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INTRODUCTION: The placement of dental implants is widely recognized as the contemporary gold standard for tooth replacement therapy, providing an effective and predictable solution¹. However, the growing prevalence of implant procedures has led to a proportional increase in associated complications, both in the early and late stages, that may potentially compromise the long-term success of the treatment. Implant fracture is a rare but serious form of late implant failure, occurring after successful osseointegration and functional loading. This condition is regarded as a mechanical complication, frequently associated with excessive occlusal forces. These forces, involving a combination of tensile and compressive stresses, can exceed the fatigue threshold of the implant material and may be accompanied by significant bone loss². The risk of implant fracture is also higher with cantilevers, angular loads, parafunctions, and prolonged use. Parafunctional habits need a multidisciplinary approach, including treatment with occlusal protections, avoidance of lateral contacts, and pursuit of appropriate occlusal balance³. Although implant fractures are uncommon, it is essential that healthcare professionals are familiar with their typical signs to enable timely recognition and intervention. These signs may include inflammatory responses, bone loss, screw loosening, and mobility of the implant-supported restoration⁴. Despite accounting for a relatively small proportion of late implant failures (6.2%)⁵, implant fractures require complex clinical management. Treatment involves explantation and potential bone regeneration to adequately prepare the site for future rehabilitation⁶.

AIM: The aim of the clinical case is to report a rare implant fracture complication in implantology and clarify the best approach and prevention methods.

MATERIALS AND METHODS: The poster presents a clinical case involving a late complication related to dental implant in a 42-year-old healthy female patient who had recently been rehabilitated with an implant in the posterior maxillary region. The patient reported localized pain and a sensation of implant mobility. A comprehensive clinical and radiographic evaluation was conducted, and did not show any signs of bruxism and excluded the prosthetic components as the origin of the mobility. The assessment revealed peri-implant bone loss, raising suspicion of a potential implant fracture.



Fig 1. Initial photograph | Lack of width and volume of keratinized mucosa

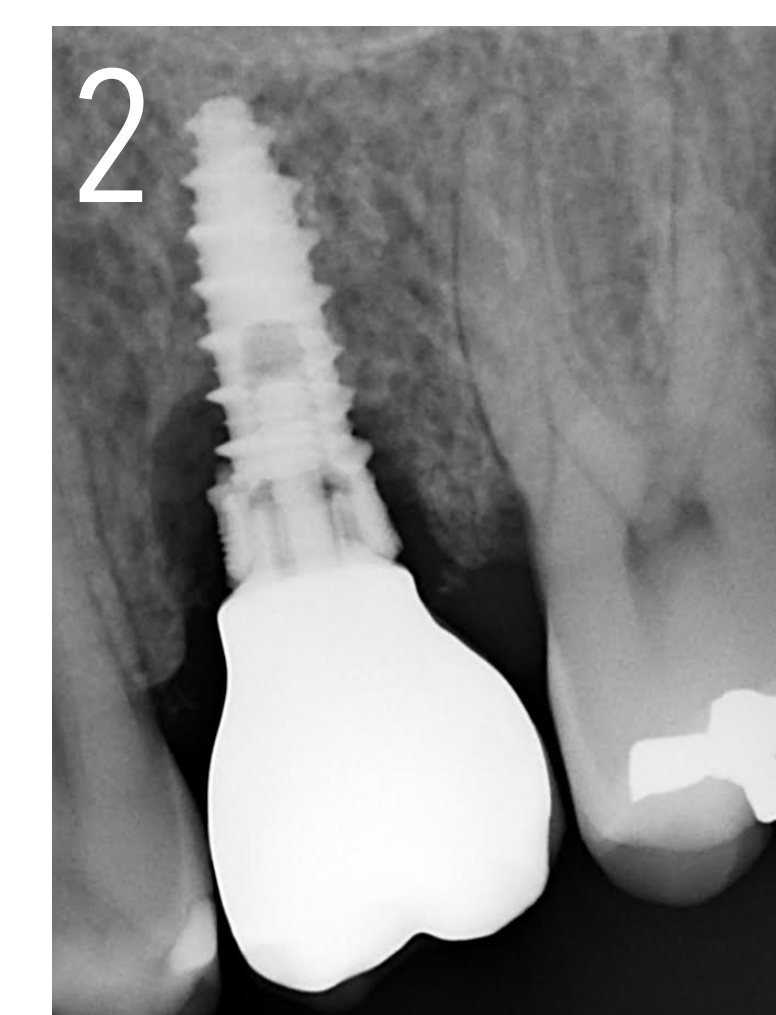


Fig 2. Initial X-ray | Regular implant, internal connection, screw-retained crown | Vertical bone defect

