tumors are important, however because the majority are malignant and the diagnosis may be delayed because of a low level of suspicion. Fortunately the clavicle is a bone that can be resected without causing significant disability³.

Case report:

This is a story of a 30 years old male. He had a history of small bony swelling over left clavicle

about 5 years back. The swelling was hard and non-tender. He had no history of trauma. The swelling was gradually increasing. He took some medicine from local doctor.

After 5 years, he came to us. A 5×2.5 cm solid swelling was palpable in mid Clavicle region of left side. The overlying skin was normal. The swelling was round to oval, well circumscribed from overlying skin, hard in consistency, smooth, non-pulsatile and trans-illumination test was negative. There was no associated neurological and vascular deficit. Movement of left shoulder was normal.

In X-ray finding there was a large osteolytic lesion over lateral half of left clavicle with thin cortex. His Hb% was 13.6 gm/dl, ESR was 13. FNAC (Fine Needle Aspiration Cytology) was done and report was ABC (Aneurismal Bone Cyst). After doing all investigations for anaesthesia, we explored the clavicle under general anaesthesia. During surgery, a semisolid mass was found which was pearl like with cheesy material inside.

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Figure-1: Preoperative X-ray showing bony lesion.



Figure-2: Tumor in situ.



Figure-3: Fibular graft.



Figure-4: Postoperative X-ray.

The mass was removed carefully then curettage was done. Then we took autogenous cortical bone graft from fibula. The fibular graft was placed in the gap and 2 mm k-wire was given from lateral side through the fibula to medial half of clavicle. It was not possible to give plate because there was not enough space laterally to hold the plate with screws.

Then autogenous cancellous bone graft was taken from iliac crest for giving cancellous graft surrounding the fibula. A drain tube was given and closed the wound layer by layer. The tissue then sent for histopathology in two different labs. The histological report was 'Non-ossifying fibroma' and it is a rare benign tumor of clavicle.

Discussion:

The clavicle is a rare site of bone tumor in the body. Its incidence has been reported to be from 0.45% to 1.01% of all bone tumors. The peculiarities of the clavicle have the clinical significance for the orthopaedic oncologists^{3,4,5}. The clavicle is subcutaneous throughout its length and cases present quite early as even a small swelling is detected early by the patients⁶. The middle supraclavicular nerve sometimes entrapped in the

tumor or the operative scar may give rise to severe pain⁷.

Biopsy was done by the open incisional technique. Although needle biopsy would have been easy because the clavicle is a subcutaneous bone. It is recommended that needle biopsy should be avoided in clavicle tumors for risk of injury to the neurovascular structures that are in close relation with it^{8,9}.

The gap was filled with cortical fibular graft. It was better to fix the fibula with Clavicle plate, but in lateral part of clavicle there had not enough space to give plate and screw. So the fibular bone graft was fixed with K-wire. Then autogenous cancellous bone graft was given to fill up the residual gap and also to promote osteogenesis¹⁰.

Conclusion:

In Clavicle lesions, appropriate preoperative diagnosis must be obtained through histological and radiological means whenever possible in order to avoid both over and under treatment as well as complication of the tumor.

References:

1. Jaffe HL, Lichtenstein L. Non-osteogenic fibroma of bone. *Am J Pathol.* 1942; 18 (2): 205-21.
2. Jaffe H.L. Osteoid-osteoma. *Proc R Soc Med.* 1953; 46 (12): 1007–12.
3. Betsy M, Kupersmith LM, Springfield DS. Metaphyseal fibrous defects. *J Am Acad Orthop Surg.* 2004; 12 (2): 89-95.
4. Kapoor S, Tiwari A, Kapoor S. Primary tumours and tumorous lesions of clavicle. *Int Orthop.* 2008; 32 (6): 829–34.
5. Smith J, Yuppa F, Watson RC. Primary tumors and tumor-like lesions of the clavicle. *Skeletal Radiol.* 1988; 17 (4): 235-46.
6. Arata MA, Peterson HA, Dahlin DC. Pathological fractures through non-ossifying fibromas: review of the Mayo Clinic experience. *J Bone Joint Surg Am.* 1981; 63 (6): 980-8.
7. Klein MH, Shankman S. Osteoid osteoma: radiologic and pathologic correlation. *Skeletal Radiol.* 1992; 21 (1): 23–31.
8. Terra BB, Rodrigues LM, Padua DV, Sassine TJ, Cavatte JM, De Nadai A. Osteoid osteoma of the distal clavicle. *Rev Bras Ortop.* 2017; 52 (2): 210-214.
9. Kumar A, Arora N, Pandove PK, Anand G, Arora B. Pulsatile Clavicular Swelling as the Sole Presentation of Asymptomatic Renal Cell Carcinoma with an Isolated Metastasis to the Clavicle: A Case Report. *J Clin Diagn Res.* 2016; 10 (12): PD07-PD08.
10. Nota SP, Russchen MJ, Raskin KA, Mankin HJ, Hornicek FJ, Schwab JH. Functional and oncological outcome after surgical resection of the scapula and clavicle for primary chondrosarcoma. *Musculoskelet Surg.* 2017; 101 (1): 67-73.

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