

INTRODUCTION

Central giant cell granuloma (CGCG) is a benign lesion of the jawbone, typically characterized by fibrous tissue, multinucleated giant cells, and hemorrhage.¹ It is divided into two separate types: 1) asymptomatic, non-aggressive lesion and 2) aggressive lesion with a high recurrence rate.² Early diagnosis with the use of clinical, radiographic, and histological biopsy is key to preventing the lesion from affecting teeth, bone, and surrounding structures.

ETIOLOGY AND EPIDEMIOLOGY

Amongst all benign tumors of the mouth, central giant cell granuloma accounts for 7% of these lesions with a higher prevalence amongst females. Seventy-five percent of these cases occur in children and young adults, with a greater predilection for children between 10 to 25 years old.³ Although the etiology of central giant cell granuloma is unknown, its cause is attributed to trauma, genetics, or inflammatory foci.⁴

DIAGNOSIS AND MANAGEMENT

Our treatment goal focused on completely enucleating the lesion and curetting the cortical bone, while minimally affecting the surrounding teeth and structures. As some studies show that the addition of cryotherapy reduces the chance of recurrence,⁵ liquid nitrogen was used during the patient's surgery. If evidence of recurrence arises, our definitive treatment plan consists of mandibular resection with autologous bone graft reconstruction.

