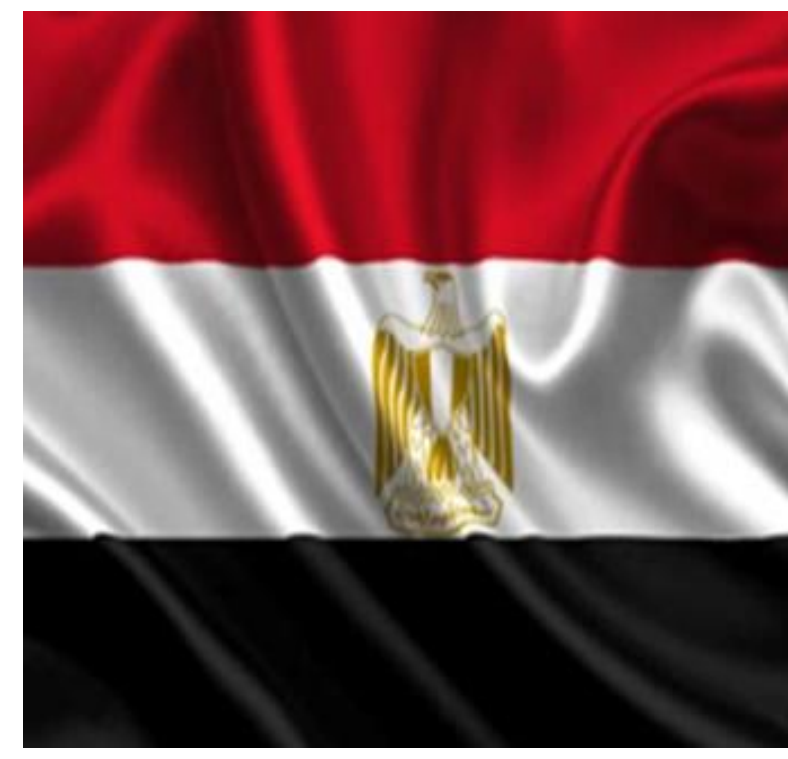
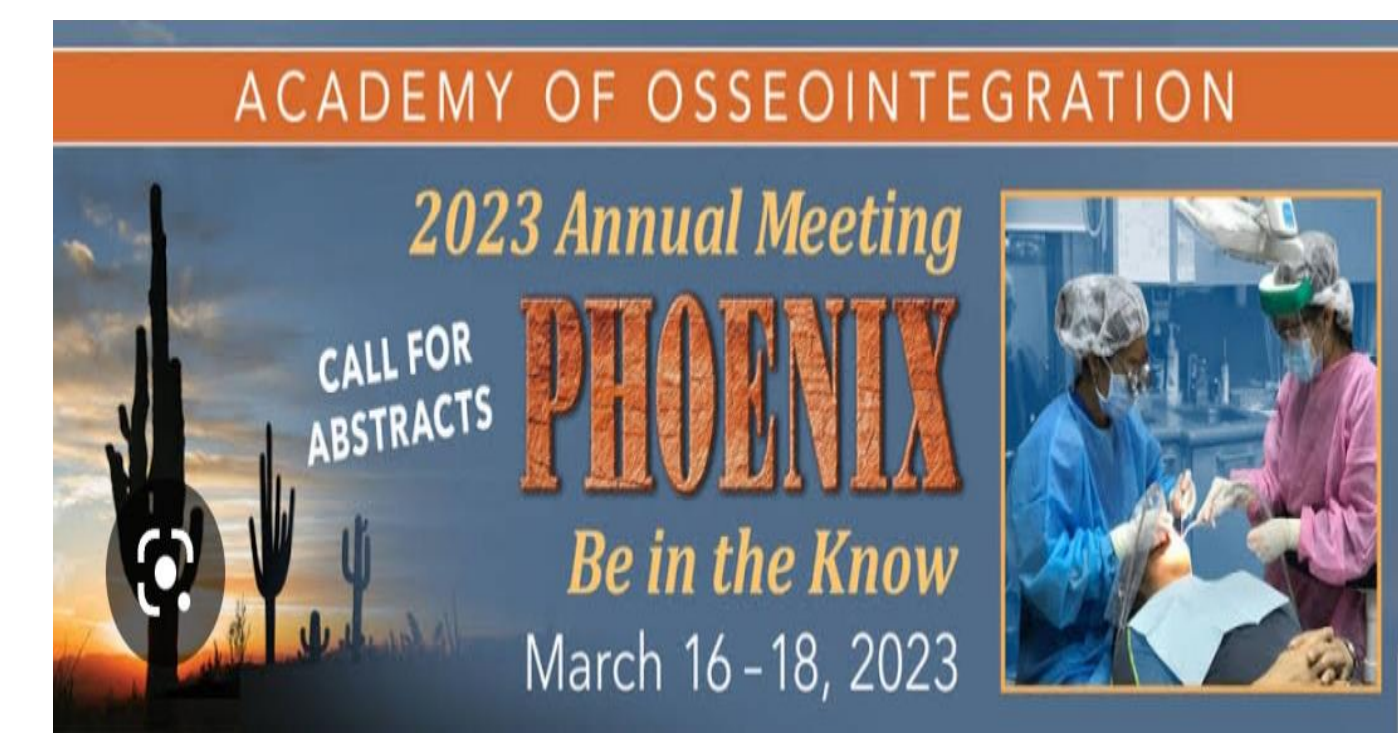




