

Immediate implantation and Immediate restoration of maxillary incisors: A Case Report

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INTRODUCTION

Due to the aesthetic considerations, a provisional restoration is important for cases of maxillary anterior teeth implantation. At present the provisional restoration could be made either chairside or in-advance, while the latter solution is proved to be more convenient and timesaving. To prepare the temporary restoration before surgery, the digital designing is indispensable. Both the appearance of the crown and position of the implant can be designed and determined pre-operatively, and hence the surgical guide and restoration can be manufactured in advance. In this way, we can reduce the clinical time and surgical trauma, thereby ensuring better experience and clinical outcome for patients.

MATERIALS AND METHODS

In this case report, a young female experienced severe external root resorption of her maxillary middle incisors, necessitating their removal. Due to her occupation, she sought immediate restoration. We replicated the crowns and the trans-gingival area of her existing incisors to design the immediate restoration and planned the implants using digital software. A surgical guide and screw-retained provisional restorations were manufactured. After extracting the incisors, we inserted two 3.5 *13 mm bone level implants with an insertion torque of 35N*cm, applying bone substitutes and a collagen membrane for the labial bone defect. The provisional restorations were fixed onto the implants, then adjusted to avoid any occlusal contacts. After 6 months of healing, the restorations were refined for better gingival contour, and 2 months later, an impression was taken for the manufacture of the definitive restorations, which were subsequently delivered to the patient.

