

ENHANCING ACCURACY IN IMMEDIATE MOLAR IMPLANT PLACEMENT THROUGH A TOOTH-GUIDED TECHNIQUE: A CASE REPORT

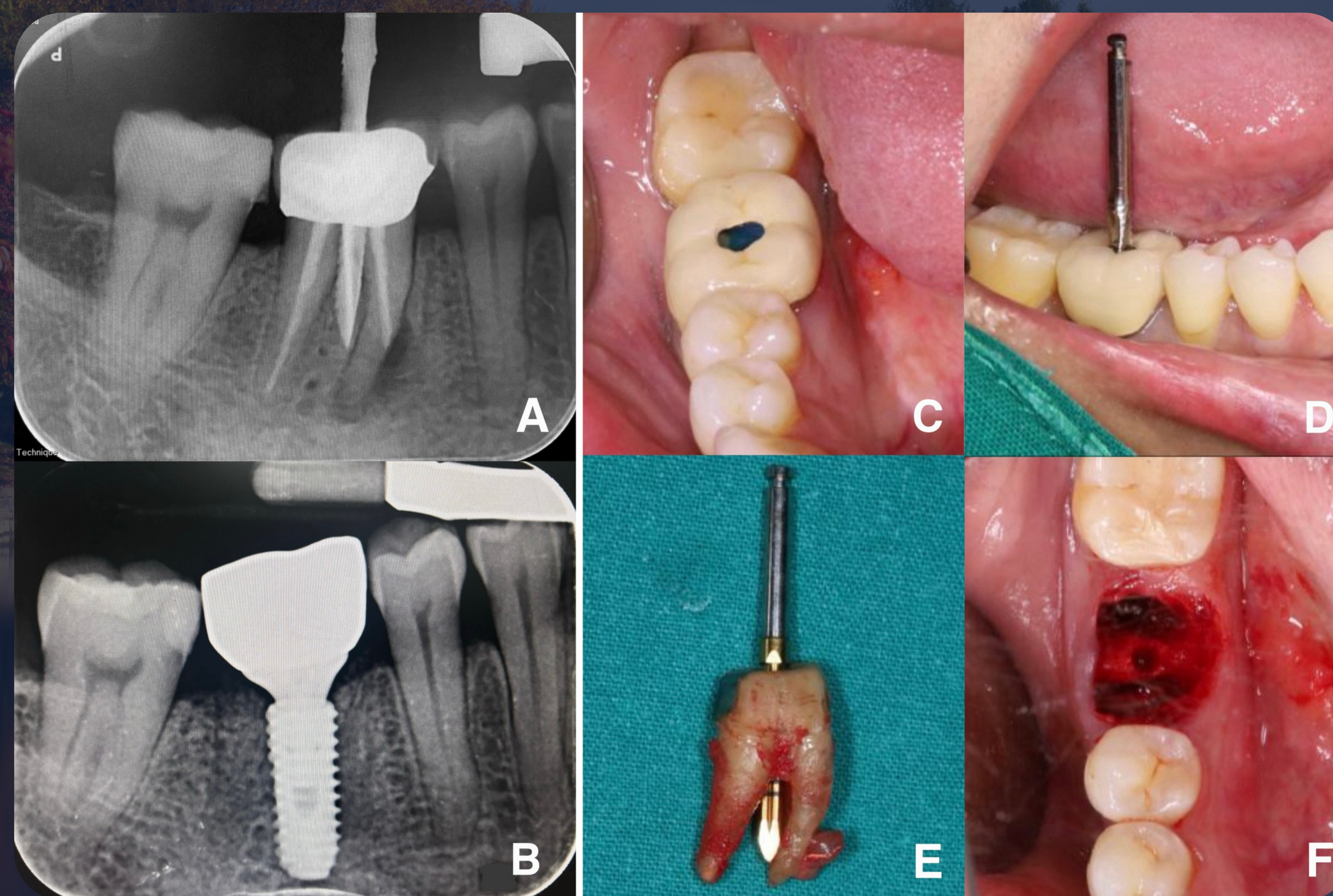
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INTRODUCTION

Immediate implant placement (IIP) using a tooth-guided technique offers a precise and efficient approach for molar replacement. This approach minimizes bone resorption and reduces the prolonged healing period associated with delayed placement, while eliminating the additional time and cost of digital guide fabrication. Utilizing the remaining tooth as a natural guide enhances accuracy, preserves bone, and streamlines the procedure.

MATERIAL & METHODS

A 42-year-old female presented with discomfort at the right mandibular first molar, which had undergone endodontic treatment 6 months earlier, and was subsequently planned for implant placement. CBCT revealed adequate interradicular bone for immediate implantation. The existing crown was drilled using diamond and carbide burs, and a slide-cut drill was employed to create a guide for implant site preparation through the tooth. The osteotomy was gradually expanded to achieve the desired diameter and depth at the septal center. An atraumatic, flapless extraction was performed, followed by curettage of the socket. A 5.0 × 11.5 mm implant was placed with an insertion torque exceeding 35 Ncm. This was followed by allograft grafting, healing abutment placement, and suturing.



RESULTS

Postoperative healing progressed without complications. Radiographic assessment after surgery revealed that the implant was closely aligned with the planned position. At the four-month follow-up, CBCT imaging showed progressive osseous healing, and the implant remained well osseointegrated. The final single- crown restoration achieved stable occlusion and satisfactory adaptation of the surrounding soft tissue. The patient expressed satisfaction with both function and esthetics of the outcome. The tooth-guided approach enabled precise implant placement while reducing operative time and eliminating the need for an external surgical guide. However, clinicians should proceed with caution in cases with limited septal bone or low bone density, where the risk of drill slippage may increase.

CONCLUSION

The tooth-guided IIP technique provides predictable outcomes when applied in properly selected cases. It enhances surgical precision, reduces treatment time, and maintains patient comfort without the use of additional guiding devices. To ensure successful osseointegration and long-term stability, careful case selection and gentle extraction methods are crucial.

A: Initial drilling radiograph.
B: Postoperative radiograph demonstrating implant placement and definitive restoration.
C-D: Initial drilling through the existing crown to establish the guide path for implant site preparation.
E: Extracted tooth showing the drill trajectory through the interradicular septum at the furcation area.
F: Extraction socket with initial implant site preparation.