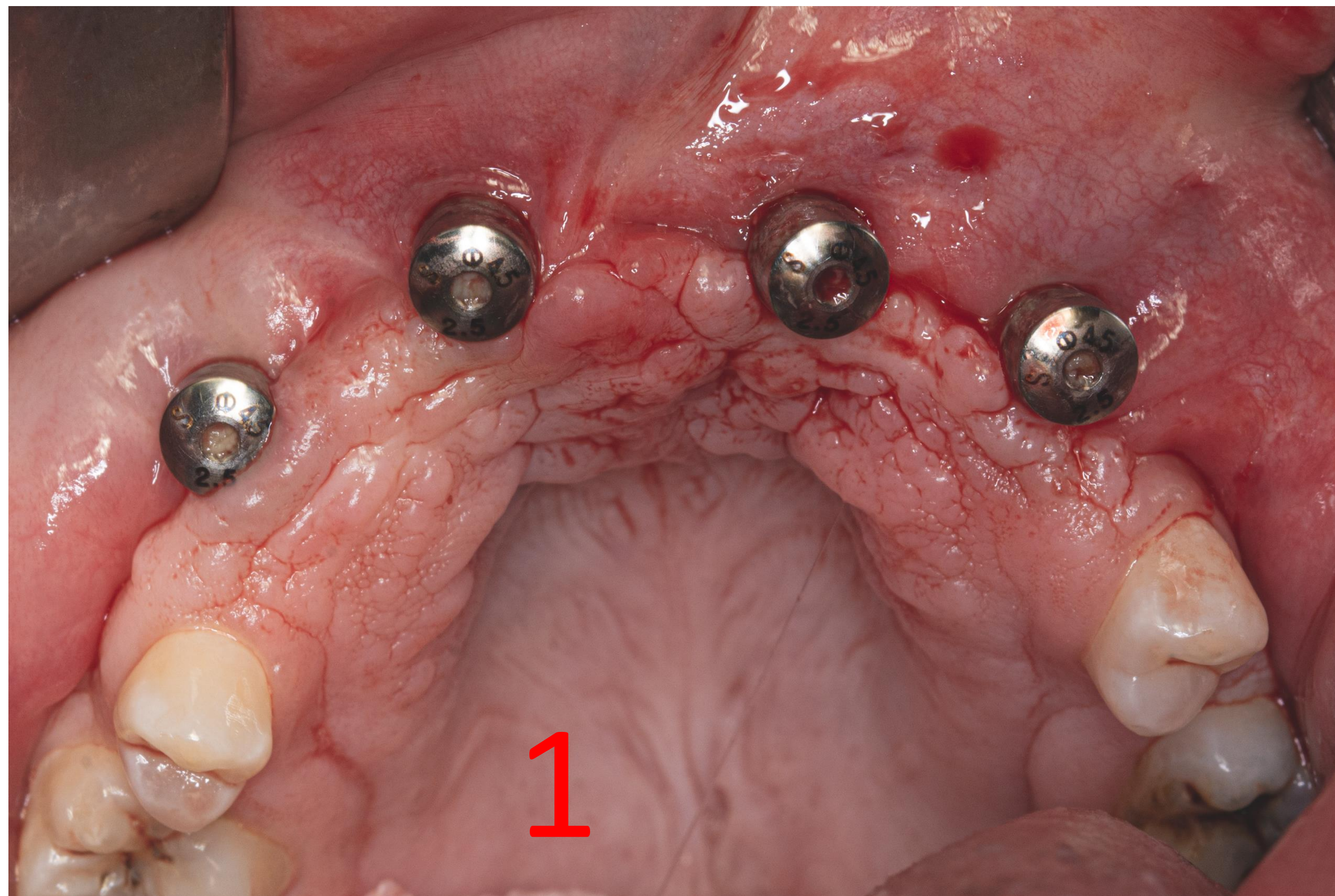
Computer Guided Free Gingival Graft Harvesting Using Patient Specific Guides (PSGs)

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- **Introduction:** Free gingival grafting is a widely used technique for the enhancement of the quality of the soft tissues by increasing the keratinized portion of the gingiva either in implant related sites or following massive augmentations to compensate for the routine loss of keratinized gingiva due to flap advancement. The aim of this study was to describe and validate the accuracy of computer guided free gingival grafting



Figures 1,2: Intraoral preoperative view and Virtual Design of the guide

Methods: Six patients with previously augmented anterior maxillary alveolar ridges in which implants were already placed were recruited one month after the implant insertion to prepare the soft tissues for the prosthetic phase. Casts were prepared and scanned then virtual planning started by measuring the dimensions of the recipient site followed by designing the guide with a stackable window and a 2 mm increase in the obtained dimensions. Moreover, holes were made in the interdental festoons for wire fixation. Intraoperatively the recipient site was prepared first by raising a split thickness flap in a supra-periosteal plane after making a three lines incision. The flap was apically repositioned and sutured to the periosteum. The guide was installed and fixed then the outline was followed using a 15c blade. After harvesting, the free gingival graft was sutured over the prepared recipient site to the periosteum while the guide containing a Coe-pack was place with the window covered to protect the donor site



Fig 3: Virtually designed guide and after 3D printing and intraoral view of the guide in-place