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Initial

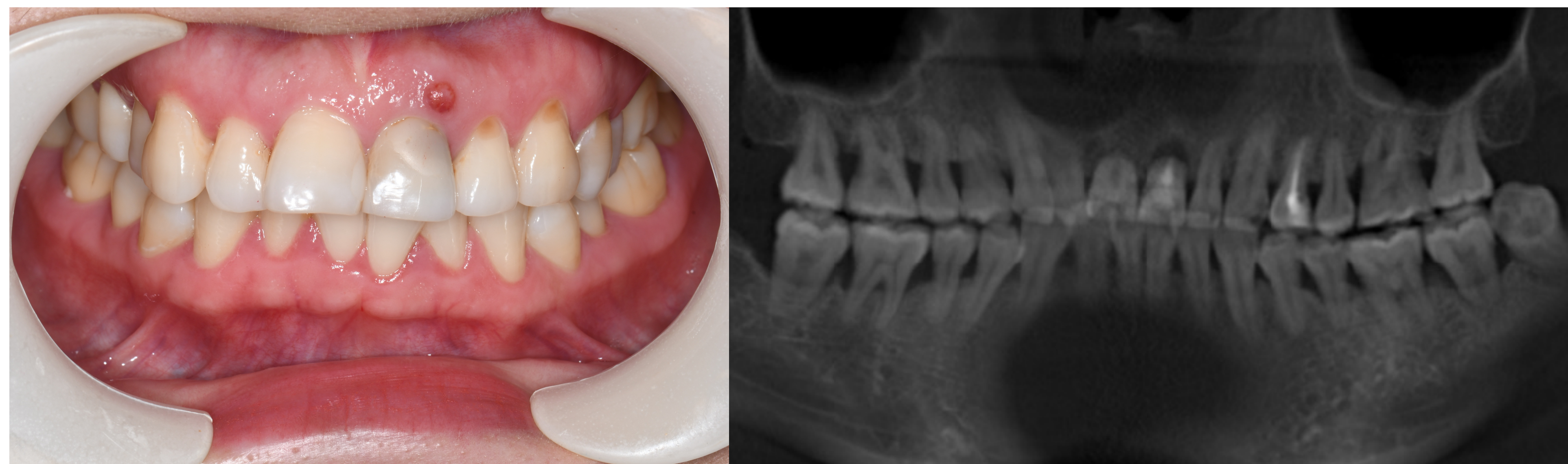


Fig 1 Initial intraoral photo and panoramic image

