Two-Stage Treatment of Ameloblastoma via Marsupialization/Decompression and Enucleation: Case Report

Emily Schumacher, DMD and Philip Hawkins, DDS
Children's Wisconsin

Background

Ameloblastomas are uncommon benign odontogenic cysts that typically present in the posterior mandible.

There are three subtypes of Ameloblastomas: multicystic, unicystic, and peripheral.

All are rare in individuals younger than 19, however, 50% of unicystic ameloblastomas are diagnosed in the second decade.

Cystic lesions produce fluid, increasing pressure within ameloblastomas. Painless expansion reduces surrounding bone volume and allows the cyst to grow as cortical bone expands and thins.

Frequent treatment choice is surgical excision with marginal bloc resection or segmental resection. These methods, however, are aggressive and can be disfiguring.

In young patients particularly, a more conservative treatment is desirable.

Decompression allows for constant drainage of cystic fluid to promote cortical regeneration. The smaller cyst is then enucleated at a later date, preserving mandibular integrity.

Case Report

10 year-old female who presented to the Children's Wisconsin Emergency Department in September 2023 with parental concern of facial asymmetry and swelling of the posterior right mandible.

CT in ED was positive for right mandibular cyst.

Pediatric dental was consulted and patient examined in conjunction with staff OMS.

CBCT and Panoramic radiographs showed unilocular, 4.5-5.5 cm cyst inferiorly-superiorly and mesio-distal, 3+ cm medial-laterally.

Cortical bone was extremely thin and at high risk for fracture.

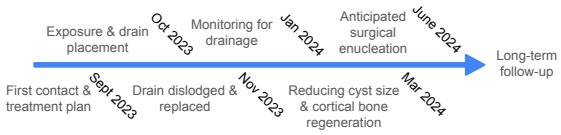
Upon consultation with patient and patient's mom discussed treatment options including resection and marsupialization/decompression.

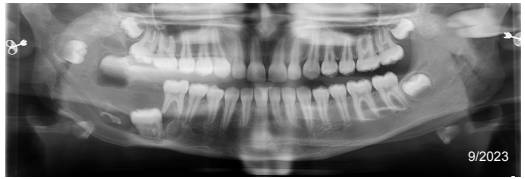
Due to the extent of her ameloblastoma and young age, conservative treatment is preferred–marsupialization and drainage until adequate cortical bone thickness is achieved followed by enucleation under general anesthesia.

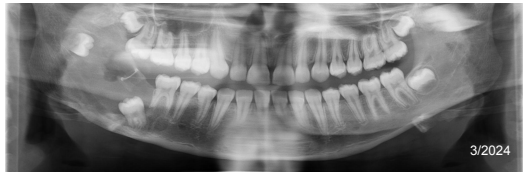
Biopsy of lining showed unicystic histology.

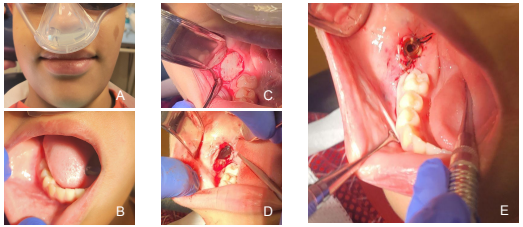
Drain placed with thickening of cortical bone noted; anticipate enucleation in summer 2024.

Timeline





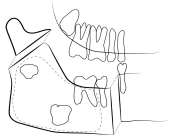




Resection v. Marsupialization/Decompression

Recurrence rate

Average recurrence for unicystic ameloblastoma is reported to be 23.5% and most occur within the first five years following treatment

Resection	Marsupialization Decompression
15% recurrence	18% recurrence
	
Reconstruction with titanium hardware and grafting or tibia allograft	Cortical thickening during decompression and complete bony healing following enucleation
Aggressive tooth and bone removal	Tooth removal limited to those enmeshed within cyst of on immediate cyst border
Long-term nerve complications	Less likely to cause nerve complications

Conclusions

There are multiple treatment options for management of cystic ameloblastomas of the posterior mandible. It is important to carefully evaluate each case to determine the best course of action. Type of lesion, size, and age of patient are among some of the most significant factors to consider in treatment planning. More conservative treatments, such as marsupialization decompression with enucleation and curettage can be a valuable tool, especially in the pediatric population. There is increasing evidence to support relatively comparable recurrence rates with resection versus marsupialization/decompression. As with many odontogenic cysts, careful long-term follow-up is critical to managing risk of recurrence and healing long-term.

Sources

Ameloblastomas vs recurrent ameloblastomas: a systematic review. Vidya Ajila and Shruthi Hegde. *J Oral Med Oral Surg. 28 1 (2022) 11.* DOI: https://doi.org/10.1051/mbcb/2021044

Demir E, Gunhan O. Conservative treatment of a unicystic ameloblastoma by marsupialization with a favorable response: A case report and review of the literature. Dent Res J (Isfahan). 2023 Jan 18;20:10. PMID: 36820135; PMCID: PMC9937930.

Nowak A, Casamassimo, P. *The Handbook of: Pediatric Dentistry*. 5th ed. Chicago: American Academy of Pediatric Dentistry, 2022. Print.

Acknowledgements: Nicholas Card, PhD