

Post-operative Mandibular Pathologic fracture in a diabetic patient with Unicystic Ameloblastoma: A case report

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ABSTRACT:

Ameloblastomas are benign odontogenic tumors with potential to grow significantly into enormous sizes with resulting bone deformity. A Unicystic Ameloblastoma is a cystic lesion that shows clinical and radiographic features of a mandibular cyst, but on histological examination shows a typical ameloblastomatous epithelium lining part of the cyst cavity, with or without luminal and/or mural tumour growth. Pathologic fractures may occur when a bone has been weakened by an underlying pathologic process such as tumour, cyst, osteoradionecrosis etc. We report a case of pathologic fracture after surgical management of unicystic ameloblastoma in a 48 years old male diabetic patient.

Keywords: Ameloblastoma, Cyst, Enucleation, Pathologic fracture.

INTRODUCTION

Mandibular fractures commonly occur after high energy facial trauma representing 36% to 59% of all facial fractures.¹ However, pathological fractures of the mandible represent less than 2% of all mandibular fractures.² A very low energy injury or normally tolerated loading forces in a bone weakened by a pathological condition may cause a pathological fracture. But, this remains controversial as: a) A low-energy injury is difficult to define and quantify by scientific means; and b) This can't cover all pathological mandibular fractures.³

Ameloblastomas in the jaws have capability to progress to great size and cause facial deformity, loosening and displacement of teeth, malocclusion, and pathologic fractures⁴. Pathologic fractures can be difficult to treat due to their diverse etiologies and the impact that these have on normal bone healing. The purpose of this clinical report was to describe a pathologic fracture of the mandible after enucleation and curettage of unicystic ameloblastoma.

CASE REPORT

A 48-year old male patient came to the Department of Oral and Maxillofacial surgery, Government Dental College, Thiruvananthapuram with a complaint of swelling in the left body of mandible for the past two and half months. (Figure 1) The swelling had a slow persistent growth associated with mild pain.

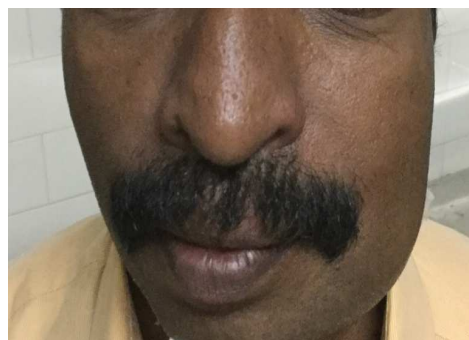


Figure 1: Extra-oral swelling

Medical history of the patient was non contributory and general examination was unremarkable. On local examination, a diffuse swelling of approximate size 4 cm x 3.5 cm, was noticed in left angle region of the mandible. The overlying skin was normal in appearance. Intraorally, a diffuse swelling was

seen in relation to left mandibular second molar, extending posteriorly, lateral to the ramus region, obliterating lower buccal vestibule distal to first molar. Swelling was hard on palpation with a small 'soft spot' in the anterior region. There was mild tenderness on palpation.

An orthopantomogram(OPG) showed a well defined radiolucency of approximately 4 x 3.5 cm, in the left angle-ramus region with scalloped borders and slightly irregular margins, associated with deep horizontally impacted third molar, near the lower border. The radiograph also showed root resorption in respect to the second molar.(Figure2)



Figure 2: OPG showing radiolucency with impacted third molar

Aspiration through the anterior region gave very little amount of pus (approximately 1 ml). Open biopsy suggested “**infected unicystic ameloblastoma**”. Patient’s blood work showed consistent high sugar with high HbA1c. Consultation from Department of General Medicine was sought and patient was started on regular insulin and oral hypoglycemic agents. Previously undetected diabetes was brought into control and patient was prepared for surgery.

Enucleation and curettage with extraction of second molar and surgical removal of the third molar was done intraorally under general anaesthesia. Chemical cautery was done with application of Carnoy’s solution into the cavity. Cavity was closed with a metronidazole pack inside, which was removed 48 hours postoperatively and patient was put on parenteral antibiotics.

The post-operative histopathology report was suggestive of “**unicystic ameloblastoma arising from the dentigerous cyst**”. Postoperative period was relatively uneventful and patient was discharged home with instructions of soft diet and regular review among other post-op instructions.

On three-weeks postoperative review, patient came with mobility of the jaw in the operated region, associated with severe pain which started after eating semi-solid food the previous night. Mild mobility and tenderness of the lower border of mandible was elicited with slight pus in the surgical site and a diagnosis of infected pathologic fracture of mandible was made with the help of a fresh OPG.(Figure 3) Patient was put on intermaxillary fixation for 5 weeks with appropriate parenteral antibiotics after culture and sensitivity. After fracture healing, patient has been on a regular review in our department and no significant problem has been encountered following that.



Figure 3: OPG showing pathologic fracture

DISCUSSION

Unicystic ameloblastoma (UA), a variant of ameloblastoma, was first described by Robinson and Martinez in 1977.⁵ This is a rare type of ameloblastoma which accounts for about 6% of all the ameloblastomas. About 50% of the cases are seen in the second decade of life. It affects mandible more often than the maxilla.⁶ Most common presentation is swelling and facial asymmetry, pain being an occasional presenting symptom when infected. Sometimes these lesions are discovered on routine radiographic screening examinations

or as a result of local effects like tooth mobility, occlusal alterations and failure of eruption of teeth, produced by the lesion. 50-80% of the cases are associated with impacted tooth, most common being the mandibular third molar.⁷ Unicystic ameloblastoma is believed to be less aggressive, have lesser recurrence and to respond more favourably to conservative surgery as compared to the solid or multicystic variants of ameloblastoma.⁸

Chemical cauterisation with Carnoy's solution to decrease chances of recurrence after conservative surgical treatment of Unicystic ameloblastoma was suggested by Stoelinga and Bronkhorst⁹ in 1988. Cryotherapy with liquid nitrogen has also been suggested after enucleation.¹⁰

There is a general agreement that both mandibular width and height are equally important to prevent a fracture, requiring a minimum height of 4 to 5 mm and width of 7 mm. Ridge augmentation of the mandible at the inferior border with bone grafting to prevent fractures¹¹ and using a free fibula flap to repair an atrophic mandible fracture¹² have been reported.

The reasons of iatrogenic fractures of the mandible are multifactorial. Age, sex, degree of tooth impaction, relative volume of the tooth in the jaw, preexisting infection or bony lesions, failure to maintain a soft diet in the early postoperative period and the surgical technique are thought to affect susceptibility for pathologic fracture. Nakamura et al¹³ advised marsupialization as an initial step in the treatment of unicystic ameloblastomas. Once an appropriate reduction in the size of the tumor happens, enucleation can be done, thus avoiding the complications associated with radical surgery.¹⁴

Treatment of pathologic fractures depends on the etiology. In most cases, the patient is young and healthy with normal bone. Simple fracture pattern and presence of an adequate buttressing allow good bone apposition after reduction of the fracture segments.

Rigid internal fixation with mini plates or even closed reduction will allow rapid bone healing to restore mandibular continuity and function.¹⁵

CONCLUSION

There is a risk of pathologic fracture after enucleation and curettage of a large expansile mandibular lesion. Buttressing the thin lower border of mandible with rigid internal fixation or keeping the patient on intermaxillary fixation for a definite period can be a way to prevent it. Regular follow up is mandatory to detect and manage such complications.

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