Preparation pre-operative

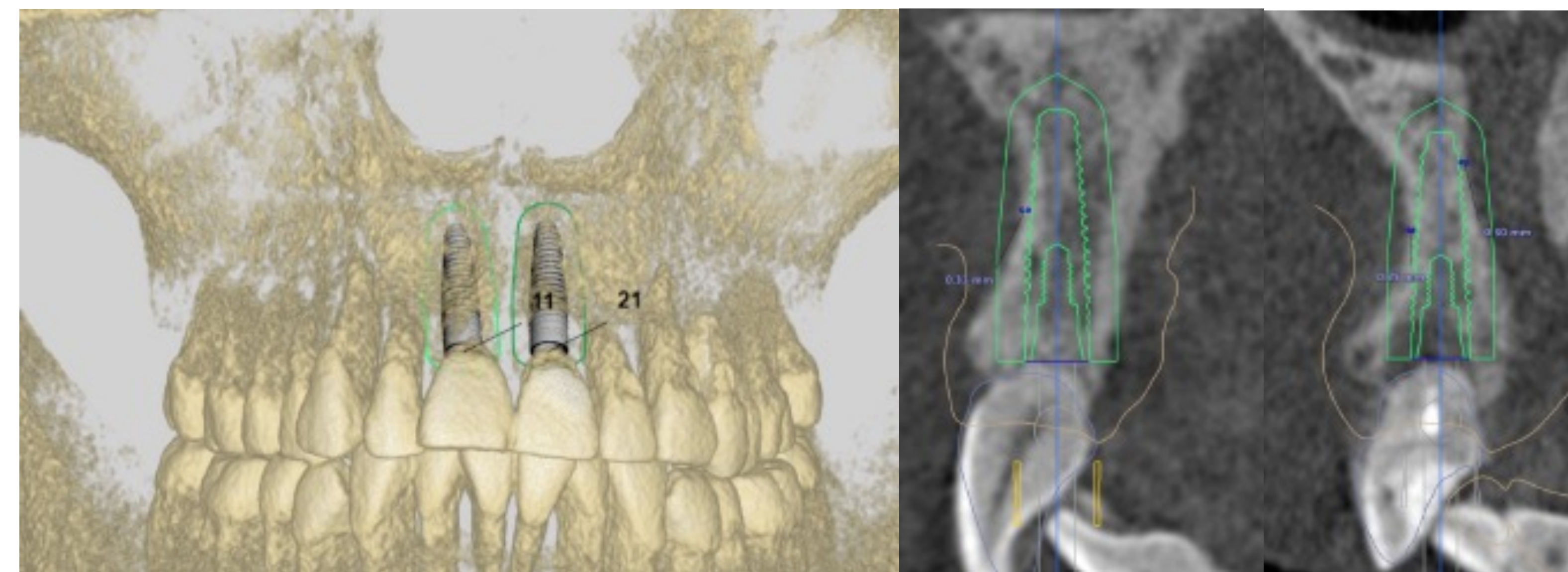


Fig 2 Digital design



Fig 3 pre-manufactured temporary restoration

