

Dental Rehabilitation of Full Arch Maxilla With Local Injection Of Vitamin D At The Implant Osteotomy Sites And Immediate Prosthetic Loading: A Case Report

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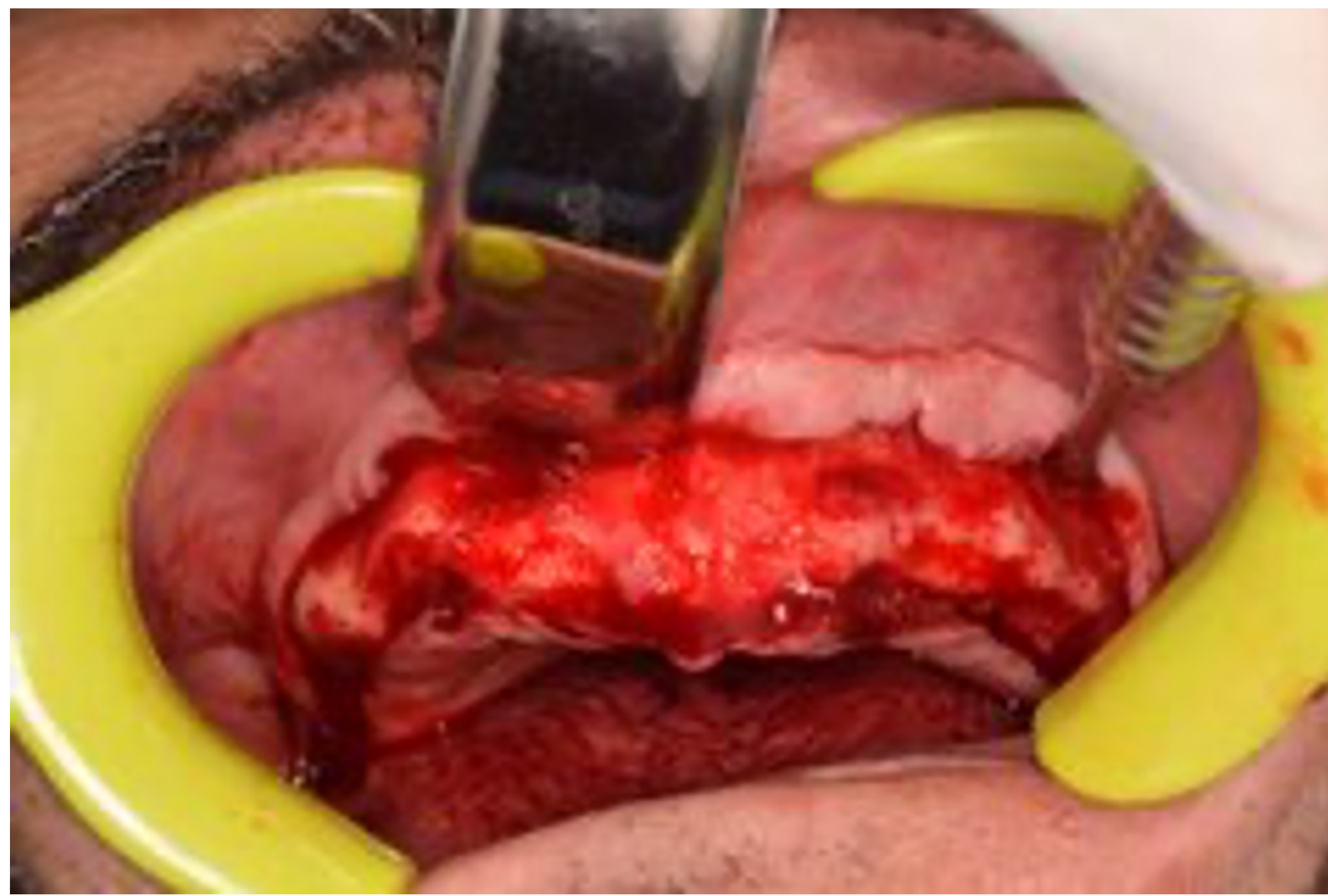
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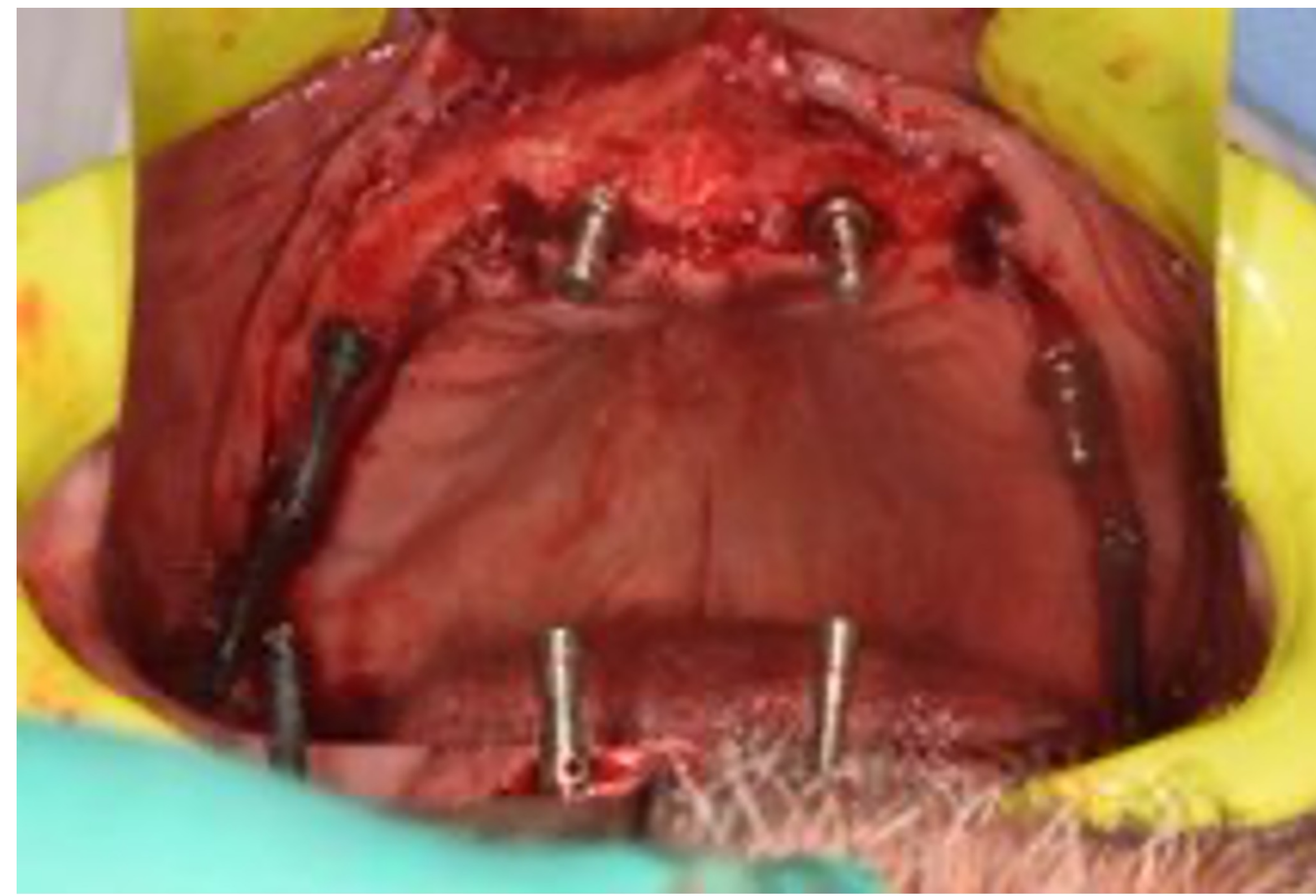
Introduction: The aim of this case report is to report the osseointegrative effect of vitamin D local injection at the implant osteotomy sites for a case of full-arch maxillary dental implant placement and immediate prosthetic rehabilitation on six submerged endosseous implants following the standard protocol.



