



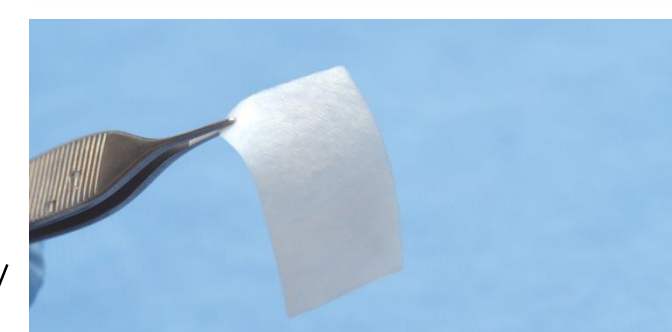
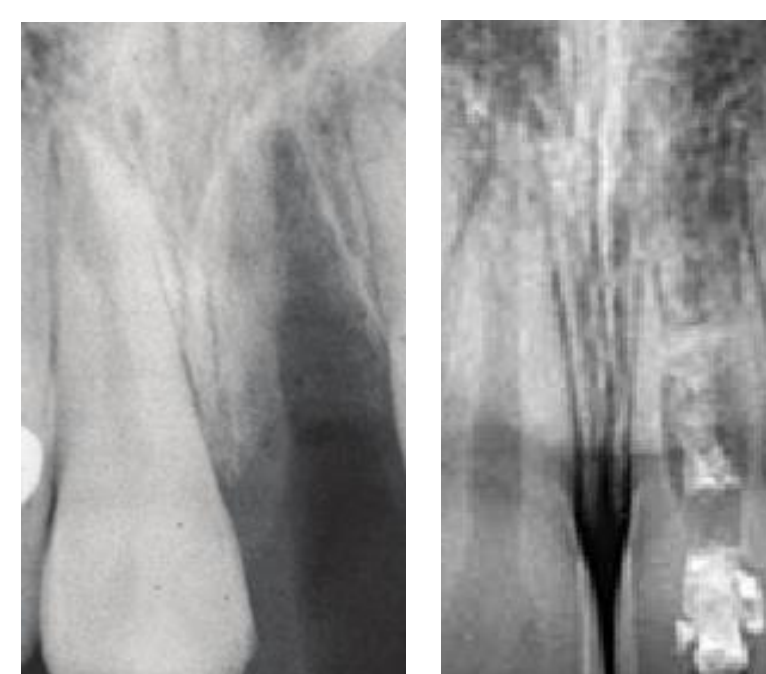
SURGICAL MANAGEMENT OF AVULSED IMMATURE PERMANENT INCISOR WITH ALVEOLAR BONE LOSS AND RIDGE PRESERVATION IN A PEDIATRIC TRAUMA PATIENT

BRUNO NIKOLOVSKI^{1,2}, ANA GIGOVSKA ARSOVA², BIJANA EVROSIMOVSKA^{2,3}, JULIJA ZARKOVA ATANASOVA¹, SANDRA ATANASOVA¹, LJUPKA ARSOVSKI¹, MIHAJLO PETROVSKI¹, VANCHO SPIROV^{1,2}, DARKO VELJANOVSKI¹, ZORAN SUSAK¹, SONJA ROGOLEVA GJUROVSKI¹, BUDIMA PEJKOVSKA SHAHPASKA^{1,2}, VERICA TONEVA STOJMENOVA¹, VESNA TRPEVSKA^{1,2}, VERA RADOJKOVA-NIKOLOVSKA^{2,3}

1. University Goce Delcev, Faculty of medical sciences, Stip 2. University Dental Clinical Center "St. Pantelejmon", Skopje 3. University "Ss. Cyril and Methodius", Faculty of dentistry, Skopje, North Macedonia

INTRODUCTION:

Dental trauma includes injuries to the teeth and their supporting tissues, most often caused by direct impact such as traffic accidents. It commonly affects both primary and permanent dentition, especially the maxillary central and lateral incisors. Injuries may involve the crown, root, or both, while supporting tissue injuries include concussion, subluxation, luxation, and avulsion. Treatment depends on the type, location, and severity of the trauma.



TREATMENT PROCEDURES:

