

# Unintended Effects of a Groper Appliance: A Case Report

Kara Dern, DDS

University of Nevada, Las Vegas School of Dental Medicine

## Introduction

Permanent tooth avulsion is among the most severe dental injuries, accounting for approximately 0.5–16% of all traumatic dental injuries.<sup>1</sup> Improved outcomes may be achieved through anticipatory guidance focused on prevention and increased public awareness of appropriate first-aid measures.<sup>2</sup> When trauma results in the loss of a permanent maxillary tooth, treatment planning must consider the child’s age and stage of dental development, while also addressing the expectations of both the patient and their family and carefully weighing potential risks and benefits. Accurate diagnosis and appropriate follow-up care are critical, as inadequate management can lead to significant long-term complications.

## Case Report

A 12-year-old African American female patient

**Chief Concern:** “The fake tooth is too small for me now.”

**Medical History:** Non-contributory

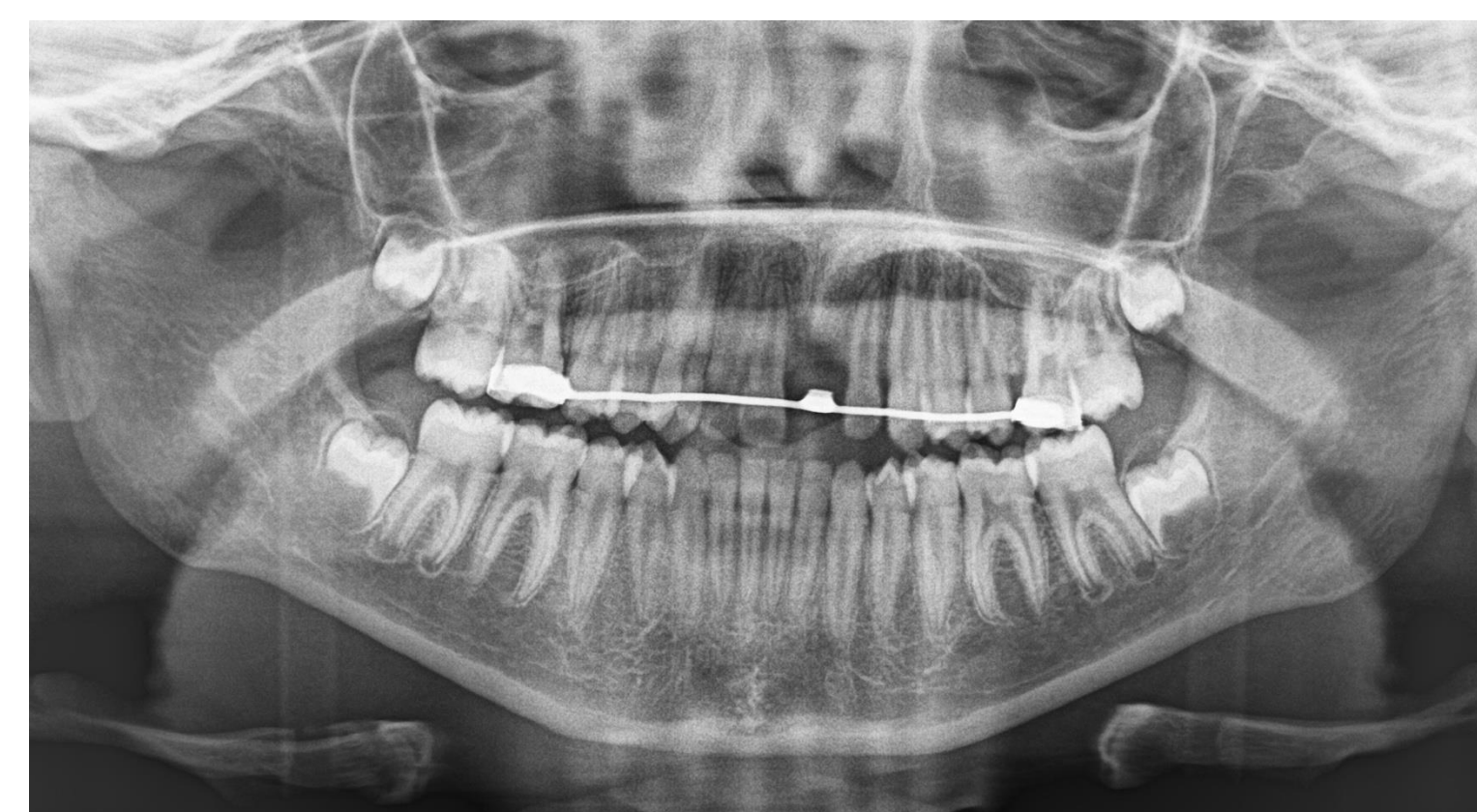
**Medications:** None

**Allergies:** None

**Dental History:** In February 2020, at age 7, the patient experienced avulsion of tooth #9 following a playground injury. The tooth was not recovered. In September 2020, a Groper appliance was placed to replace #9. To address esthetic concerns, the appliance was remade and cemented in October 2021. The patient did not return for follow-up care until August 2025.

**Intraoral Evaluation:** An unaesthetic Groper appliance is present, replacing tooth #9, with a facially positioned pontic measuring approximately 5 mm shorter than tooth #8. The pontic is asymmetrically spaced and encroaches on the mesial aspect of tooth #10, where caries is present. A Siebert Class III ridge defect is noted at site #9. The patient exhibits a Class I molar relationship, with asymmetric facial displacement of the maxillary first molars relative to the normal arch form.

**Radiographic Evaluation:** Tooth #9 is missing, with evidence of horizontal alveolar bone loss.



## Treatment Plan Options

### Disease Control

#10- MF composite restoration

### Restorative Treatment Options

1. Remake Groper appliance
2. Removable interim partial denture
3. Resin-bonded FDP, one wing on #10 and maintain diastema
4. Comprehensive orthodontic treatment and resin-bonded FDP at completion

### Preventative Recall

Exam and cleaning at 6 month intervals

## Conclusion

This case highlights the importance of routine follow-up in pediatric patients with fixed prosthetic appliances. Prolonged use of a Groper appliance without regular recall contributed to caries, molar displacement, and compromised esthetics. Periodic clinical and radiographic evaluation is essential to monitor growth, assess appliance fit, and guide timely modifications. Management of anterior tooth loss in the developing dentition requires an individualized, interdisciplinary approach to minimize complications and support optimal outcomes until definitive treatment can be achieved.

## References

1. Fouad AF, Abbott PV, Tsilingaridis G, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. Dent Traumatol 2020;36(4):331-342. <https://doi.org/10.1111/edt.12573>.
2. American Academy of Pediatric Dentistry. Periodicity of examination, preventive dental services, anticipatory guidance/ counseling, and oral treatment for infants, children, and adolescents. The Reference Manual of Pediatric Dentistry. Chicago, IL: American Academy of Pediatric Dentistry; 2025:312-24.