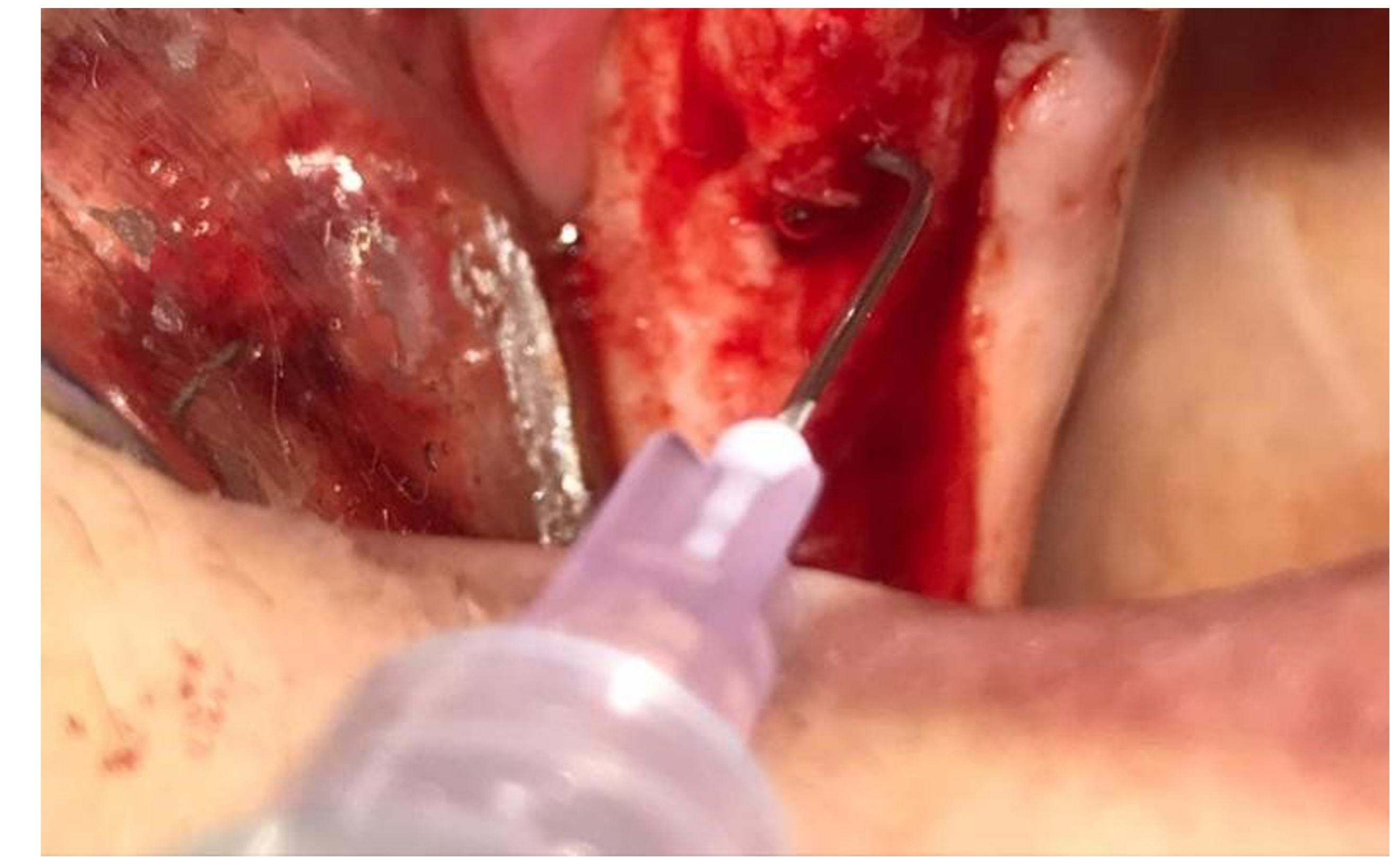
Methods: A full thickness mucoperiosteal flap was performed to a 54 year old male patient with vitamin D deficiency, hyperparathyroidism and osteoporosis. 6 dental implants (Dual) were placed using the standard protocol of sequential osteotomy site preparation with vitamin D local infiltration at all of the prepared osteotomy sites with Devarol-S. Flap closure was done using 3-0 proline sutures.