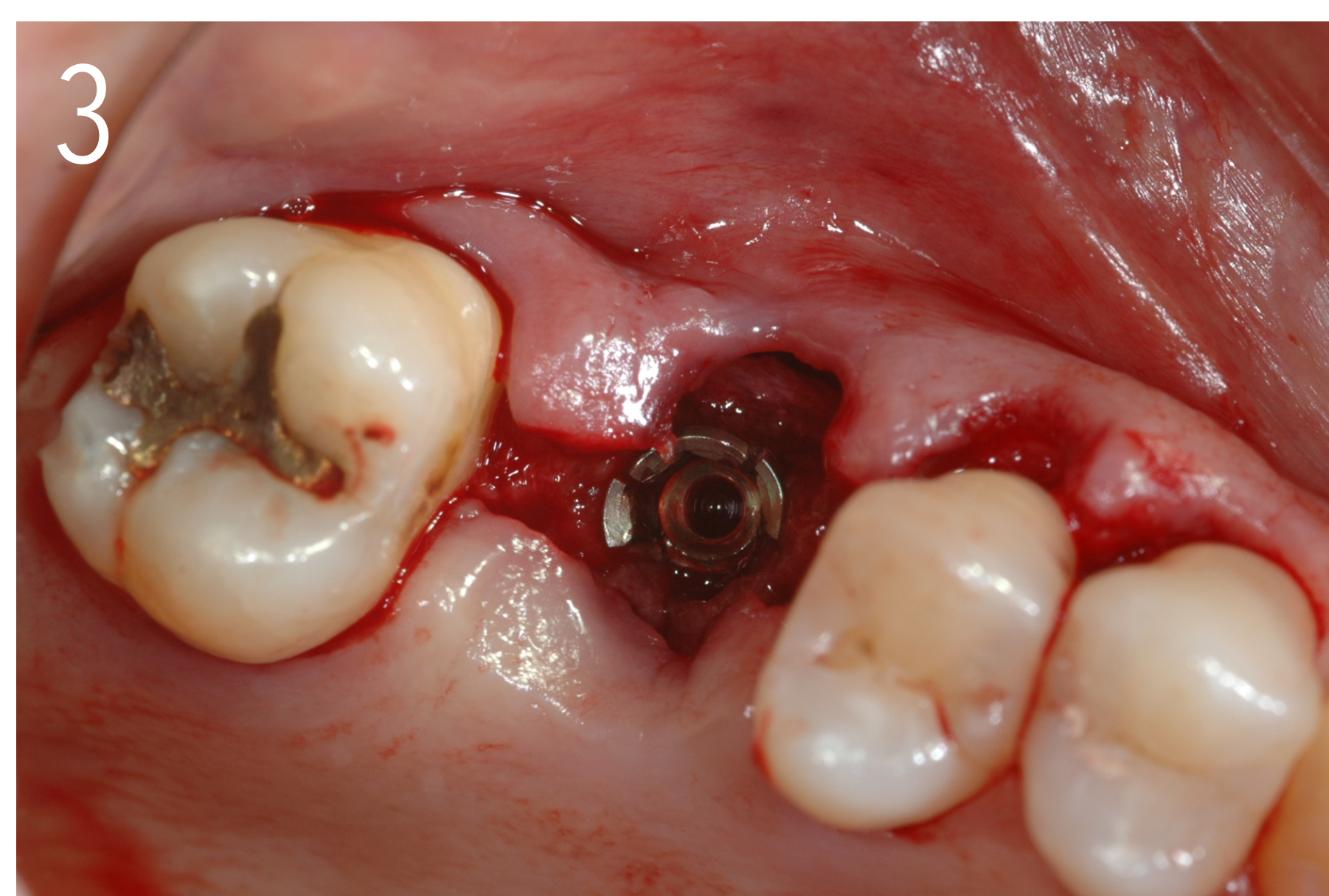


Fig 3. Supracrestal incision + intrasulcular incision | 15C blade

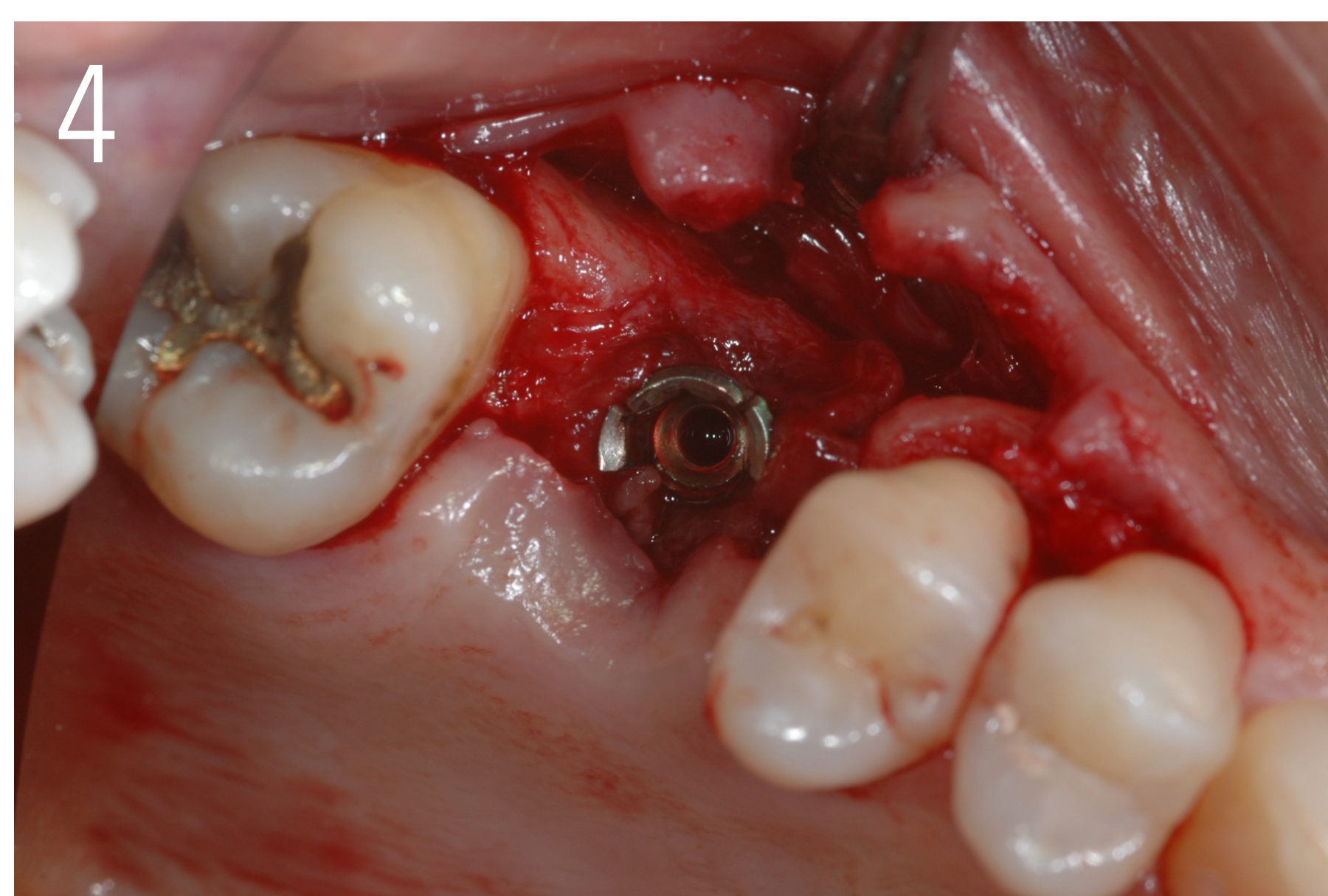


Fig 4. Full thickness flap

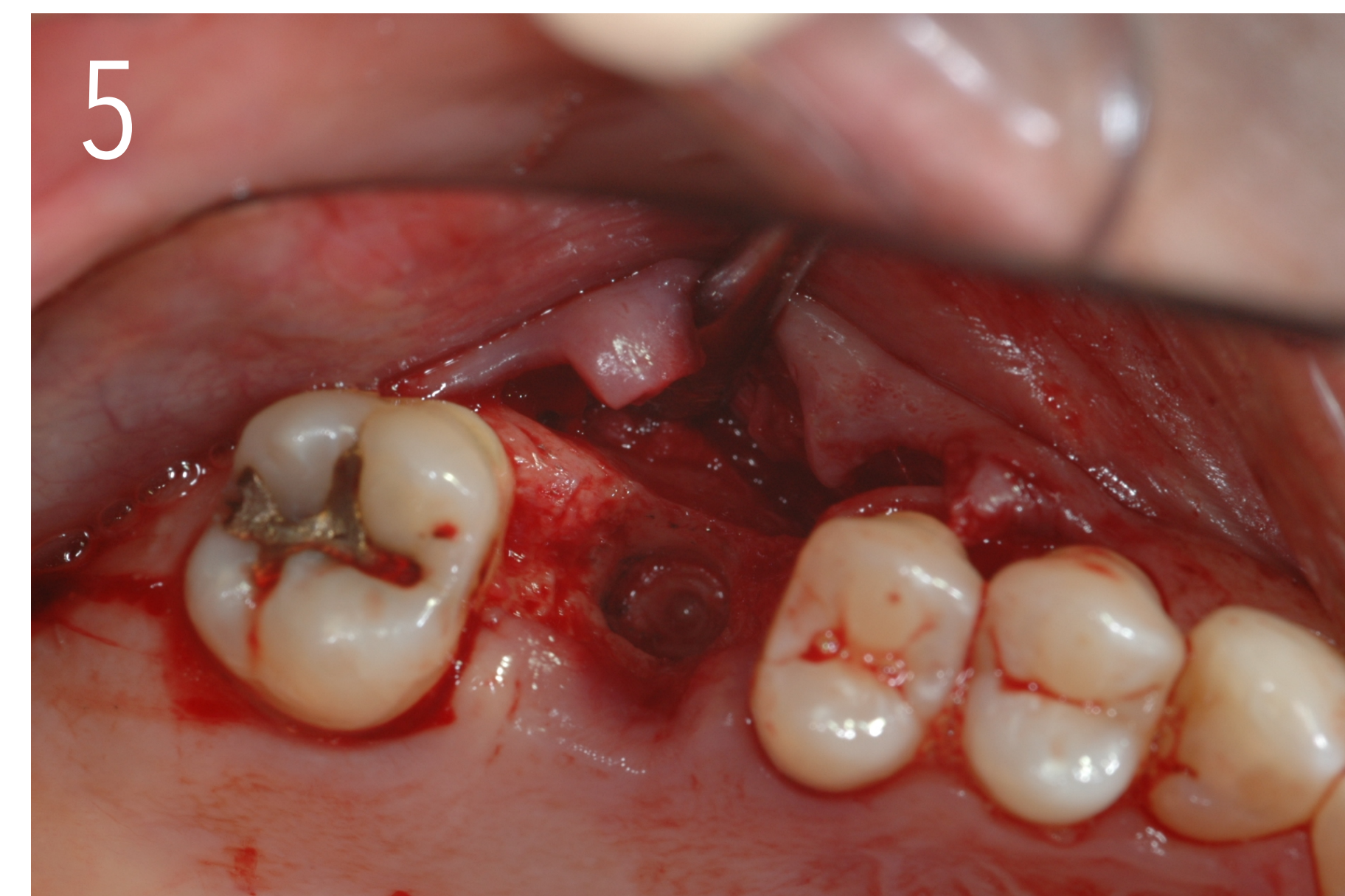


Fig 5. Removal of the implant with a trephine



Fig 6. Xenograft placement