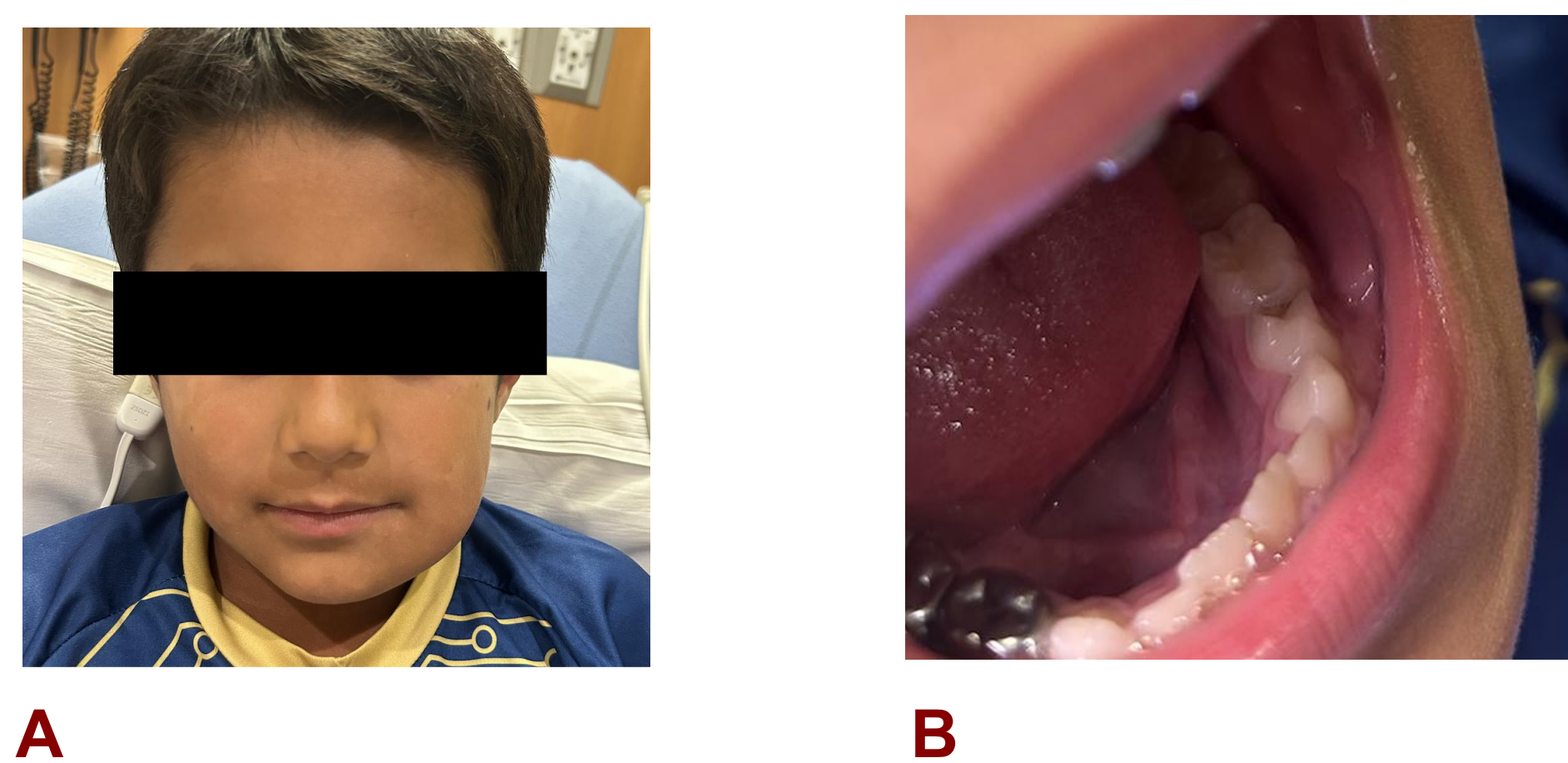


Figure 1: Pre-Operative Intraoral Photos (A) Frontal, (B) Intraoral

CASE REPORT

A seven-year-old male presented to the emergency department at Rady's/Children's Hospital of Orange County with clinical evidence of facial cellulitis. His medical history was unremarkable. The patient's mom reported that the patient was not in pain but had sensitivity. She stated that the patient completed almost all necessary dental treatment besides lower left quadrant, which was scheduled for the following week. With the patient's dental history and clinical presentation (Fig. 1), the patient was placed on IV Unasyn to reduce swelling. However, after two days of IV Unasyn with no improvement in facial swelling and further investigation regarding the patient's past dental history (Fig. 2), our findings concluded that the patient had a form of aggressive central giant cell granuloma with recurrent lesions (Fig. 3). The patient was seen in February 2026 for enucleation of lesions with cryotherapy treatment (Fig. 4-6).



Figure 2: Pre-Operative Radiographs (A) Panoramic, (B) Periapical, (C) CT

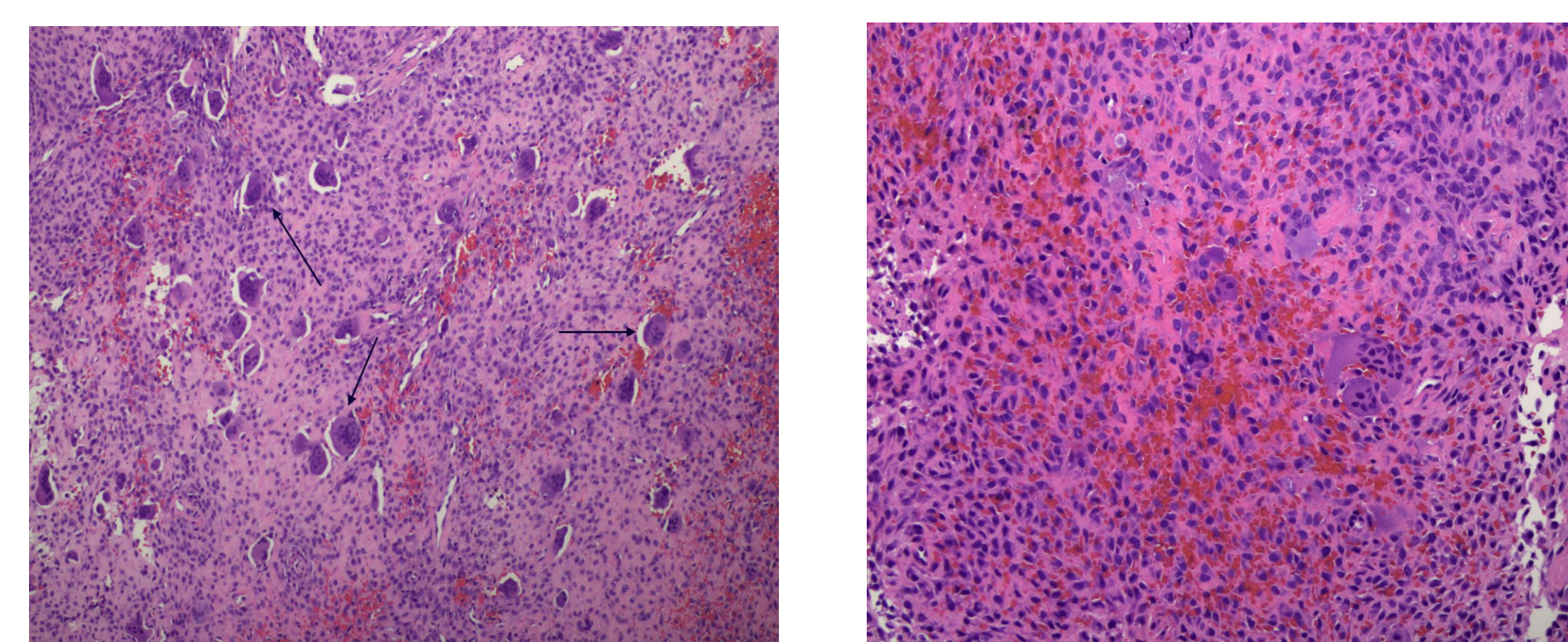


Figure 3: Histological Slide of Patient's CGCG – (A) Multinucleated Giant Cells, (B) Hemorrhage



