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A to Z – From Extraction to Restoration

The Complete Journey Package

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INTRODUCTION

An aesthetic and functional implant supported restoration in the maxillary anterior zone is a clinical challenge. The correct three-dimensional positioning of the implant in the mesial-distal, apical-coronal and facial-lingual dimensions and proper management of the peri-implant soft tissues is required to achieve and maintain the desired emergence profile. Diagnosis and treatment planning are key factors in achieving a successful outcome after placing and restoring implants immediately after tooth extraction. Some factors should be considered when evaluating a patient for dental implants which include a thorough medical and dental history, clinical photographs, study casts, periapical (IOPA) and panogram (OPG) radiographs and if required computerized tomography of the proposed implant site/s. The most important step in treatment planning is determining the

prognosis for the dentition and in particular the prognosis of the tooth in question. Reasons for tooth extraction may include, but are not limited to, insufficient crown to root ratio, remaining root length, periodontal attachment level, furcation involvement, periodontal health status of teeth adjacent to the proposed implant site, non-restorable caries lesions etc. In the esthetic zone, the scallop of the periodontium, level of crestal and interproximal bone, smile line, and morphology of the gingival tissues must be considered before initiating treatment. The below presented case involving extraction of a fractured central incisor, immediate implant placement and temporization, and the use of a customized transfer impression coping, to restore the tooth in an aesthetic manner can serve as a guideline to many budding dentists.

As they say, a picture is worth a 1000 (thousand) words which means that a complex idea can be conveyed with a still image or in simple language, the image conveys its meaning or essence sometimes more effectively than a description does. The expression "Use a picture; It's worth a thousand words" appeared first in a 1911 newspaper article. A similar phrase, "One Look is worth A Thousand Words", appeared first in a 1913 newspaper advertisement.

Going on those lines and doing something differently, in this article/case report, we present the whole story (A – Z) from Extraction to Restoration in pictures with just a very bare minimum description.

CASE REPORT

HISTORY and CHIEF COMPLAINT

A 45 years old male patient reported to the dental office with a chief complaint of broken front tooth which gave an ugly look to the patient (Fig. 1 and Fig. 2). There was no associated pain or swelling with respect to the same region. Patient had no relevant past medical, dental or family history indicative of any hereditary disease.

EXTRA-ORAL EXAMINATION

There were no significant findings on inspection.

INTRA-ORAL EXAMINATION

Intra-orally, a broken root stump was seen in 11 region which was non-mobile in nature and attached to the overlying mucosa.

RADIOGRAPHIC EXAMINATION

The patient brought in an Old RVG (Fig. 3) which showed a stop-gap arrangement in the form of a Acrylic crown (Jugaad kind of a crown) given on 11. A fresh IOPA showed a broken root stump w.r.t. 11 (Fig. 4).

INVESTIGATIONS

We went in for routine blood investigations (complete blood count, bleeding and clotting time, INR, viral markers for HIV, HBsAg, HCV) of the patient; which were all within the normal limits.

TREATMENT PLAN

On the basis of history, clinical presentation and radiological investigations, a treatment plan was made for an immediate atraumatic extraction followed by was immediate implant insertion w.r.t. 11 under local anesthesia.

TREATMENT PROTOCOL FOLLOWED

On the basis of the finding above, we embarked on the journey of A – Z presented before you in pictures with description alongside. This is going to be a one different kind of journey (case report) from what you might have witnessed in various others so far.



