

Buccal Decortication a Treatment Option for Aneurysmal Bone Cyst of Mandible

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Abstract: Aneurysmal bone cyst (ABC) is an unusual benign cystic, osteolytic lesion involving mainly long bones and rarely facial bones. Jaffeand Lichtenstein⁽³⁾ first described aneurysmal bone cyst in the year 1950. Fifty percent of ABCs arise in the long bones and 20% in the vertebral column. It accounts for 1.5% of the nonodontogenic, nonepithelial cysts of the mandible⁽⁴⁾. ABC occurs three times more commonly in mandible than maxilla. It involves mostly mandibular body, angle and ramus region. It mainly affects adolescent population below 20yrs with no gender predilection. The classic ABC (95%) is a pseudocystic destructive lesion causing cortical perforation with soft tissue invasion with brisk bleeding (welling up of blood) during surgery. The solid variant of ABC constitutes for remaining 5%. It is an incidental radiographic finding mostly asymptomatic sometimes presenting as small swelling. A third intermediate variant has been described having features of both vascular and solid type.

Keywords: Aneurysmal Bone Cyst, Pseudocyst, Sclerotherapy

1. Case Report

A 23 - year old male reported to our department with a complaint of painless swelling in his right lower jaw for 2 years which gradually increased in size. His medical and family history was non - contributory. Extraoral examination revealed significant facial asymmetry with diffuse swelling in right mandibular angle region of size approx.10cm×8cm. The swelling was hard and non - tender and there was no overlying skin involvement.

Intraoral examination revealed diffuse swelling in the buccal vestibule extending from right mandibular second molar upto the retromolar region with obliteration of vestibule. There was no tenderness or mobility of teeth.



Figure 1: Preoperative clinical photographs

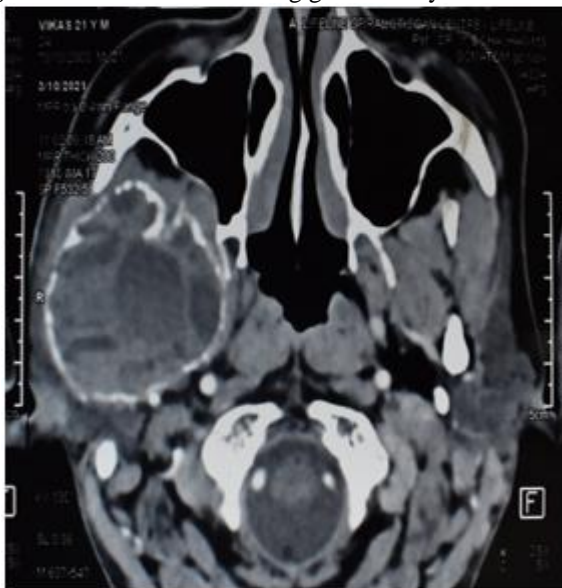
Aspiration was done using 18 gauge needle and frank blood came. Doppler scan was performed to rule out any arteriovenous malformation. Axial computed tomographic scan was performed which revealed a expansile cystic lesion in the right mandibular angle ramus region. (fig 3)



Figure 2: 3D CT scan showing giant aneurysmal bone cyst



Figure 3: Axial and Coronal CT sections



Patient was planned for surgery under general anesthesia. A normal Risdon incision was given with extension in the post auricular region. Layerwise dissection done. Buccalcorticotomy was done and curtteage was performed sequentially from superficial to deep level. (fig 4) Sample was sent for histopathological examination. After confirming clear margins layerwise closure was done. Drain was fixed. Patient was discharged after 1 week and is being regularly followed up. (fig 5)

