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Case report

Giant cell tumour of clavicle

V. Vaibhav, D. Kumar, S. Singh*
Department of Orthopaedics, Era's Medical College, Lucknow, India.

*Corresponding author; Era's Medical College, Lucknow, India.

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ABSTRACT

We report a case of Osteoclastoma in Clavicle bone in a young adult. Osteoclastoma usually occurs in juxta-articular ends of the long bones of skeletally mature individuals. Its occurance at lateral end of clavicle, a flat bone, is very rare. The diagnosis was based on histopathological report. The tumor was excised with a wide margin of healthy tissue and reconstrustion of lateral end of clavicle was done by free fibular graft and ligamentous reconstruction. Full functional ability and power was restored in the limb. The unusual location of Osteoclastoma in a flat bone and its successful treatment by prompted us to report this case.

1. Case report

We report a case of 18y/Male presented with swelling over right shoulder, there was no history of trauma to that area. Pain was insidious in onset, dull aching in character, non-radiating and localized to the lateral end of the clavicle without diurnal variations. Pain aggravated on movement of the shoulder. The patient was in good health and had otherwise normal findings. He had swelling of a 6×4.5 cm bony mass arising from the lateral end of the clavicle, which was lobulated and tender. Signs of “egg shell” crackling were present (Figure 1). The overlying skin was freely movable. Superficial veins were engorged and local temperature was elevated. The arm abduction was painful. There was no sensory or power loss in the right upper limb. There was no regional lymphadenopathy. The plain radiography (Figures 2) revealed an expansile radiolucent lesion in the lateral end of the clavicle. The swelling was juxta-articular in location on the lateral end of clavicle. It demonstrated a geographical type of destruction with a narrow zone of transition. There was no periosteal reaction or soft-tissue component. The tumour matrix

did not demonstrate any calcification. To confirm diagnosis, fine needle aspiration cytology (FNAC) was done. The section of the tissue showed regular and uniform distribution of stromal cells and benign looking giant cells in a fibromyxoid back ground. Mononuclear stromal cells resembling macrophages and large, multinucleated giant cells resembling osteoclasts alongwith hemosiderin deposits were seen. No new bone formation or necrosis was seen. A diagnosis of Giant cell tumour/Osteoclastoma was suggested. Differential diagnoses considered were Aneurysmal bone cyst, Non-ossifying fibroma, Eosinophilic granuloma, and Tubercular Osteomyelitis.

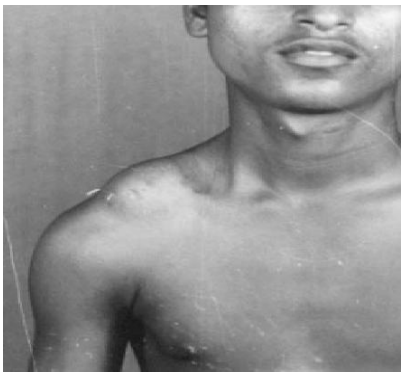

Fig. 1. Swelling over lateral end of right clavicle is seen.

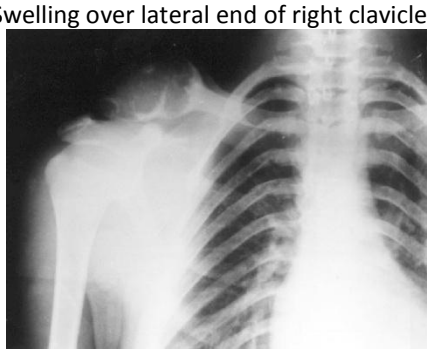

Fig.2. Antero-posterior radiograph of the clavicle.

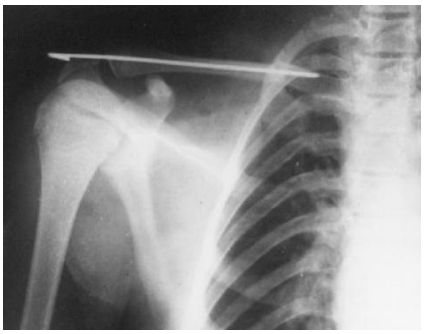

Fig. 3. Post-operative radiograph showing free fibular graft fixed by “K” wire.

The patient was investigated for fitness for anaesthesia and excision of the tumour along with reconstruction of clavicle was done. MRI showed that the tumour had not breached the bony wall of the clavicle. Hence, partial claviculectomy with a wide resection and non vascularised autologus free fibular graft with the ligament reconstruction was done. The graft was fixed by single intramedullary ‘K’ wire (Figure 3). The fibular graft united well with the clavicle (Figure 4). The ‘K’ wire was removed after 3 months. Patient is now having full range of motion without any functional disability or cosmetic deformity.

