

Diagnosis and Treatment of Ameloblastoma: A Case Report

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Introduction

Ameloblastoma is a benign neoplastic tumor of odontogenic epithelial origin. Despite their benign nature, these neoplasms are locally destructive with a high rate of recurrence. The incidence rate of ameloblastoma among the pediatric population is low, approximately 10-15%. The average age at presentation is 14.8 years with less than 10% of childhood cases occurring under 10 years of age. The most common clinical presentation is a painless slow growing expansion of the jaw, which may be accompanied by tooth mobility or displacement. Although uncommon in pediatric patients, clinical and radiographic diagnosis of ameloblastoma is critical for early intervention in order to decrease rate of recurrence, size of the postoperative defect and limit the overall morbidity and psychological impact on the patient. Imaging studies such as computed tomography (CT) are necessary to confirm the diagnosis. Histological examination of the tissue is also essential for definitive diagnosis. Treatment of these tumors in children is complicated due to the growing craniomaxillofacial skeleton. Conservative surgical excision with adequate margins is the mainstay of treatment for ameloblastoma. However, the extent of surgery required may vary depending on the size and location of the tumor. In some cases, conservative resection with close follow-up may be adequate, while in others, more extensive surgery may be required. This case report presents an uncommon case of a large multicystic ameloblastoma of anterior mandible in a 13-year-old male who presented to the pediatric dental clinic, as well as the surgical management including the excisional and reconstructive aspects.

Case Report

In December, 2022, a 13-year-old male presented to the pediatric dental clinic of Staten Island University Hospital-Northwell Health during an emergency visit with his mother with chief complaint of having pain in lower left side of his jaw. Patient had past medical history of intermittent asthma and autism spectrum disorder. A clinical examination revealed a submucosal mass in left parasymphysis area. Mobility was detected for teeth #20, 21, 24 and 25. Radiographic evaluation including panoramic and maxillofacial CT scan was performed. CT scan results showed a 4.5x 2.2 x 2.6 cm (transverse, anteroposterior, and craniocaudal) lytic process with severe thinning of the anterior/buccal cortex and posterior/lingual cortex. The lesion produced malpositioning of mandibular anterior teeth (unerupted #23 and #22 inferior to the lesion) and encompassing (#24, #25, #26). Differential diagnosis was dentigerous cyst and Odontogenic Keratocyst (OKC). Incisional biopsy was performed with final diagnosis of ameloblastoma exhibiting cystic and follicular growth pattern.



Figure 1. Panoramic radiograph

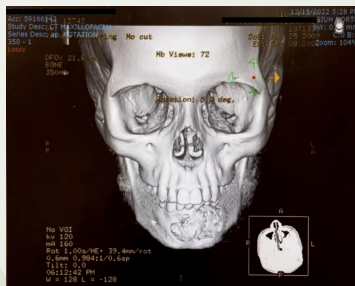


Figure 2a. Maxillofacial CT scan without contrast. Coronal view.

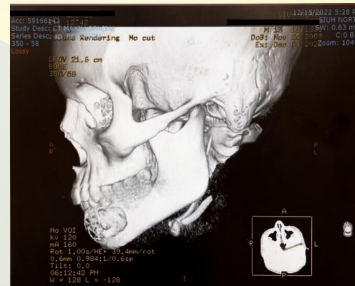


Figure 2b. Maxillofacial CT scan without contrast. Sagittal view.

Management

Due to aggressive nature of ameloblastoma in this case decision was made by the oral surgery team for segmental mandibulectomy. Operation performed as following:

- Segmental resection of anterior mandible
- Right osteocutaneous fibula transplant to anterior mandible defect with custom plate and split thickness skin graft
- Cadaveric nerve graft to left mental nerve

Postoperative plan included maintaining the incision sites, deep venous thrombosis prophylaxis, using Peridex and ambulate as tolerated

Discussion & Conclusion

Ameloblastoma is uncommon in children and the treatment is complicated due to continued growth and facial bone physiology. There is a higher percentage of cancellous bone in children, and therefore increased bone turnover. In addition, the presence of unerupted teeth and difficult initial diagnosis contribute to the treatment complexity. Ameloblastoma lesions radiographically resemble dentigerous cyst due to their association with unerupted teeth (70% to 83%). Therefore, ameloblastoma management remains controversial. However, many studies show that due to high recurrence rate (75-90%) after conservative treatment of follicular variant of ameloblastoma, these lesions in children should be treated with more radical approach (mandibular resection with clear margin of affected bone and soft tissue). The reported case was treated in this way and mandibular reconstruction was done using osteocutaneous fibula transplant with custom plate and split thickness skin graft.

Due to high rate of recurrence, monitoring is essential in these patients. Most recurrences occur within the first 5 years with some recurrences reported 10 years after initial treatment. Therefore, annual radiographic surveillance for a minimum of 10 years is recommended.

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