Fig-1: Pre-Operative photograph – Frontal View



Fig-2: Pre-Operative photograph – Occlusal View

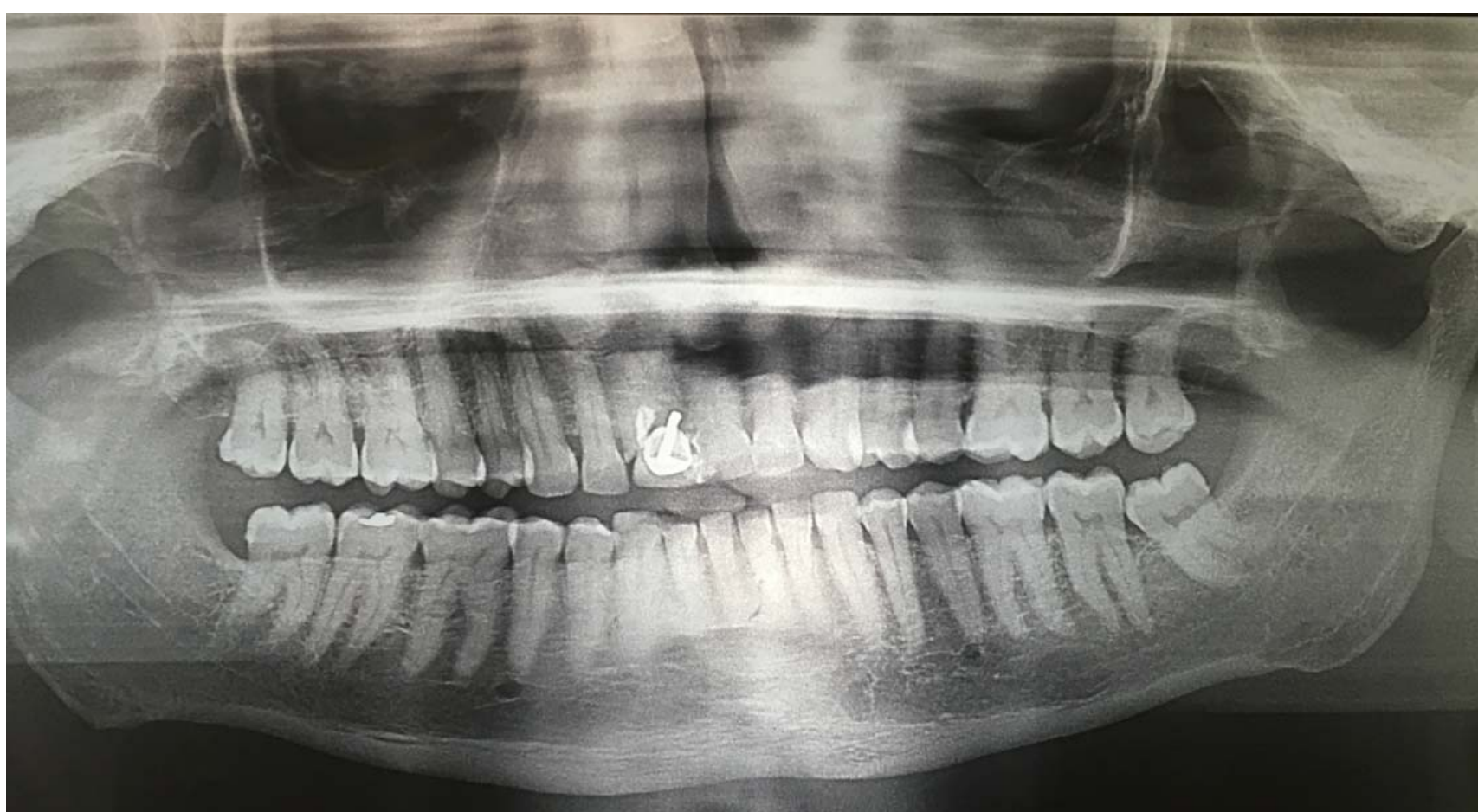


Fig-3: OPG brought in by the patient – before fracture of front 'Jugaad'