Figure 4: Clinical Photos Prior to Surgery (A) Frontal (B) Intraoral

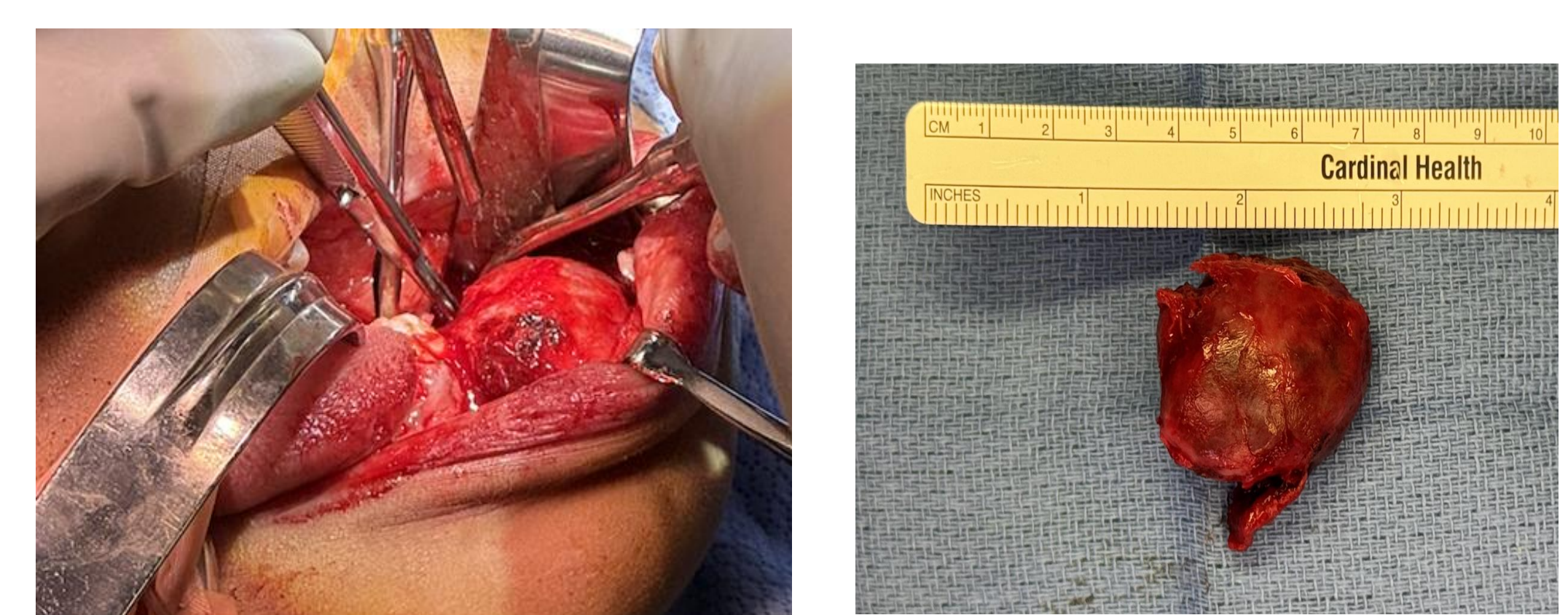


Figure 5: Intra-operative Photos of Anterior Segment of CGCG (A) Clinical (B) Length of Segment