Surgical Procedure

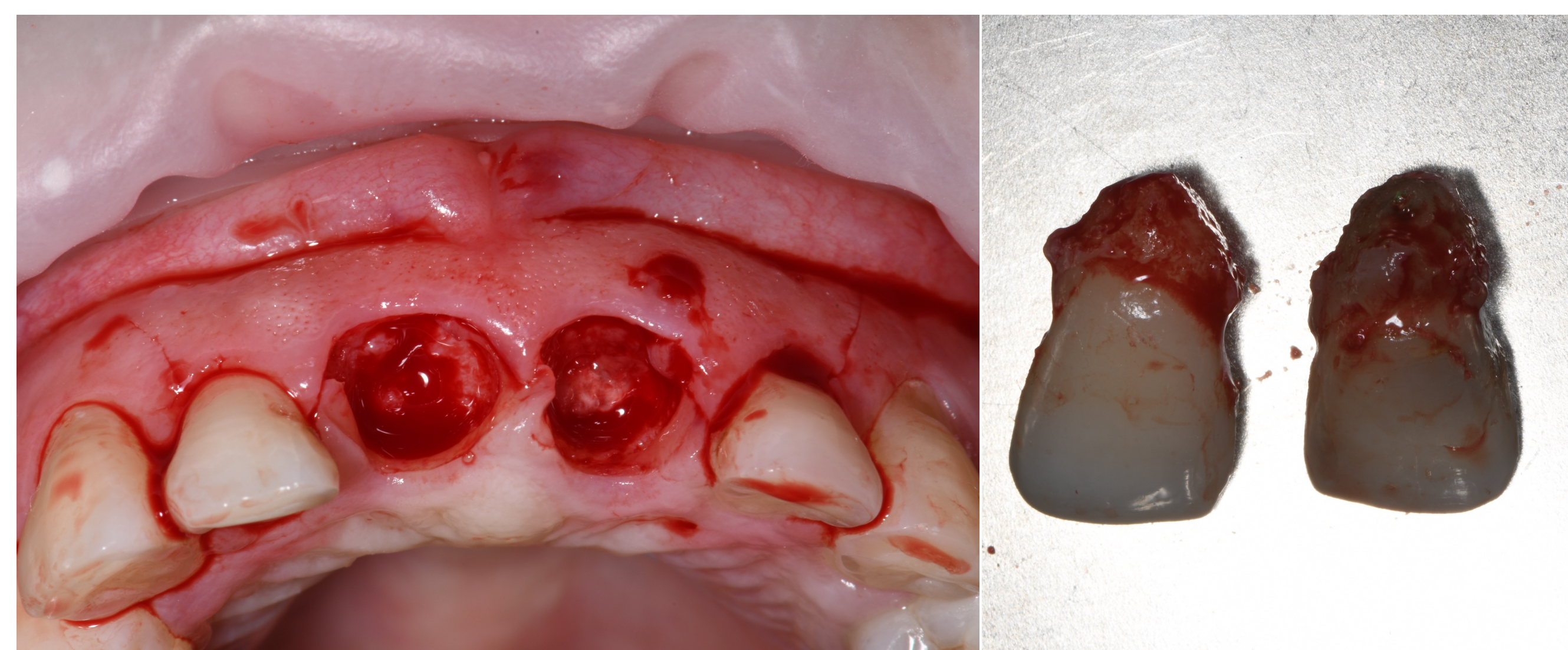


Fig 4 Tooth extraction



Fig 5 Guide-aided drilling

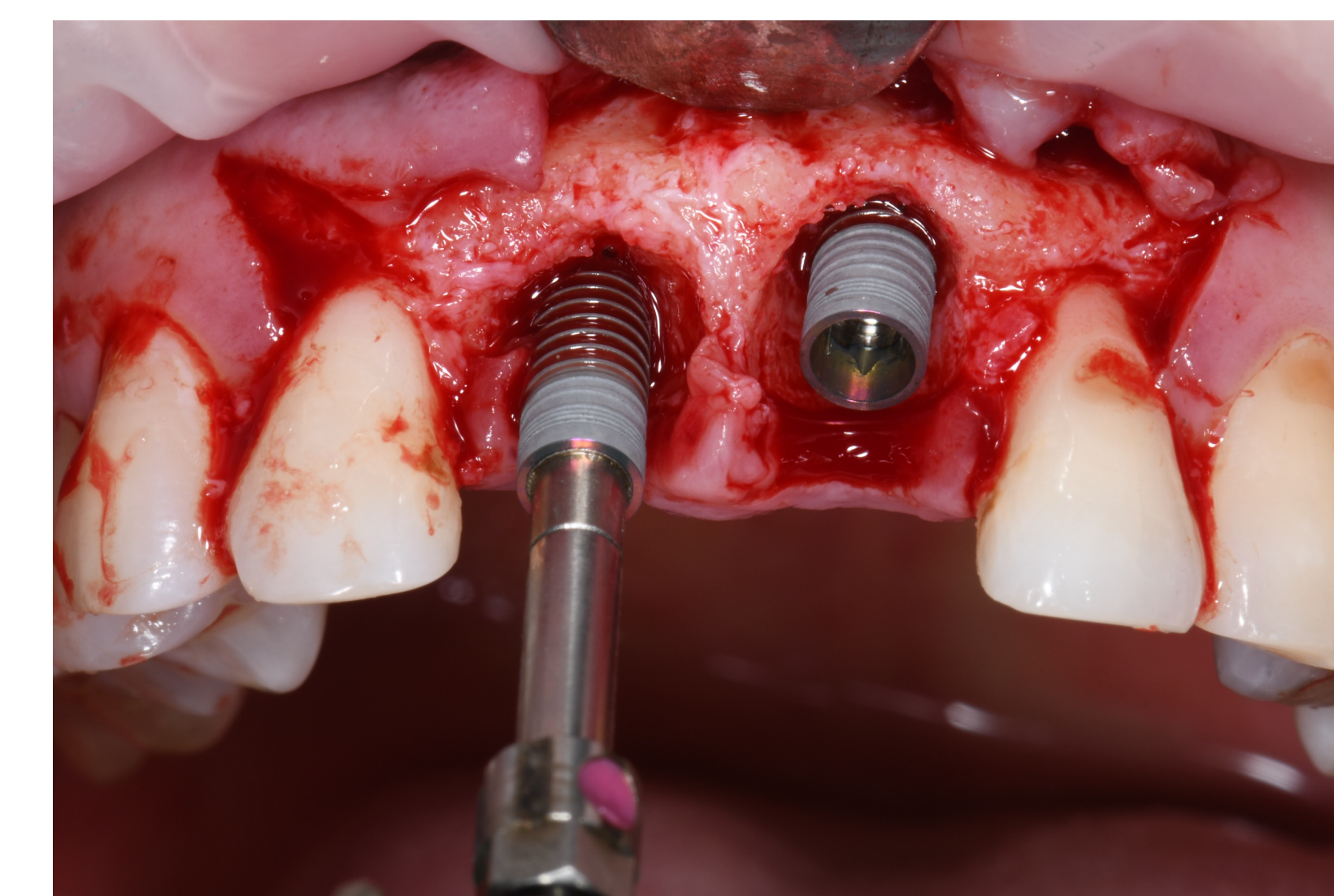