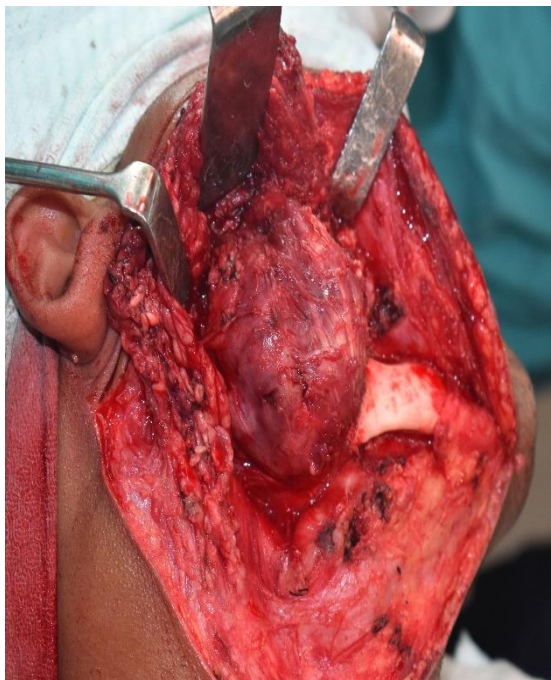


Figure 4: Intraoperative photographs



Figure 5: 2 months postop follow up photographs

2. Discussion

Van Arsdale in 1891 used the term 'ossifying hematoma' for a hemorrhagic cyst in biceps region. Jaffe and Lichtenstein coined the term 'aneurysmal cyst' in 1942 which they changed to 'aneurysmal bone cyst' in 1950

WHO definition of ABC is an "expanding osteolytic lesion consisting of blood - filled spaces of variable size separated by connective tissue septa containing trabeculae of osteoid tissue and osteoclast giant cells"

Clinically ABC can present as a mild slowly expanding semisolid growth causing slight facial asymmetry to rapidly expanding vascular lesion with cortical destruction causing gross facial asymmetry. Pain is not a predominant symptom. Consistency ranges from firm to bony hard associated with

crepitus. Occasionally they cause teeth displacement but vitality is not affected.

Etiopathogenesis of the lesion is still controversial. Trauma is commonly implicated causative factor but it is still not proven. It was accepted from many studies that trauma might reveal only an already pre - existing lesion. Second theory is the developmental theory according to which developmental variation either in the hemodynamics or vascular supply of the bone is the cause. According to Lichtenstein⁽⁹⁾ ABC may result from venous thrombosis or arteriovenous malformation that increases venous pressure within the bone and subsequently leads to development of dilated and engorged intraosseous vascular bed which eventually causes bone resorption followed by new osteoid formation.

Swing⁽⁶⁾ suggested that ABC can also develop secondarily from any other primary bone pathologies like giant cell granuloma when there is an communication between stromal and medullary vessels. ABC was considered as cystic variant of central giant cell granuloma by Bernier and Bhaskar⁽⁵⁾. Chromosomal anomaly involving band 16q22 have been described in 3 cases by Panoutsakopoulos et al⁽⁷⁾

Radiographic presentation of ABC is highly variable. They have multilocular radiolucency resembling honeycomb or soapbubble appearance with periosteal reaction with or without cortical perforation.

In H&E stained slides sinusoidal blood filled spaces in a fibrous stroma with multinucleated giant cells and abundant hemosiderin can be noted. Osteoid and bone formation can also be appreciated. In the noncystic solid variant there is abundant fibroblastic and fibrohistiocytic elements with osteoid formation. The intermediate variant has features of both.

Various treatment modalities include percutaneous sclerotherapy, diagnostic and therapeutic embolization, curettage, block resection and reconstruction, radiotherapy and systemic calcitonin therapy all aimed at complete removal or stabilization of the lesion. Spontaneous healing has also been reported in some cases on long term follow up⁽²⁾. Recurrence following simple curettage ranges from 21 - 50%. Motamedi et al reported zero recurrence following curettage in his study with a followup of 2 - 11 years⁽⁸⁾. He further stated that resection should be reserved only for recurrent cases.

In our case we preferred primary closure rather than iodoform packing considering the risk of bleeding and pain during every dressing. As muscle and soft tissues were spared a tight layerwise closure was possible without any deadspace formation. 1 month follow up has been done and there is no fresh complaints.

3. Conclusion

Curettage can be considered as primary surgical option in simple well circumscribed cases while resection and reconstruction should be reserved for recurrent cases.

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