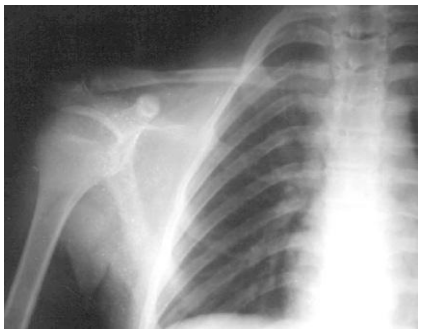

Fig. 4. Eight months Post-operative radiograph showing graft has united well.

2. Discussion

Osteoclastoma or giant cell tumours (GCT) were initially reported by Cooper in the 18th century. Jaffe et al (1940) described GCT in detail to differentiate it from other tumours. Dahlin & Unni (1986) reported it's occurrence between 4%- 9% of all primary bone tumours and they believed it to originate from un-differentiated cells of the supporting tissues of bone marrow. It occurs in young adults in skeletally mature persons and slightly more common in females. Most of the patients (80%) of GCT are in third and fouth decades of life (Murphey et al 2001). It typically occurs as juxta-articular growth at the end of long bones. Most of the GCTs are located in long tubular bones. The tumour is most commonly located around the knee (50%) with the distal radius and sacrum being the next most common site. Among short and flat bones, it infrequently occurs in lumbar vertebrae, skull, sacrum, pelvis, patella, sternum, and clavicle (Park et al., 1991).

Its occurrence in clavicle is rare and the incidence has been reported to be from 0.45–1.01% of all bone tumours (Dahlin & Unni (1986). The distribution of types of tumours in the clavicle is different from long bone tumours. The clavicle shares its oncological properties (the incidence and occurrence of tumours and tumour like lesions) with flat bones rather than long bone (Minard-Colin et al., 2004). In clavicle bone, metastatic tumours are more commonly seen than primary tumours and among primary lesions malignant tumours are more common than benign in this region (Pratt et al 1958, Smith et al., 1988). Giant cell tumour of bone is generally considered a true neoplastic condition with well-defined clinical, radiological, and histopathological features (Werner 2006).

Radiologically, it is juxta-articular in location, lytic and expansile without prominent peripheral sclerosis and periosteal reaction. Histopathologically, the lesion is characterised by the presence of osteoclast like multinucleate giant cell in a stroma of mononuclear cells. Central giant cell granuloma, Eosinophilic granuloma, Osteitis fibrosa cystica (brown tumour), Non-ossifying fibroma and Aneurysmal bone cyst (ABC) are amongst the common differential diagnosis (Jain et al 2002). Fine needle aspiration cytology (FNAC) brings out a large number of giant cells as well as stromal cells. The malignant cells from osseous lesions are easily and readily picked up by FNAC. FNAC thus may play an important role in conservative management of this lesion (Moatasim & Haque, 2005). Rarity of clavicular tumours and low level of suspision index for malignancy along with paucity of literature regarding treatment gives it a high level of clinical significance for the orthopaedic surgeon.

Traditionally, the treatment of choice for tumours of lateral end of clavicle is total or subtotal claviculectomy (Turra & Gigante 1988). The main reason being that it usually would not lead to clinically significant loss of function (Wood 1986). Secondly, meticulous and painstaking ligamentous reconstruction of lateral end of free fibular graft can be avoided (Kalbermatten et al 2004). The fact that the cosmetic disfigurement is not much or obvious and clavicle is a dispensable bone, the decision of total or partial excision is easily reached (Kapoor et al., 2008).

In our case the tumour had not breached the bony wall of the clavicle. We did resection of the tumour mass with a wide margin. We also decided to do a free autologus fibular graft along with Coracoclavicular ligament reconstruction. The graft was fixed by an intramedullary 'K' wire. Tensor facia lata was used for reconstruction of the ligament. A sufficient length of strip of facia lata was harvested from ipsilateral thigh and rolled up. It was then passed through the drill hole made in the fibular graft in antero-posterior plane and the same was advanced and passed transversly under the Coracoid process so as to make a figure-of-eight. Both the free ends of the facia lata graft were sutured to each other and to the Coracoid process by No. 5 ethibond sutures passing through the bone. Limb was supported by a brace for 6 weeks, removed only for active assisted and pendulum excercises. Muscle

strenthening excersises were started at 9 weeks and free use of limb was allowed only after 12 weeks. Fibular graft had united with the clavicle in 3 months and the 'K' wire was removed. Full functional ability and power in the involed limb was restored by 6 months.

The patient was fully satisfied with the treatment as he belonged to a lower middle class income family and had to earn his daily livelihood by working as unskilled worker.

