



Immediate Molar Implant Placement Using an Interradicular Bone-Drilling Technique with MIS C1 XD Implant

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BACKGROUND

A 32-year-old female patient with an unrestorable lower right first molar. No relevant medical history.

DIAGNOSIS

Clinical and radiographic examination revealed root caries and a failed endodontic treatment.

TREATMENT PLANNING

A cone-beam computed tomography (CBCT) scan was taken to assess the surgical site's anatomy, including the roots' morphology and the surrounding bone's quantity and quality.

Virtual implant placement was performed on the CBCT images using surgical planning software to determine the implant's ideal position, length, and width.

The technique of drilling through the roots was chosen to have an anatomical guide for the implant position and prevent slipping of the drill.

SURGICAL PROCEDURE

The lower first molar was decoronated, and an inter-partial radicular splitting of the roots was created, providing a guide for subsequent bed implant preparation.

Osteotomies were performed through the retained roots using the MIS C1 XD drilling protocol, ensuring ideal three-dimensional orientation and optimal implant placement.

The remaining root segments were carefully extracted.

MIS C1 XD $\varnothing 5 \times 11.5$ mm implant was placed in the prepared osteotomy with a torque of 50 Ncm, achieving high primary stability.

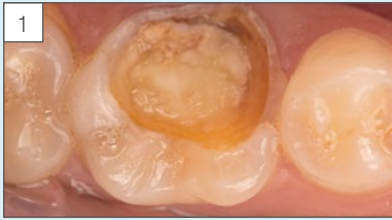
MIS CONNECT abutment was inserted with a torque of 30 Ncm, and a biomaterial was packed in the socket and surrounding tissues.

Finally, a provisional CAD/CAM crown was delivered with a temporary abutment.

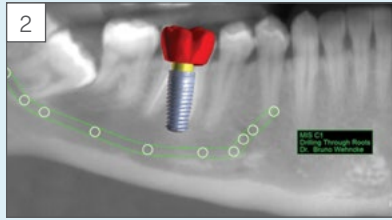
In this case, new, single-use drills were used for inter radicular bone preparation, which provided several benefits, including improved cutting efficiency, reduced heat generation, and better control during the drilling process. These features contributed to the success of achieving primary stability and allowed smooth and precise implant placement.

Final result: Occlusal view of the provisional crown out of occlusion





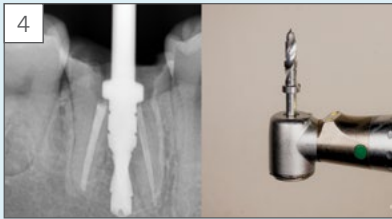
1 Initial situation with a hopeless mandibular first molar



2 Preoperative CBCT



3 Decoronation and section of the tooth



4 Periapical radiograph showing the drilling through the roots



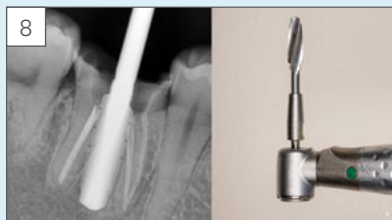
5 Interradicular bone drilling with ideal three-dimensional orientation of the implant preparation



6 Buccal view showing the parallelism of the osteotomy with adjacent teeth



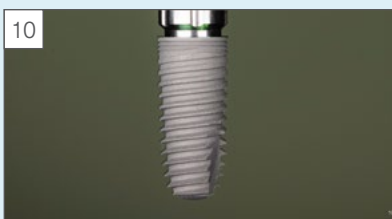
7 Interradicular bone drilling



8 Periapical radiograph of the procedure with MIS XD



9 Occlusal view after flapless extraction of the remaining roots



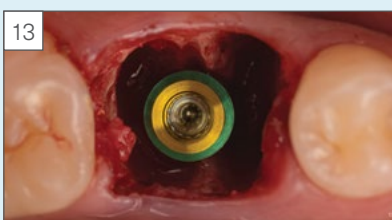
10 MIS C1 Ø5x11.50mm implant



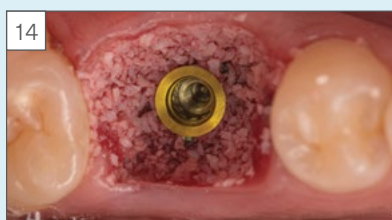
11 Occlusal view after final seating of a Ø5mm C1 implant



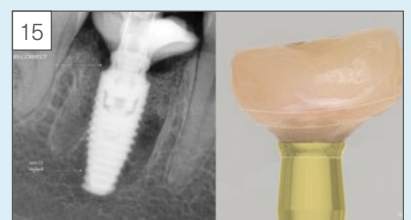
12 Buccal view of tightening the CONNECT abutment



13 Occlusal view after placing the CONNECT abutment



14 Socket filled with biomaterial



15 Post-operative periapical radiograph of the MIS C1 Implant, CONNECT abutment, CAD-CAM provisional crown and temporary crown