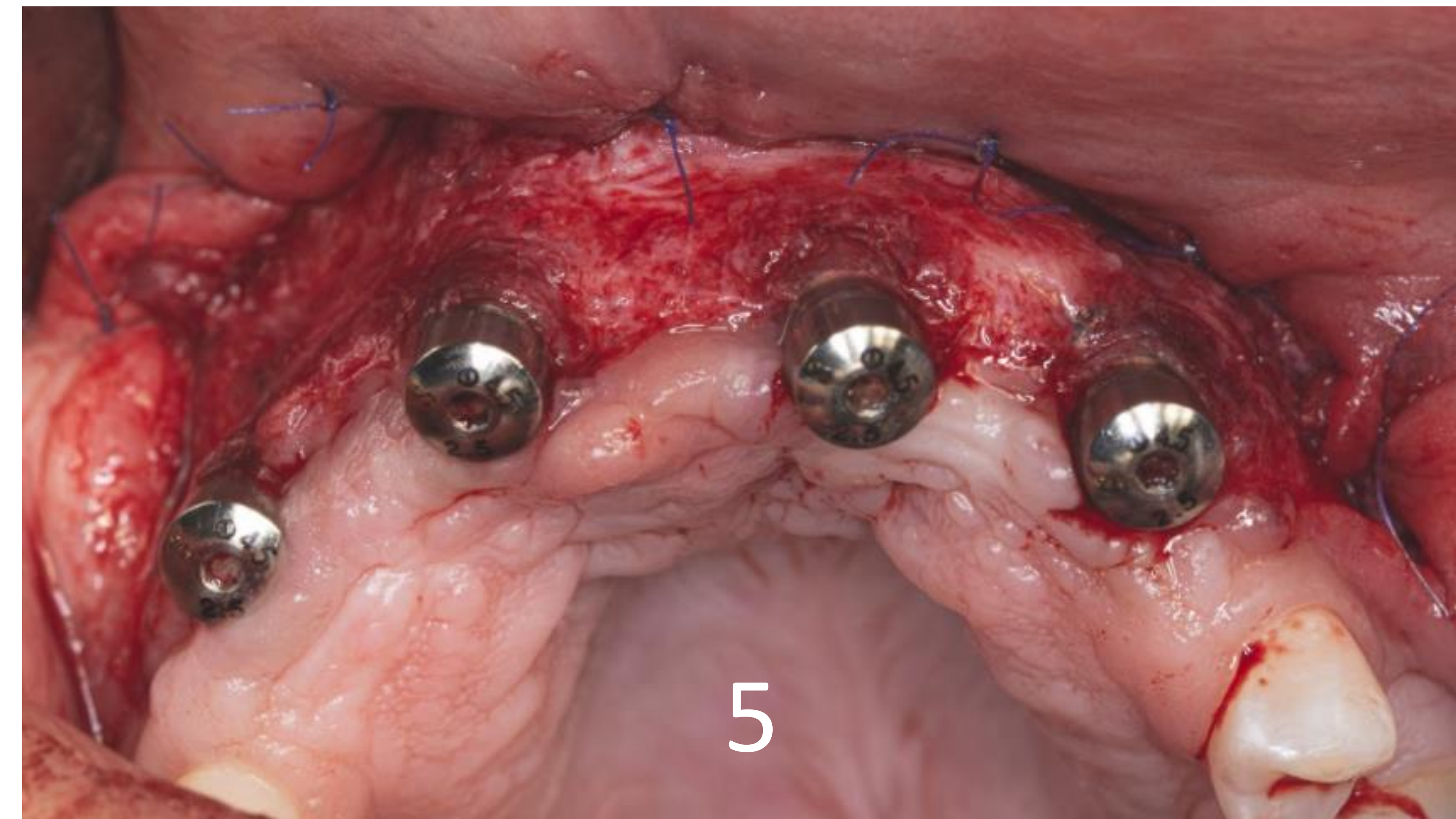


Fig 5: Donor site preparation

Results: All the donor sites healed perfectly with no postoperative bleeding or pain. The recipient site showed full healing of the free gingival graft and sutures were removed after ten days