Fig 6 Implant placement

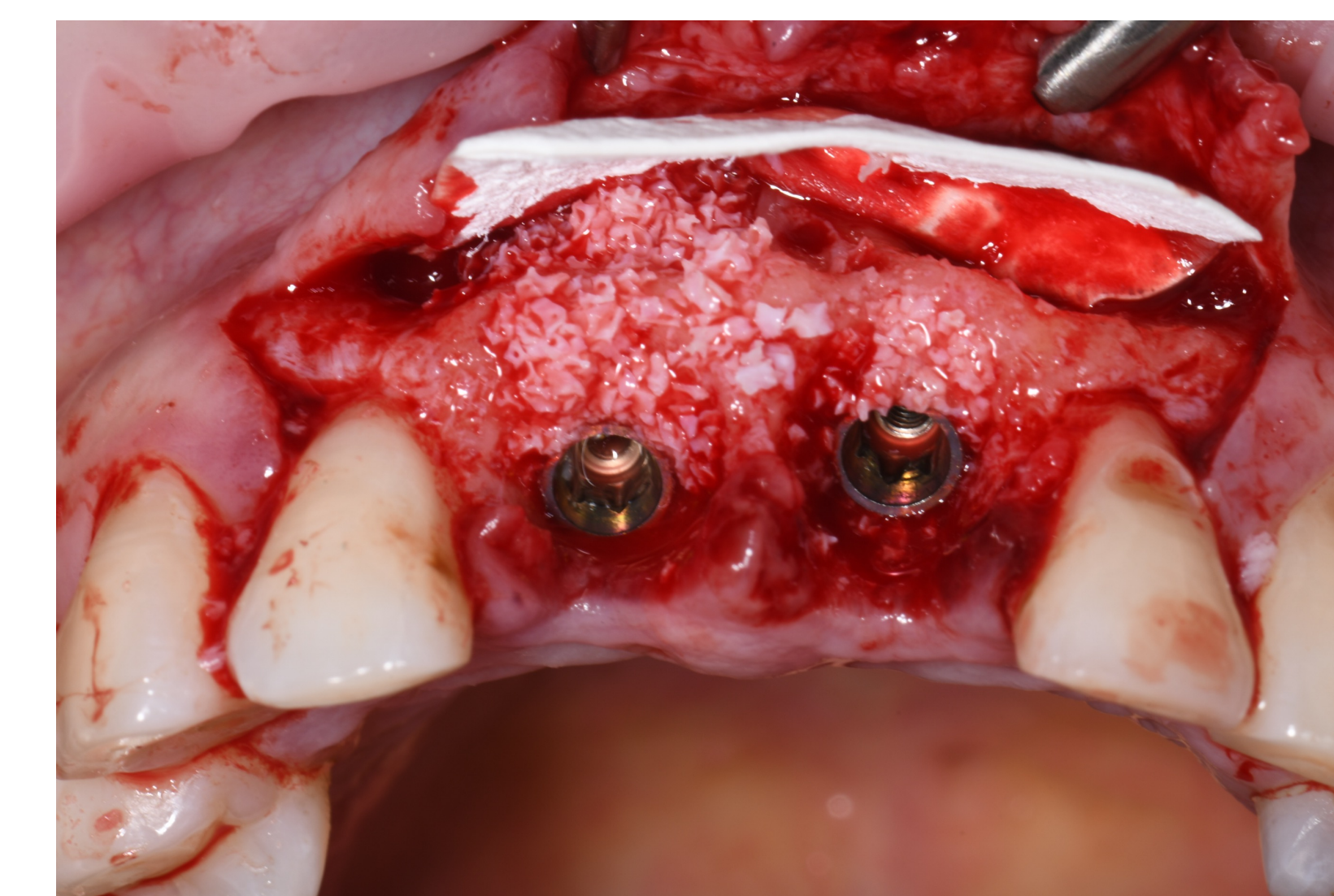


Fig 7 Bone substitute grafting

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