Full thickness flap elevation



Paralling pin showing the proposed implant sites



Vitamin D injection at the osteotomy sites

Vitamin D enhances after binding to the Vitamin D Receptor-RXR (VDR-RXR) the expression of epithelial Calcium Channels and Calcium-binding- proteins (Christakos et al.,2011). Vitamin D also inhibits the action of Parathyroid hormone through activation of the Vitamin D Receptor and the enzyme CYP27B1(Ritter et al.2006). Vitamin D acts directly on the Vitamin D receptor which inhibits RANKL activity (Takasu et al.,2006). Vitamin D also inhibits the expression of NFATc1 and increased expression of Interferon B which inhibits local osteoclast activity (Sakai et al.,2009).



Reinforced PEEK full arch temporary bridge



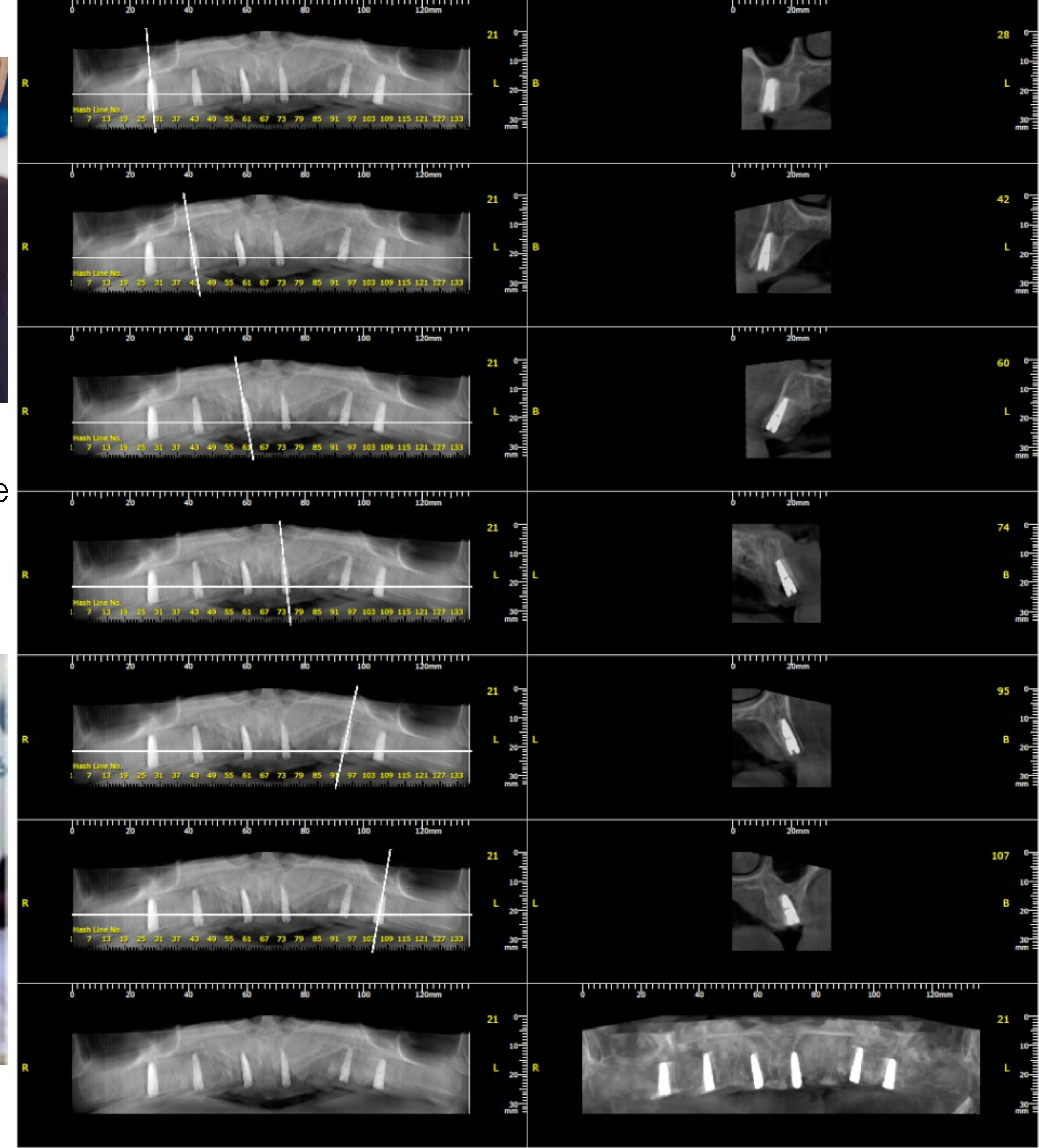
Try in of the PEEK temporary bridge



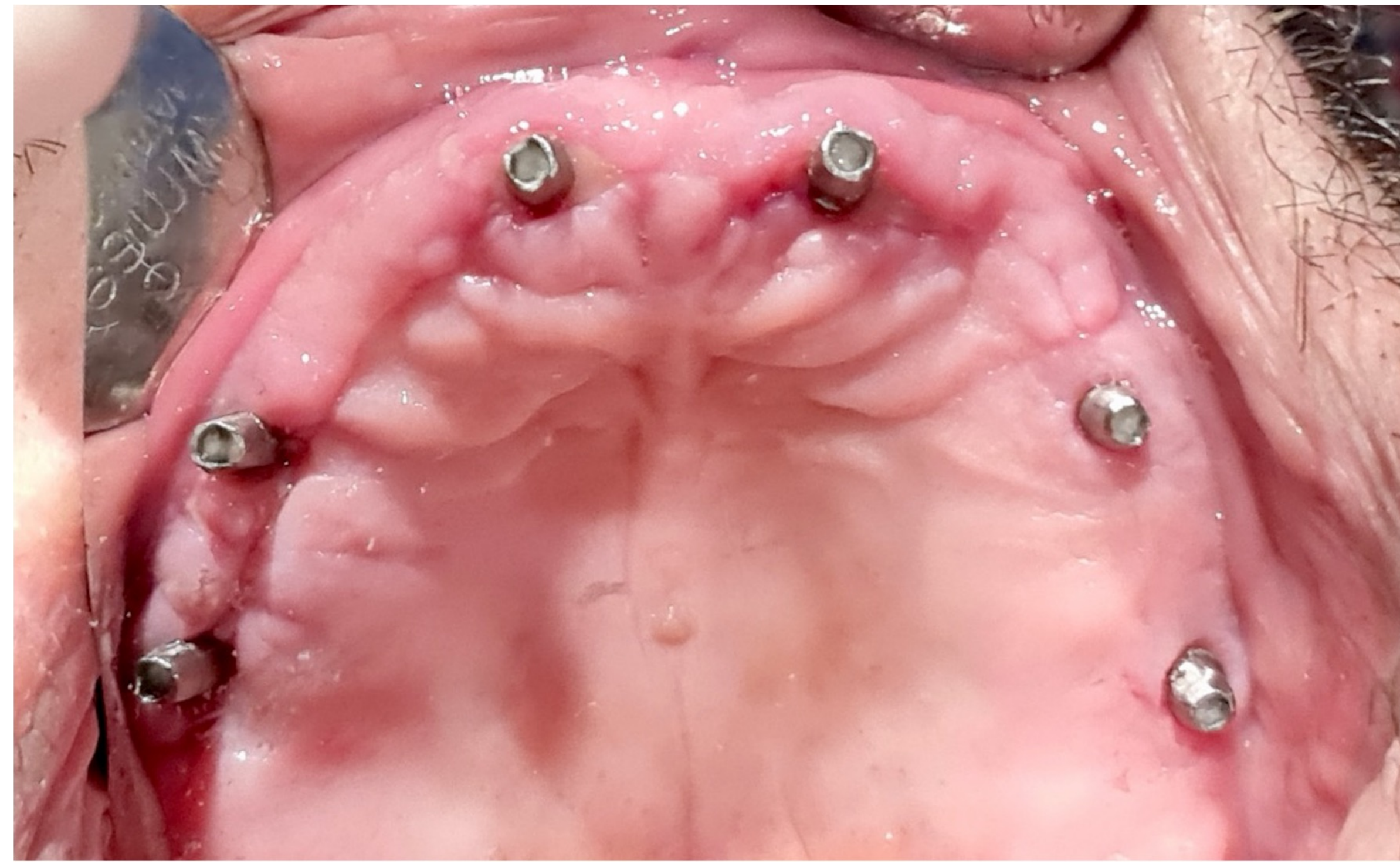
Healing collar in place



Secondary stability



Results: immediate loading was done with a full arch reinforced PMMA temporary prosthesis in the upper jaw 4 months postoperatively.



The final restoration was carried out using a fixed cemented porcelain fused to metal (PFM) taking into account the aesthetic and functional canons. CBCT was done immediately and 4 months postoperative to evaluate implant osseointegration.



Conclusions: Vitamin D local injection at the prepared implant osteotomy site is a reliable method that could accelerate dental implant maxillary osseointegration.