Dental Stabilization for Aneurysmal Bone Cyst Removal: A Case Report

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INTRODUCTION

Aneurysmal Bone Cysts are rare, benign osseous tumors consisting of blood and hemosiderin-filled cystic cavities, usually affecting young adults under 20 – most commonly affecting long bones and vertebrae. Their reported spontaneous recurrence rate is 13%. Their expansile nature can be locally destructive, resulting in pain, inflammation, and weakening of affected bone.

Fragile X Syndrome (FXS) is an X-linked inherited genetic disorder of the FMR1 gene resulting in developmental delays, intellectual disabilities, autism spectrum disorder, seizures, attention-deficit/hyperactivity disorder symptoms and characteristic facial features such as long narrow face and large jaw, forehead, and ears. It is the most prevalent inherited cause of mild-to-severe intellectual disability and the most common monogenic cause of autism spectrum disorder.

This case report will describe splint stabilization of anterior dentition of a 9-year old male with FXS who presented with an aneurysmal bone cyst of his left maxillary region.

CASE REPORT

9-year-old male with Fragile X Syndrome, X-linked adrenoleukodystrophy (status post bone marrow transplant), and nonverbal autism spectrum disorder presented to University Hospitals Rainbow Babies and Children's Hospital in April 2025 for excision of an aneurysmal bone cyst under general anesthesia.

Facial swelling began developing in January 2025 and was initially assessed to be osteoblastoma. Due to maxillary expansion and movement of dentition, the pediatric dental team was invited by the otolaryngology surgical team to stabilize patient's dentition. Nickel-Titanium ortho wire was affixed to the lingual surfaces of teeth #8, #9, and #10 prior to excision of the lesion.

In June 2025, regrowth was noted by parents and patient went under general anesthesia for microwave ablation and sclerotherapy and repeat ablation using cryoablation. Patient was seen in the dental clinic for follow up in January 2026 - splint and dentition were stable upon exam.

CLINICAL AND RADIOGRAPHIC PRESENTATION

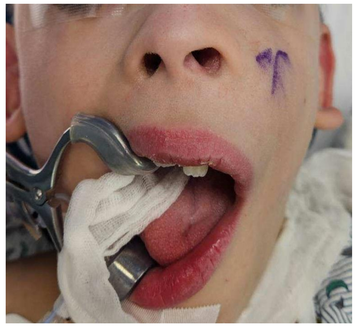


Figure 1: Extra Oral Photo 4/17/25, pre-excision

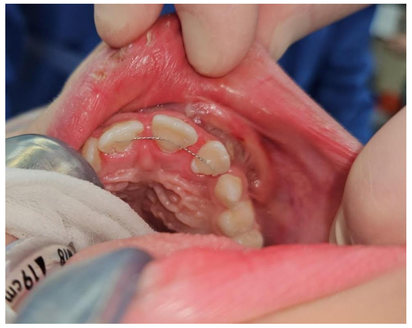
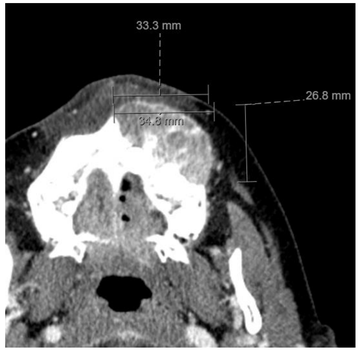
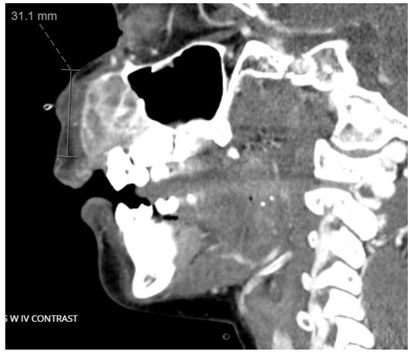
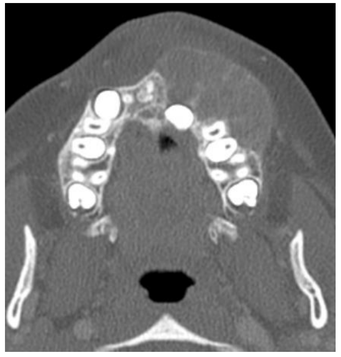


Figure 2: Intra Oral Photo 4/17/25, splint placement

Figure 5: 1/5/26 exam in office, splint remains bonded, dentition stable







Figures 3, 4 and 5: Radiographic examination – 1/27/25 CT w/ IV contrast showing left maxillary mass measuring 3.3x3.1x2.7cm with osseous destruction, alveolar and odontogenic involvement

DISCUSSION

This case presents unique considerations for dental management due to the presence of a complex lesion in conjunction with coexisting genetic and developmental conditions.

The need for repeat ablation therapy in the management of recurrent aneurysmal bone cysts necessitates a multidisciplinary approach, with close collaboration between radiology and dental teams. Ongoing monitoring of the affected dentition is critical, particularly as the maxillary region undergoes cycles of expansion and regression. This surveillance has been coordinated between the patient's primary dental provider and periodic recall visits. The splint placed to stabilize the anterior dentition has remained bonded to the lingual surfaces, with minimal dental changes observed on limited examination nine months following placement. Continued assessment of pulpal vitality is essential, along with periodic evaluation of surrounding bone and periapical structures. Comprehensive dental examination and treatment are further complicated by the patient's nonverbal autism, social and developmental delays, and attention-deficit/hyperactivity disorder. These factors significantly limit cooperation and tolerance for routine dental procedures. As a result, advanced behavior management strategies, including sedation or general anesthesia, will likely be necessary to facilitate both diagnostic imaging and definitive dental care.

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