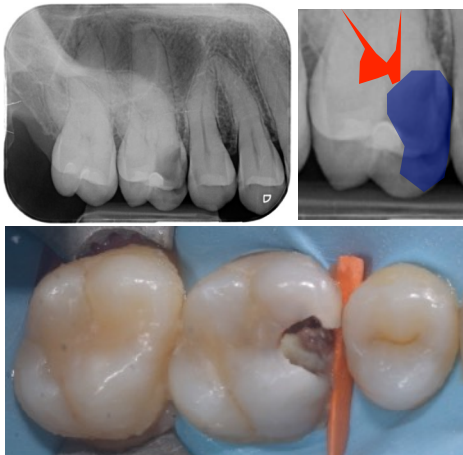




CONSERVATIVE MANAGEMENT OF DEEP CARIOUS LESIONS USING BIOACTIVE MATERIAL AND THE “CUSTOM SHIELD” APPROACH: A CASE REPORT

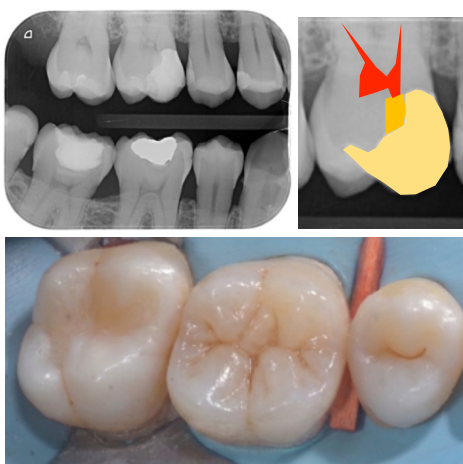
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INTRODUCTION: Modern conservative dentistry has achieved high levels of efficacy in restoring the function and aesthetics of compromised teeth. However, maximizing the preservation of biological tissues—and pulp vitality in particular—remains a clinical challenge, especially in young patients. In this context, bioactive materials play a pivotal role in conservative pulp therapy, while minimally invasive approaches, such as the Custom Shield Technique, allow for reduced procedural invasiveness and shorter chair times while maintaining high restorative predictability.

METHODS: A 20-year-old female patient presented with multiple carious lesions affecting teeth 14, 15, and 16, detectable both clinically and radiographically; the lesion on tooth 16 extended deeply into the pulp chamber. A direct restoration using the Custom Shield Technique was planned, incorporating Biodentine to preserve pulp vitality. Following local anesthesia, glycine air-polishing, and rubber dam isolation, a silicone matrix was fabricated, and selective caries removal was performed. On tooth 16, Biodentine was applied following pulp exposure. Subsequently, selective enamel etching, application of a self-etch adhesive, and layering with a high-viscosity flowable composite were carried out. The silicone matrix served as a guide to restore the morphology of the mesiobuccal cusp, which had been intentionally removed during preparation.



RESULT and CONCLUSIONS:

The treatment was successfully completed, achieving complete caries removal and restoration of occlusal anatomy and proper contact points, with no postoperative complications or pain. At the 24-month clinical and radiographic follow-up, tooth 16 was vital, asymptomatic, and free of signs of periapical pathology.

The combination of bioactive materials and the Custom Shield Technique represents an effective, minimally invasive, and conservative approach for treating deep carious lesions. In the case presented, this strategy made it possible to preserve pulp vitality, reduce treatment time, and achieve a functional and aesthetic outcome that remained stable over time.

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