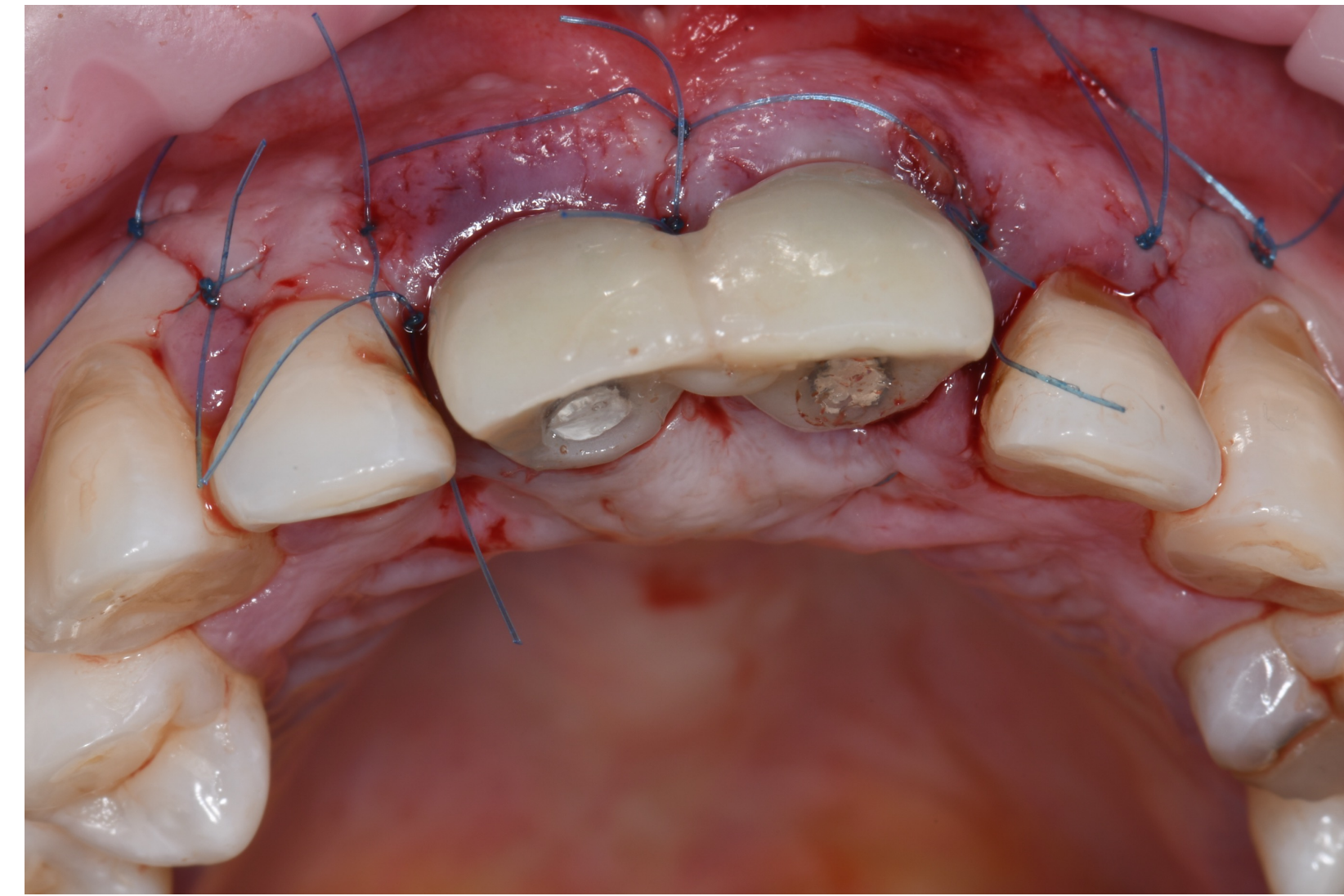
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Fig 8 Wound closure and temporary restoration