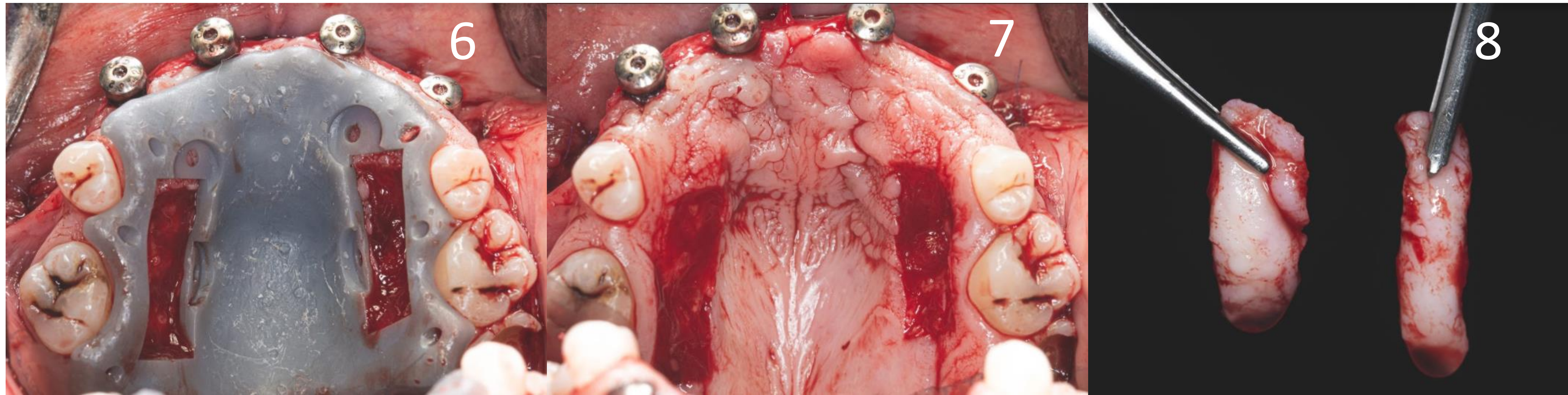


Fig 6: intraoperative photo of the guide in place

Fig 7: The palatal donor