Conclusion, Any expansile and lytic swelling at the lateral end of clavicle should be thoroughly investigated and a possibilty of Giant cell tumor should be kept in mind. Encouraged by the results in our case, we recommend that the option of free fibular graft reconstruction after wide resection of tumor mass should be kept as an option in order to achieve full functional ability and cosmesis.

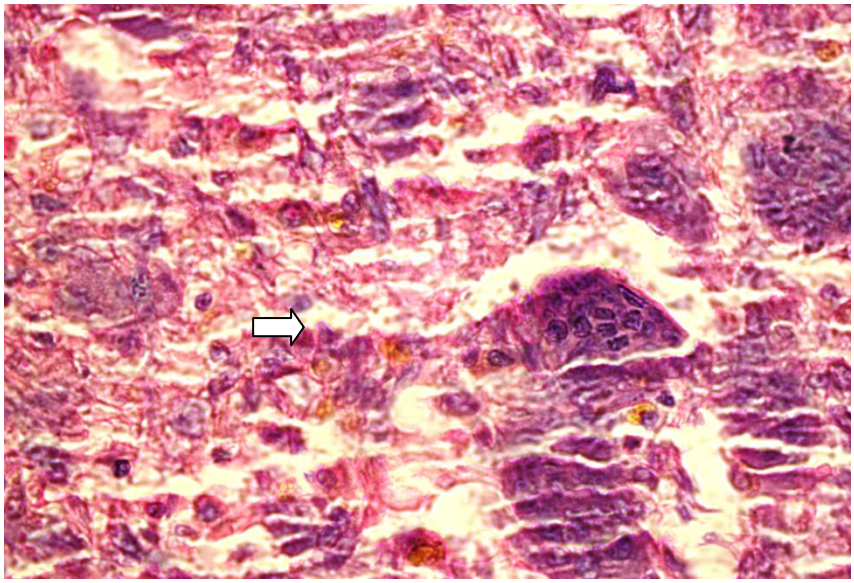

Fig. 5. Arrow Photomicrograph showing multinucleated giant cells resembling osteoclasts.

References

Dahlin, D.C., Unni, K.K., 1986. Bone tumours, general aspects and data on 8542 cases. 4th ed. Springfield, IL, Thomas.

Jaffe, H.L., Lichtenstein, L., Portis, R.B., 1940. Giant cell tumour of the bone, Its pathological appearance, grading, supposed variant and treatment, Arch. Pathol., 30, 993–1031.

Jain, M., Aiyer, H.M., Singh, M., Narula, M., 2002. Fine-needle aspiration diagnosis of giant cell tumour of bone presenting at unusual sites. Diagn Cytopathol., 27, 375–78.

Kalbermatten, D.F., Haug, M., Schaefer, D.J., Wolfinger, E., Schumacher, R., Messmer, P., Pierer, G., 2004. Computer aided designed neo-clavicle out of osteotomized free fibula, case report. Br. J. Plast Surg., 57(7), 668–672.

Kapoor, S., Tiwari, T., Kapoor, S., 2008. Primary tumours and tumorous lesions of clavicle. Int Orthop. Dec., 32(6), 829–834.

Minard-Colin, V., Kalifa, C., Guinebretiere, J.M., et al., 2004. Outcome of flat bone sarcomas (other than Ewing's) in children and adolescents, a study of 25 cases, Br. J. Cancer., 90(3), 613–19.

Moatasim, A., Haque, A., 2005. Spectrum of bone lesions diagnosed on fine needle aspiration cytology. Int. J. Pathol., 3, 57–64.

Murphey, M.D., Nomikos, G.C., Flemming, D.J., et al., 2001. From the archives of AFIP, Imaging of giant cell tumour and giant cell reparative granuloma of bone, Radiologic-pathologic correlation. Radiographics., 21, 1283–309.

Park, Y.K., Ryu, K.N., Han, C.S., et al., 1991. Giant cell tumour of scapula associated with secondary aneurismal bone cyst. J. Korean. Med. Sci., 6, 69–73.

Pratt, G.F., Dahlin, D.C., Ghormley, R.J., 1958. Tumors of scapula and clavicle. Surg Gynecol. Obstet., 106, 536–544.

Smith, J., Yuppa, F., Watson, R.C., 1988. Primary tumors and tumor-like lesions of the clavicle. Skeletal Radiol., 17(4), 235–246.

Turra, S., Gigante, C., 1988. Primary clavicular localisation of Ewing's tumour treated by total cleidectomy. Case report and review of the literature. Ital. J. Orthop. Traumatol., 14(3), 389-93

Werner, M., 2006. Giant cell tumour of bone, morphological, biological and histogenetical aspects. Int. Orthop., 30, 484–89.

Wood, V.E., 1986. The results of total claviculectomy. Clin. Orthop. Relat. Res., 207, 186–190.