Post-operation

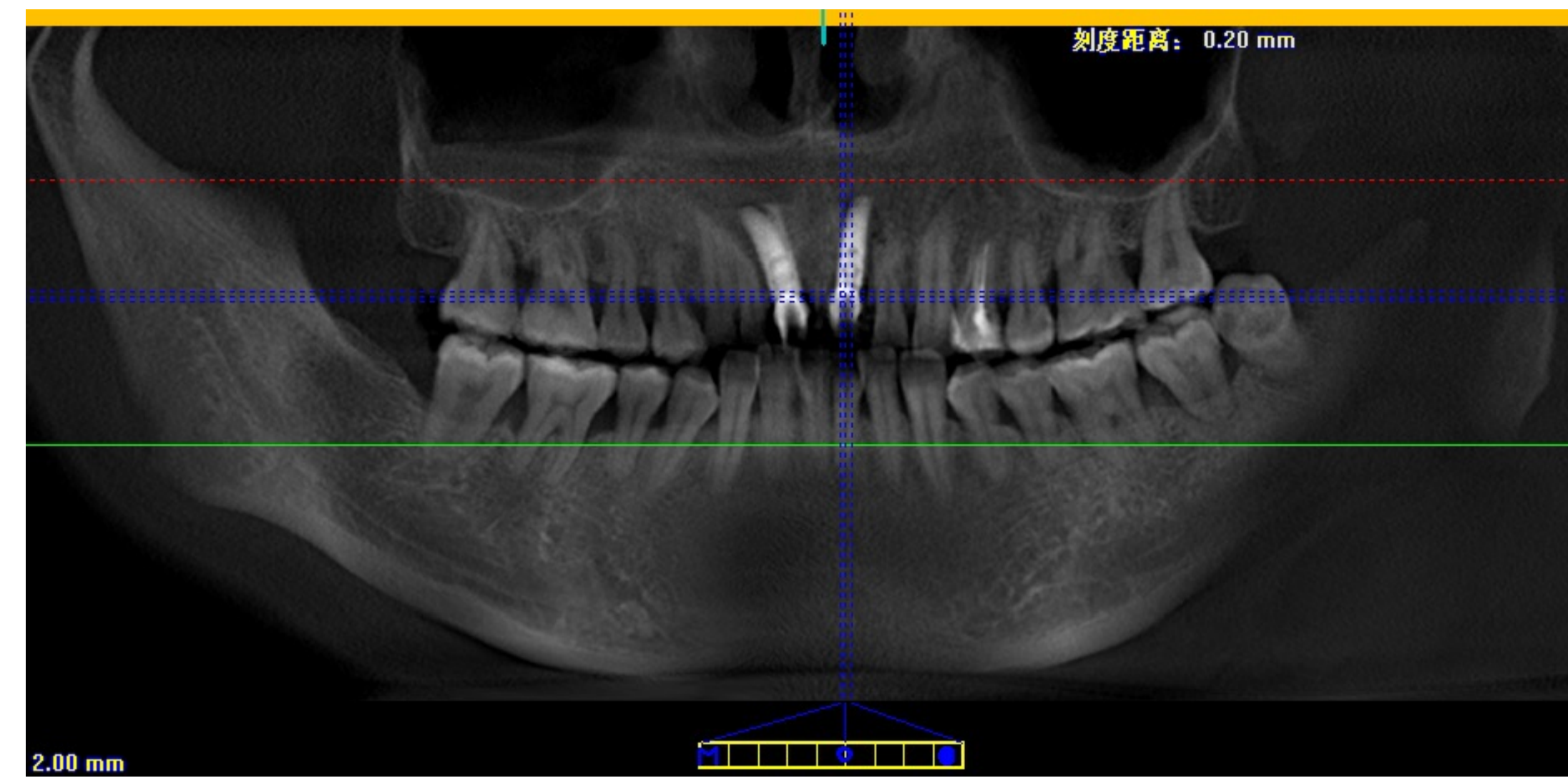


Fig 9 CT scan post-operative

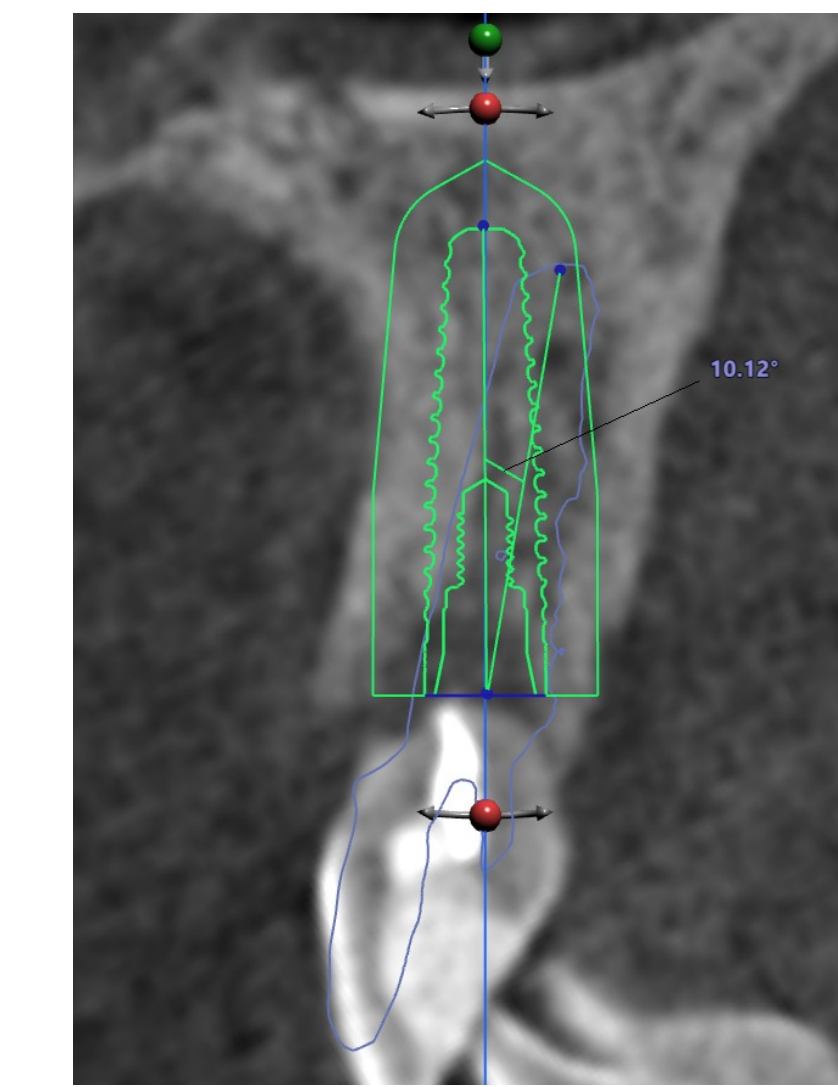


Fig 10 Accuracy assessment

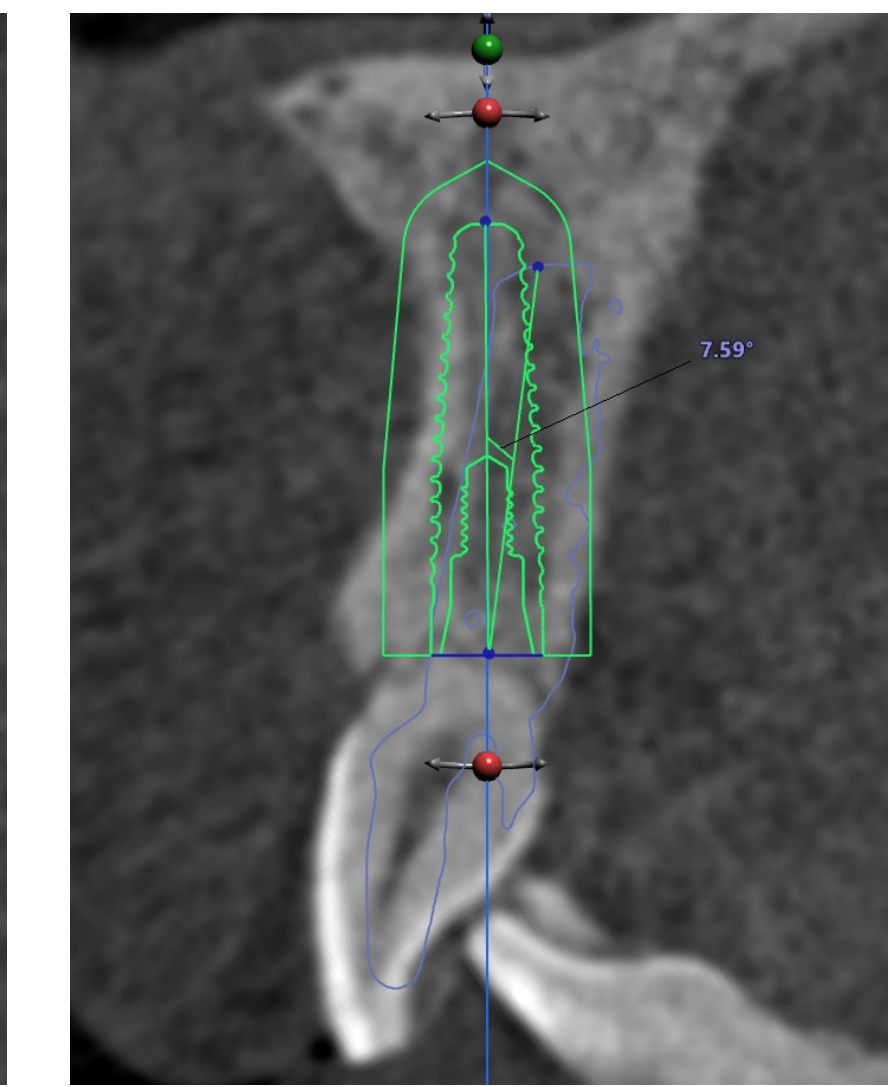


Fig 11 Follow up radiograph



Stage II



Fig 12 6 months revisit post-operation



Fig 13 Adjustment of the temporary restoration



Fig 14 Gingival contour before definite impression

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Definitive Restoration



Fig 15 Delivery of definitive restoration

RESULTS

The drill guide did not guarantee 100 percent accuracy of implant insertion. As we assessed post operation, the angular deviation was 7.59° at #8 while 10.12° at #9. However, with some minor modifications, the pre-manufactured temporary restoration was successfully delivered. Furthermore, through the traditional adjustment of the provisional crown after healing stage, we managed to reshape the gingival line and eventually achieved good esthetic outcome.

CONCLUSION

Pre-manufactured temporary restoration combined with digital-designed surgical guide is a promising and predictable solution for the immediate implantation and immediate restoration of maxillary incisors.

REFERENCES

1. Tiziano Testori, Tommaso Weinstein, Fabio Scutellà, Hom-Lay Wang, Giovanni Zucchelli. Implant placement in the esthetic area: criteria for positioning single and multiple implants. Periodontol 2000. 2018 Jun;77(1):176-196.
2. Jiabao Zhuang, Yingying Wang, Yingshuang Song, Fang Qu, Chun Xu. The application of individualized abutment-crown integrated provisional restoration in optimizing the peri-implant soft tissue contour in the esthetic zone. J Esthet Restor Dent. 2021 Jun;33(4):560-566.