sites after harvest

Fig 8: The harvested free gingival grafts

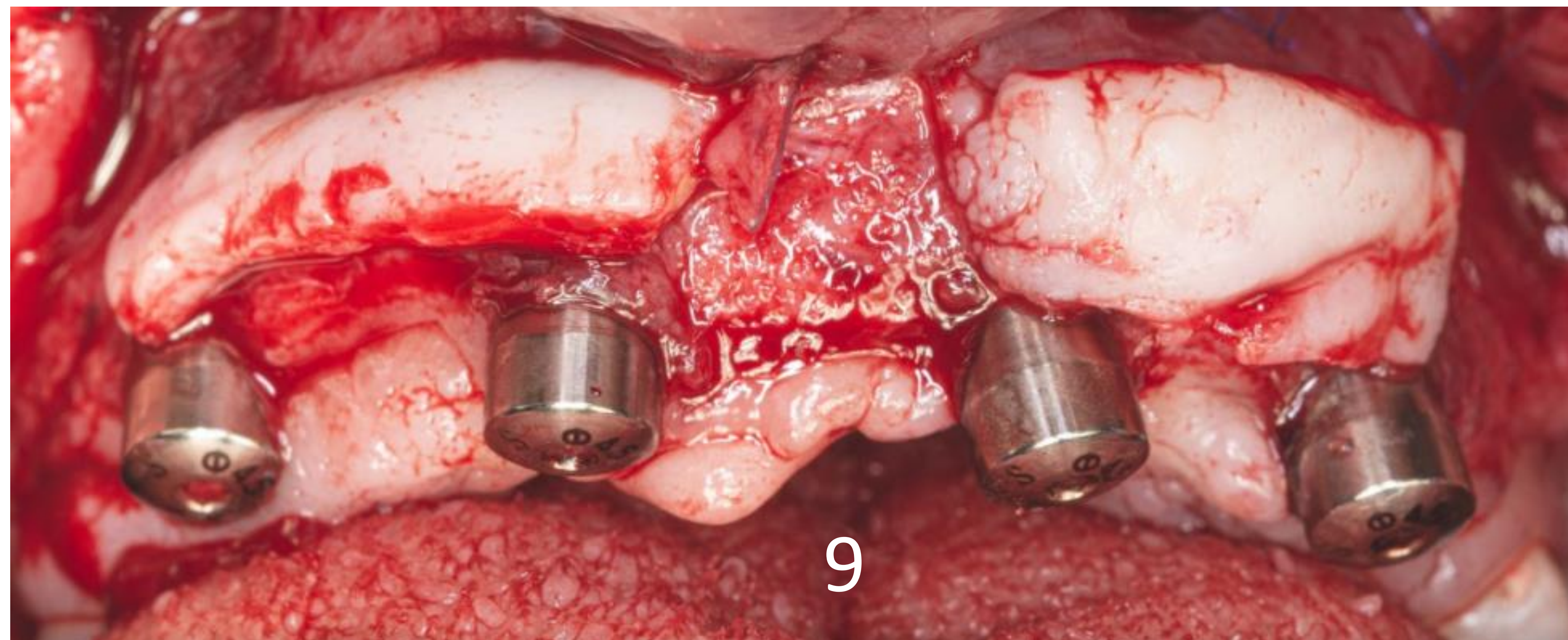