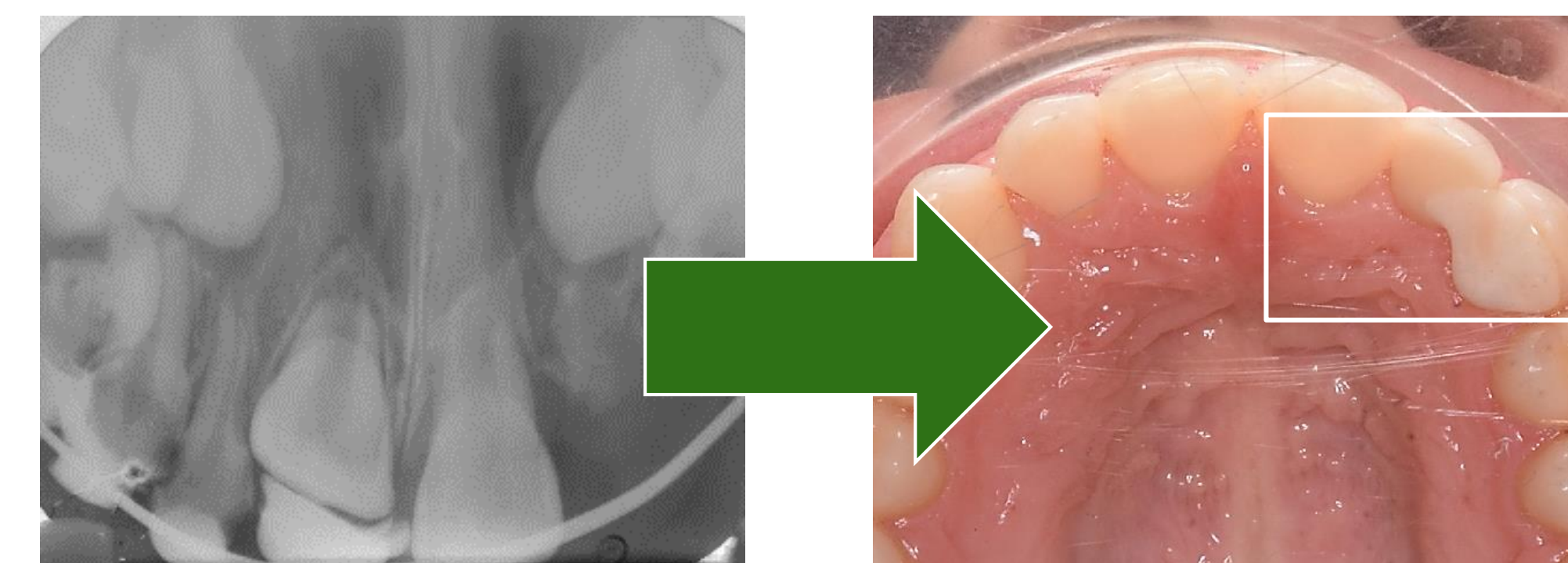
Radiography showed hypodontia of tooth #22. Immediate reimplantation of tooth #21 and wire-composite splinting was performed. Endodontic treatment with MTA-based bio-ceramic cement was performed due to the open apex. By bone grafting and resorbable membrane placement under the coronally advanced flap, we preserved the alveolar ridge, followed by laser-assisted vestibuloplasty. Orthodontic disarticulation and controlled sagittal repositioning of tooth #11 were carried out for correction of the reversed overjet and traumatic occlusion previously present, which had caused visible gingival recession of tooth #41. Follow-up was performed every 30 days, with re-obturation of tooth #21 after three months, radiographically confirmed.

CASE PRESENTATION:

An 8-year-old child presented one hour after trauma with avulsion of teeth #21, #62, and #63, along with loss of the buccal alveolar plate.



RESULTS



At the second-year follow-up, successful repositioning of tooth #11 into normal occlusion was achieved, while tooth #21 showed complete apical closure and stable integration within the preserved alveolar bone. By orthodontic movement space for the absent lateral incisor was achieved, restored by temporary pontic bridge. Clinical and radiographic evaluation confirmed favorable functional and esthetic outcome, with no signs of mobility, root resorption, or other pathological complications.

CONCLUSION

Early multidisciplinary management including immediate replantation, combined with endodontic, surgical, and orthodontic treatment, allowed successful stabilization of the traumatized area, preservation of the alveolar ridge, and prevention of further complications. Careful follow-up remains crucial for long-term prognosis and growth-related outcome.

REFERENCES

1. Bourguignon, C., Cohenca, N., Lauridsen, E., Flores, M. T., Onetto, J. E., Arentoft, B., Levin, L. (2020). International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: Avulsion of permanent teeth. *Dental Traumatology*, 36(4), 331–342.
2. Rossi, M., Capodiferro, S., & Limongelli, L. (2026). Decoronation as a surgical technique for managing ankylosed permanent anterior teeth in growing patients: A systematic review. *Healthcare*, 14(13), 1811.
3. Jonsson, T. S., Sigurdsson, A., & Rohlin, M. (2025). Tooth autotransplantation with immature donors in children and adolescents: A longitudinal radiographic evaluation of alveolar bone height. *American Journal of Orthodontics and Dentofacial Orthopedics*, 167(2), 190–199.
4. AlShareef, M., & AlJazairy, Y. H. (2023). Prompt parental reimplantation of an avulsed permanent incisor in an eight-year-old child with five-year follow-up: A case report. *Cureus*, 15(11), e48612.



Discuss this work with the author

Assoc. Prof. Bruno Nikolovski, DDS, OMS, PhD
Faculty for medical sciences, Dental medicine
Goce Delcev University, Stip
bruno.nikolovski@ugd.edu.mk
<http://www.ugd.edu.mk>