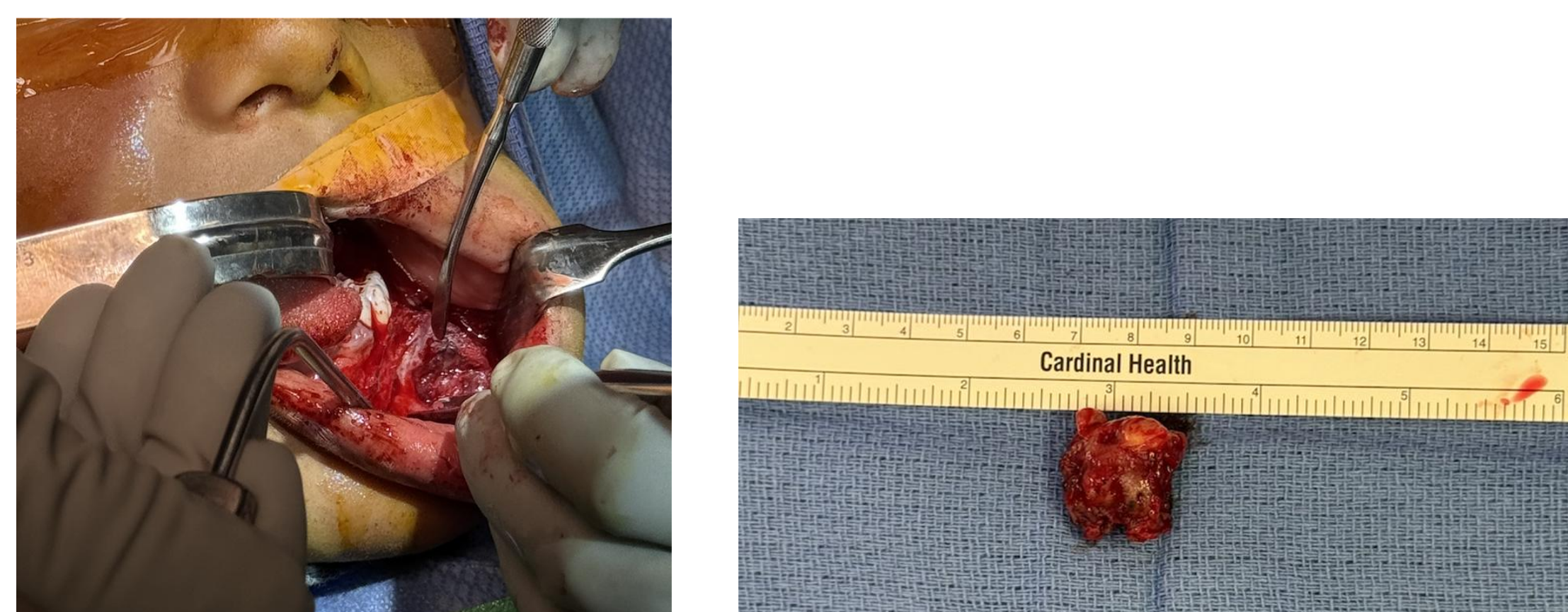


Figure 6: Intra-operative Photos of Posterior Segment of CGCG (A) Clinical (B) Length of Segment

DENTAL IMPLICATIONS / CLINICAL FEATURES

Although central giant cell granuloma is often characterized as a slow-growing, painless expansile lesion⁵, this case demonstrates that its clinical and radiographic presentation can vary significantly and emulate other oral pathology lesions. For our patient, they presented with extensive facial swelling with notable thinning of the cortical bone (Fig. 2C), showing that these lesions can also exhibit more aggressive behavior despite lack of pain. As pediatric dentists, it is important to recognize that even though CGCG typically forms in the anterior mandible, location alone does not rule out a diagnosis. Obtaining proper appropriate imaging such as periapical, panoramic, and even CT radiographs are the first steps towards assessing oral pathology lesions. The gold standard for diagnosing central giant cell granuloma has been through histological evaluation, with key findings of multinucleated giant cells with hemorrhagic stroma (Fig 3).⁶ However, it is important to rule out hyperparathyroidism, as it is histologically identical to CGCG. As these lesions can cause root resorption, displacement of teeth and adjacent structures, and delayed eruption of permanent teeth, it is critical to detect these early on.⁷

CONCLUSION

This case highlights the importance of comprehensive history taking, clinical examination, and appropriate radiographic modalities to establish the diagnosis of central giant cell granuloma. With our collaboration with the patient's oral surgeon and a plastic surgery team, we were able to provide necessary treatment for the patient to reduce risk of recurrence. Given the lesion's history of recurrence, the patient will be closely monitored with clinical and radiographic follow-ups.

REFERENCES

1. Ramesh V. Central giant cell granuloma - An update. (2020) *J Oral Maxillofac Pathol*, 24(3):413-415.
2. Adesina, A., Ladeji, M., Opaleye, T., Moradeke, A., Ojikutu, R., Salami, A., Wemambu, J. (2021). Case reports: An aggressive central giant cell granuloma of the jaws in two pediatric patients. *Journal of Pediatric Surgery Case Reports*. 73: 1-4.
3. Zagreb, Z., William, C., Marvin, I. (2023). Central Giant Cell Granuloma in Pediatric Patient. *SVOA Dentistry*, 4(3): 97-101.
4. Wang, Y., Le, A., El Demellawy, D., Shago, M., Odell, M., Johnson-Obaseki, S. (2019). An aggressive central giant cell granuloma in a pediatric patient: case report and review of literature. *J Otolaryngol Head Neck Surg*, 48(1):32.
5. Lange, J., van den Akker, H., van den Berg, H. (2007) Central giant cell granuloma of the jaw: a review of the literature with emphasis on therapy options. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*, 104(5): 603-615.
6. Jose, D., Murugan, K., Sathiasekar, A., Kumar, D. (2021). Central Giant Cell Granuloma in a 10-Year-Old Pediatric Patient - A Rare Entity in Posterior Mandible with CBCT Findings: A Case Report. *Journal of Indian Academy of Oral Medicine & Radiology*, 33(1): 111-114.
7. Jeyaraj, P. (2019). Management of Central Giant Cell Granulomas of the Jaws: An Unusual Case Report with Critical Appraisal of Existing Literature. *Ann Maxillofac Surg*, 9(1):37-47.