Fig 9: The free gingival grafts in place

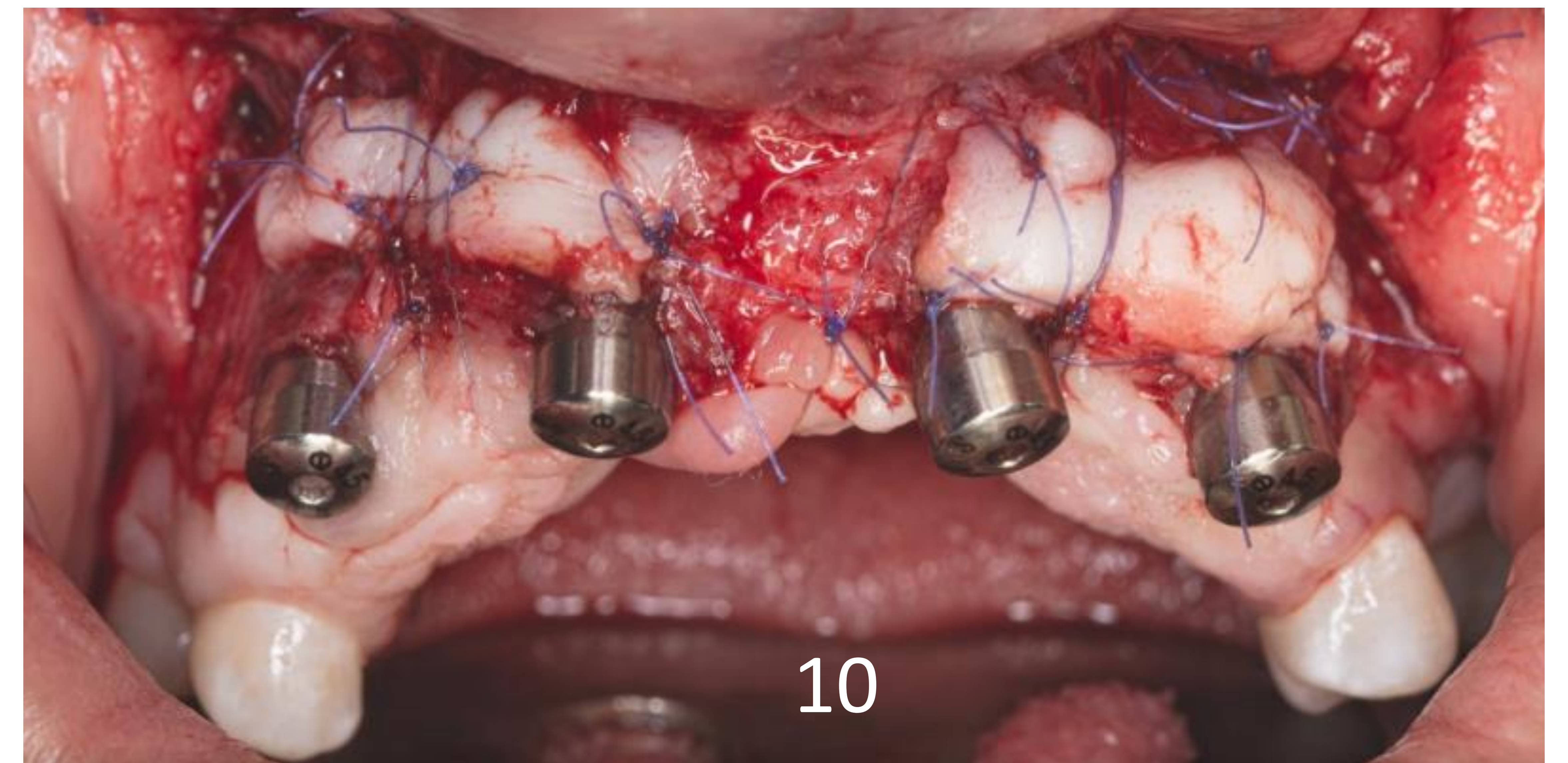
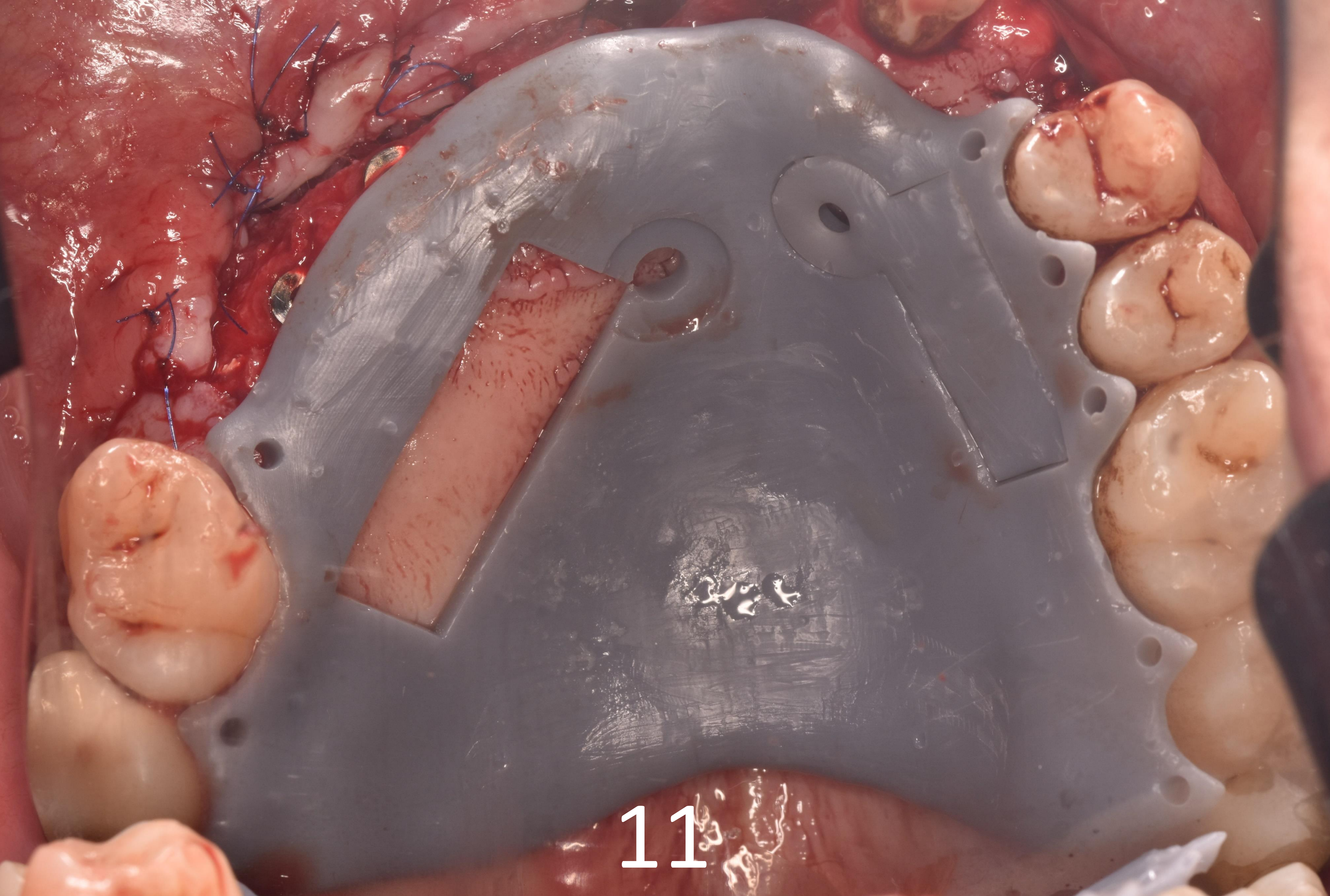