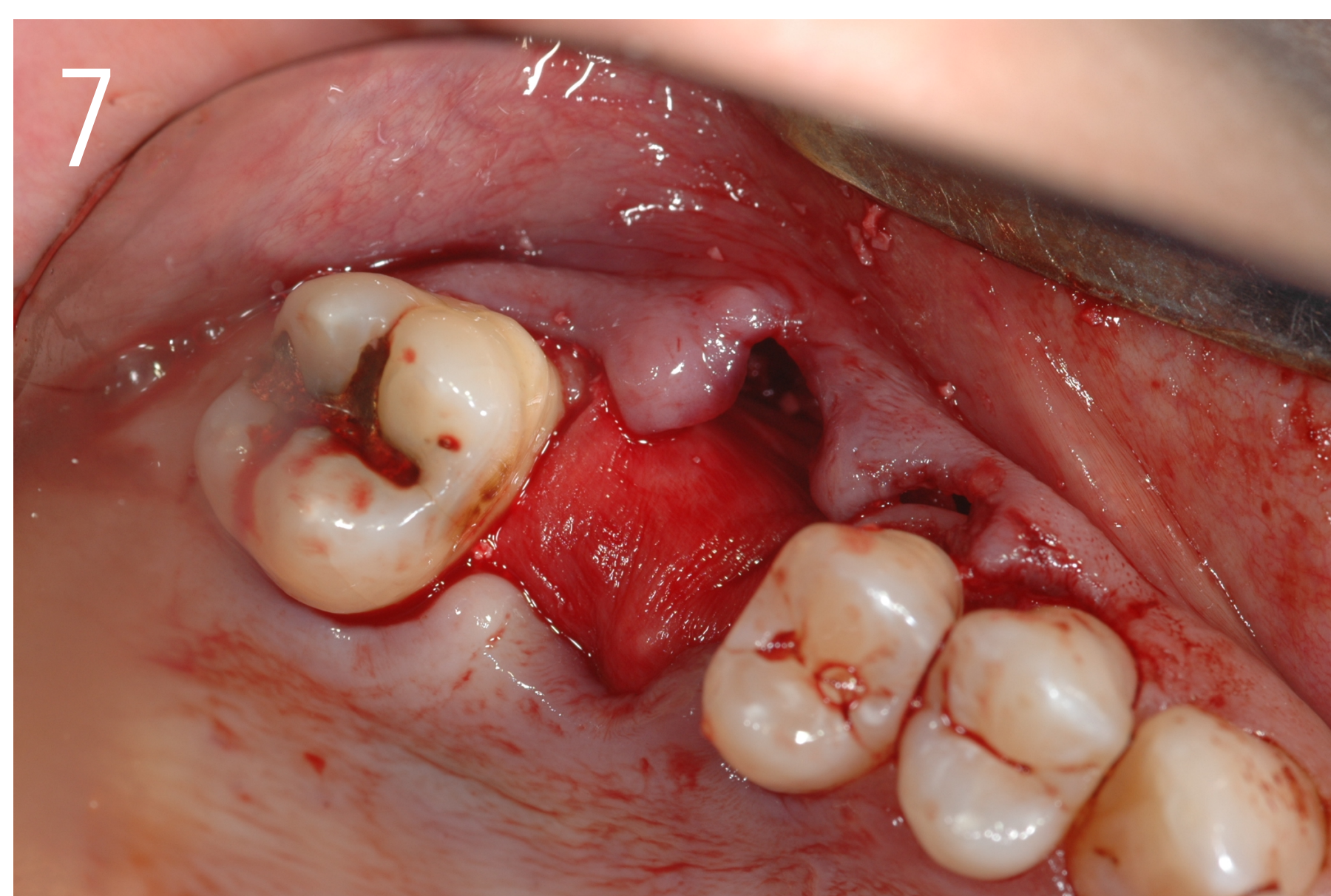


Fig 7. Collagen membrane placement fixed with pins



Fig 8. Connective tissue graft harvested from palatal flap

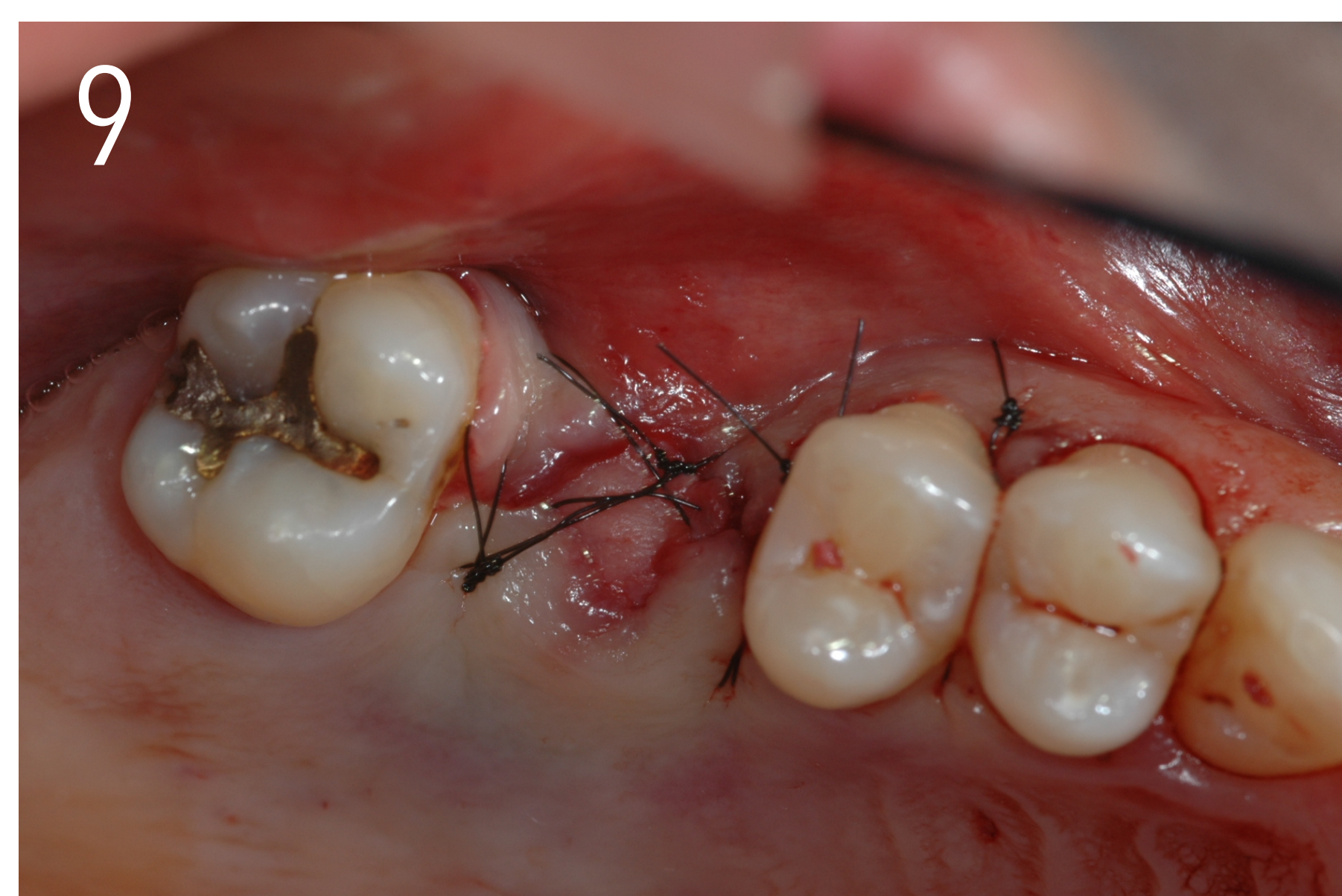


Fig 9. Suture with nylon 5/0



Fig 10. 4 month follow-up

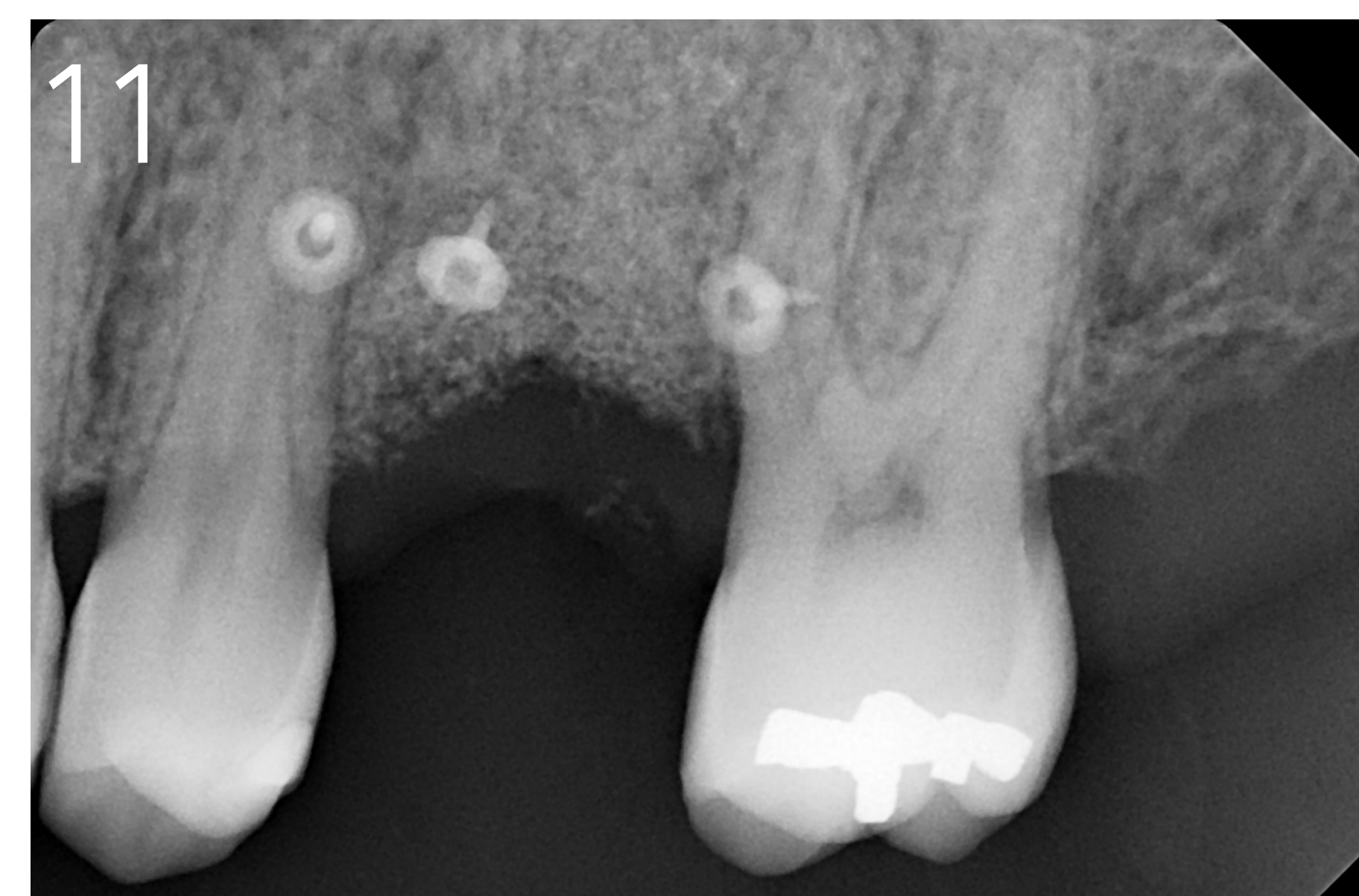


Fig 11. 4 month follow-up X-ray

RESULTS & DISCUSSION: After initial non-surgical management, a surgical procedure was performed, during which an implant fracture was confirmed as the underlying cause of the mobility. Upon definitive diagnosis, the fractured implant was explanted using a trephine as reverse torque was unsuccessful. Then guided bone regeneration was carried out to prepare the site for future implant placement and ensure sufficient bone availability. A connective tissue graft harvested from the palatal flap was used to protect the regeneration area. Future implant rehabilitation will be carefully examined to ensure correct occlusion and a periodic analysis will be performed of the possible existence of parafunctional habits, thus minimizing the risk of implant fracture.

CONCLUSION: Implant fracture is a rare complication with the potential to jeopardize the long-term success of dental implants. It is therefore vital for clinicians to ensure optimal conditions prior to implant placement in order to minimize the risk of such complications. It is imperative to employ a multidisciplinary approach, encompassing individualized planning, optimal prosthetic design, and early diagnosis, to ensure the long-term success of implant treatment.

REFERENCES