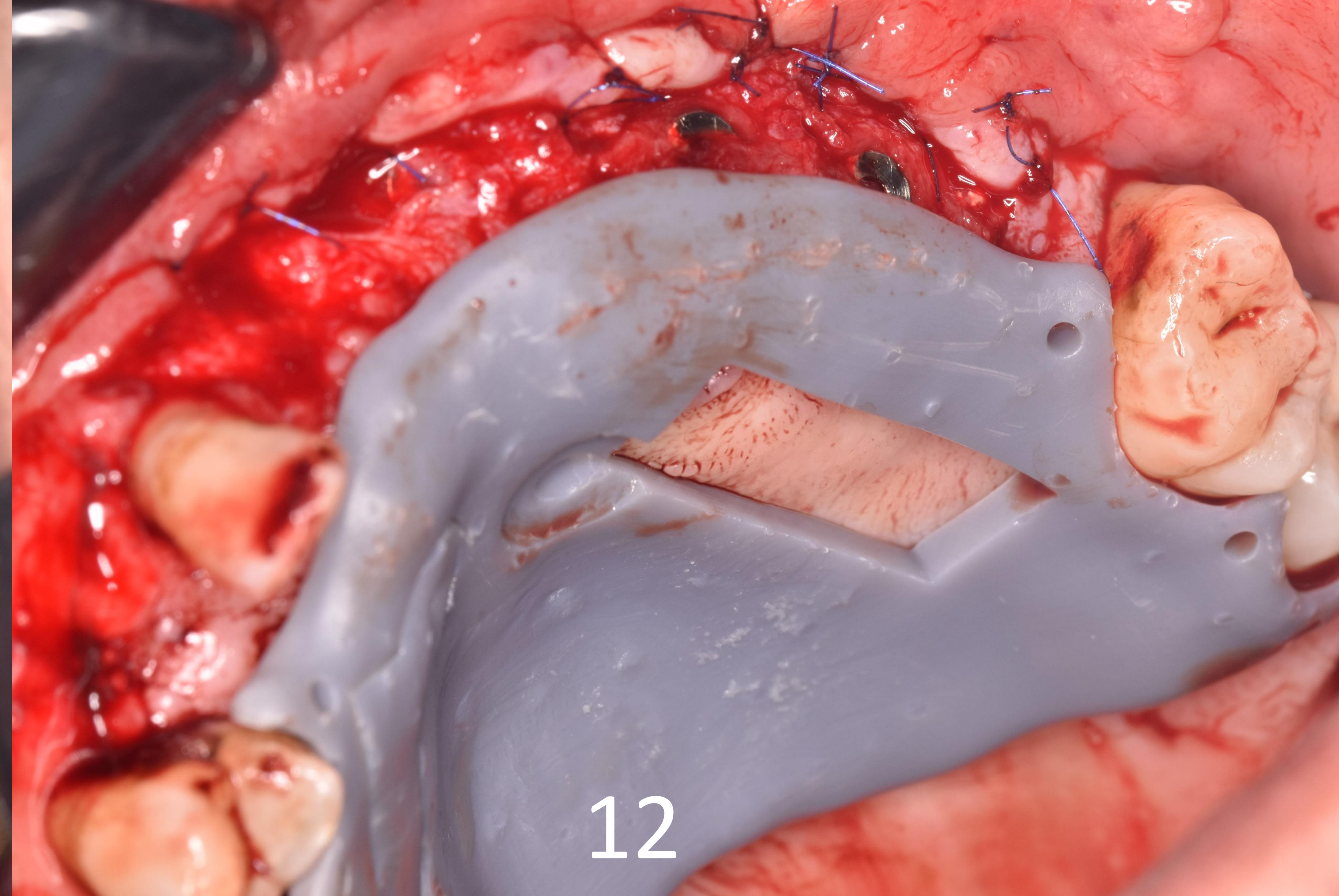
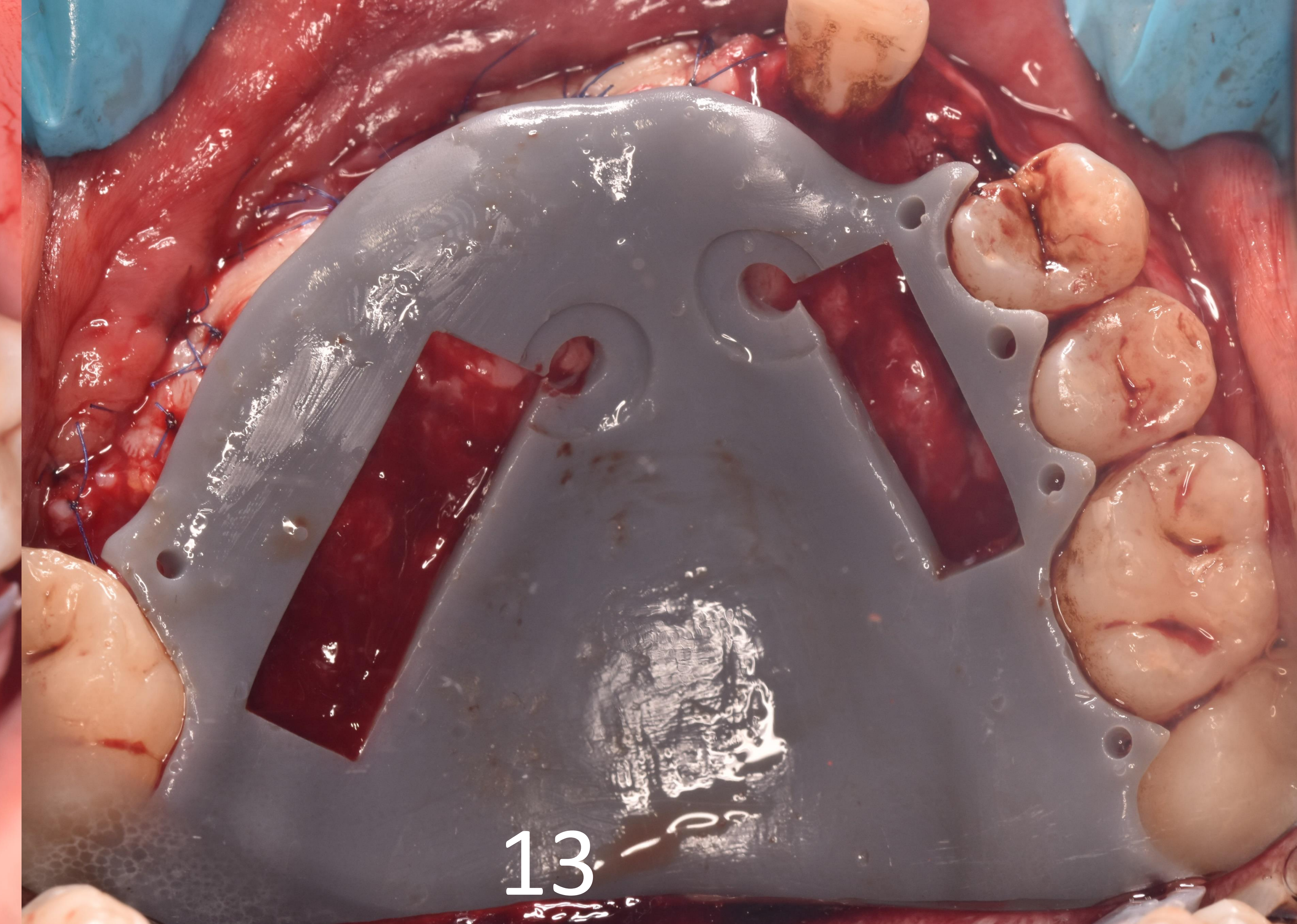
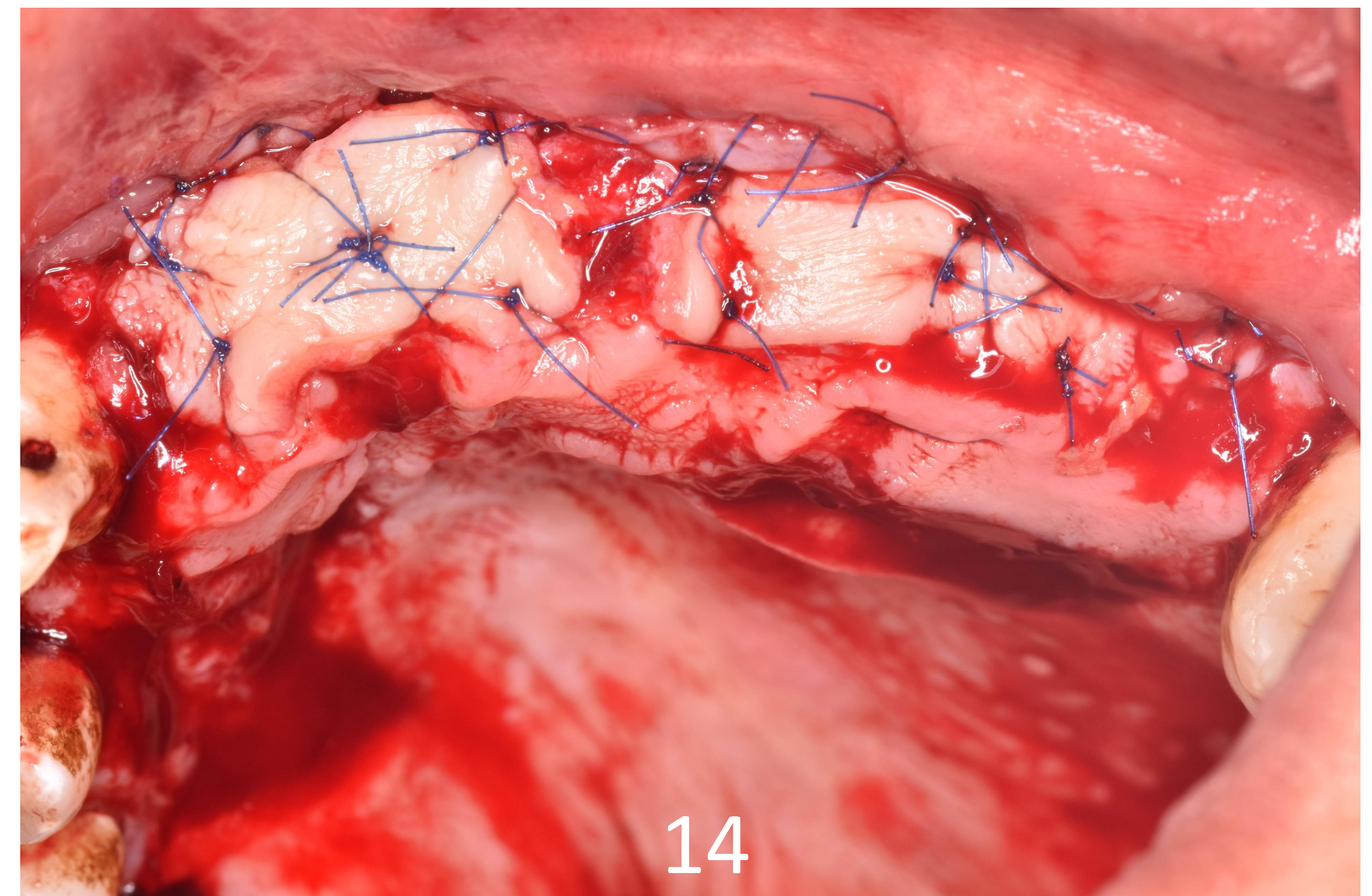


Fig 10: After suturing



Figures 11, 12, 13, 14: same steps from a different case

Conclusion: Computer guided free gingival graft harvesting is safe for the greater palatine artery and convenient regarding the required graft volume and postoperative protection of the donor site.

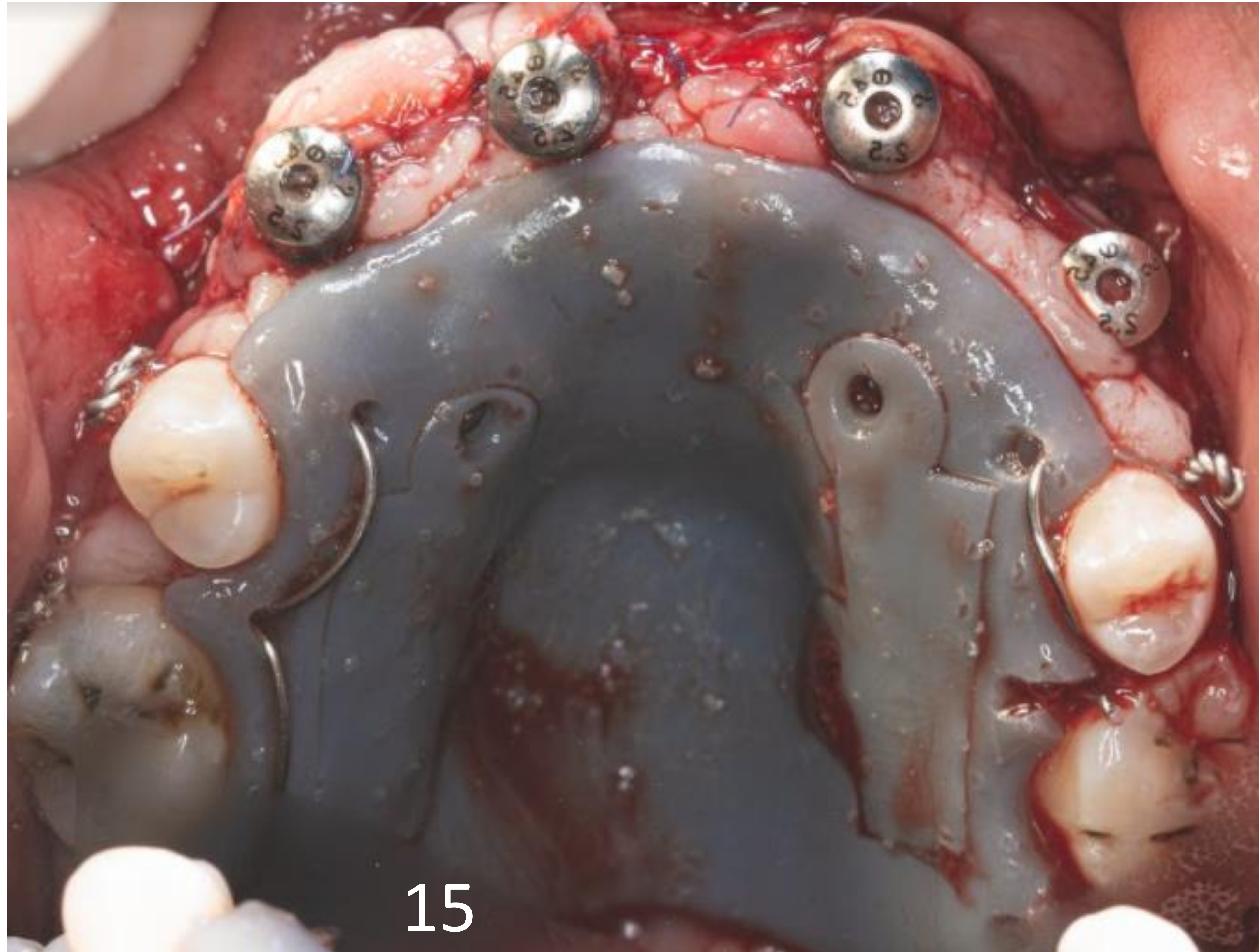
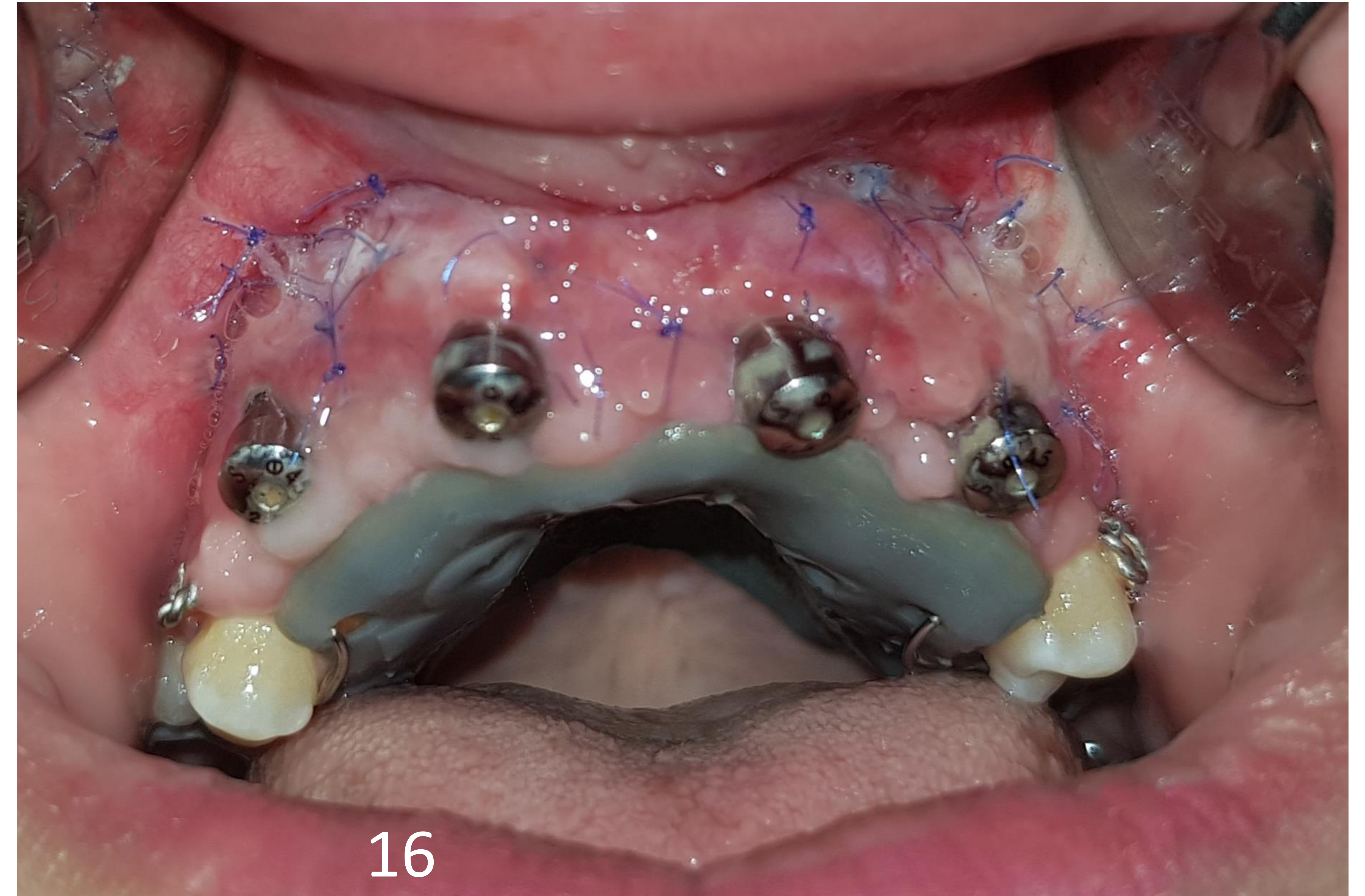


Fig 15: The patient specific guide fixed to the surrounding teeth with 0.5 mm wires and containing Coe-pack with the windows covered to protect the donor site



Figures 16: One week clinical picture showed healing of the grafted sites