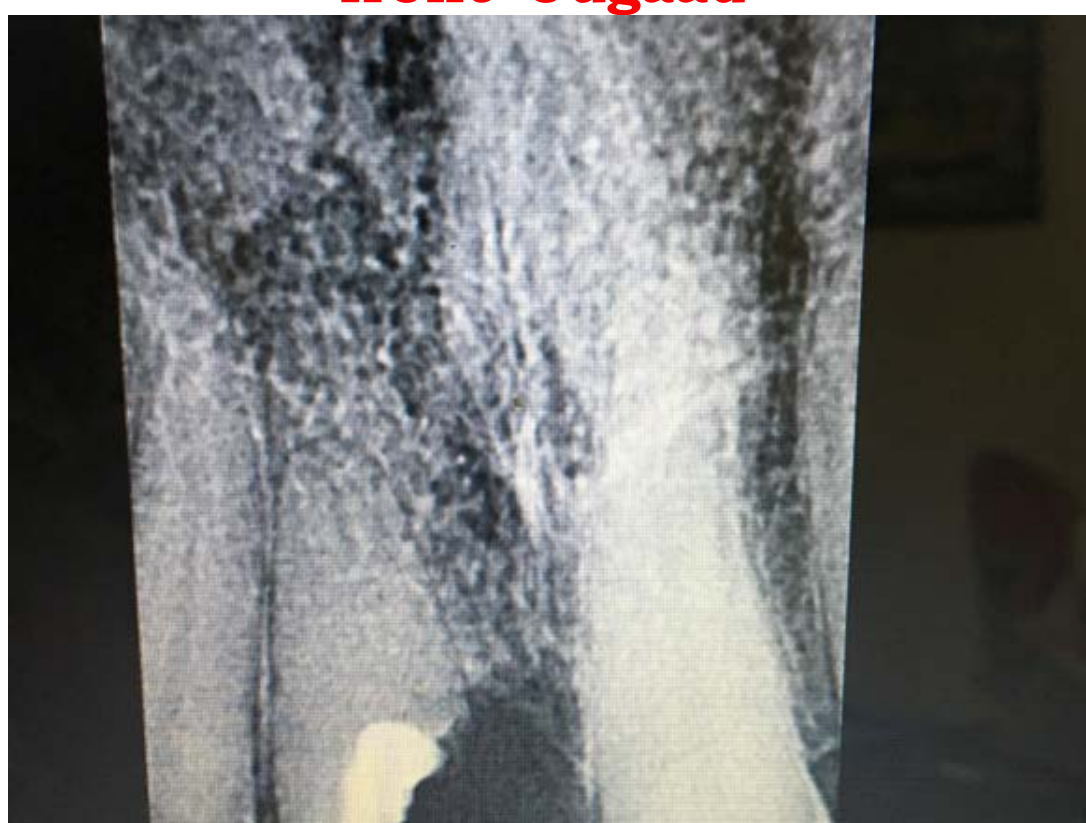


Fig-4: Current situation of the fractured root



Fig-5: Crevicular Incision Made – I



Fig-6: Crevicular Incision Made – II



Fig-7: Luxator used for Atraumatic Extraction



Fig-8: Fractured tooth atraumatically removal



Fig-9: Fractured tooth atraumatically luxated



Fig-10: Fractured tooth atraumatically extracted



Fig-11: Extracted tooth

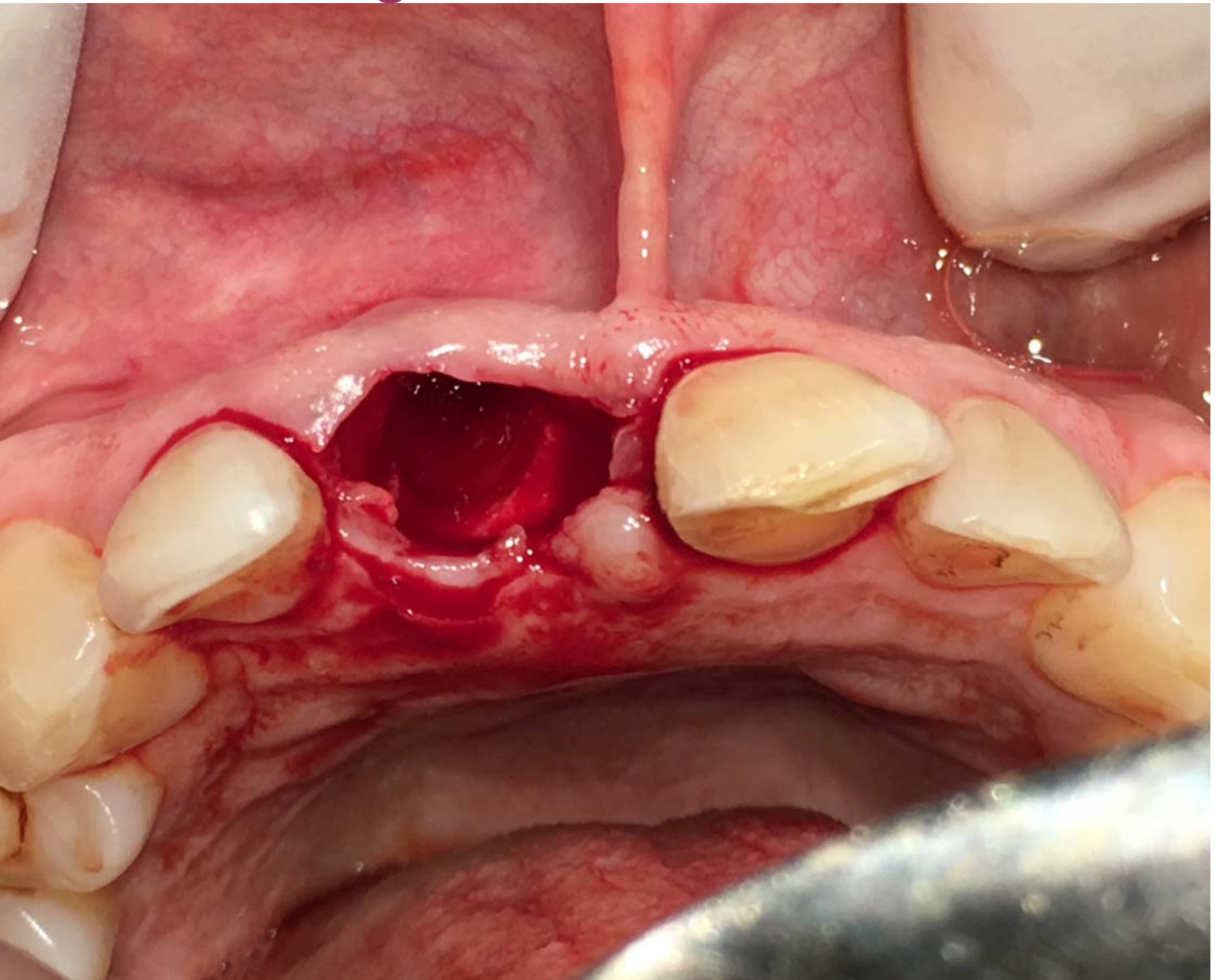


Fig-12: Extraction Socket



Fig-13: The journey started from here

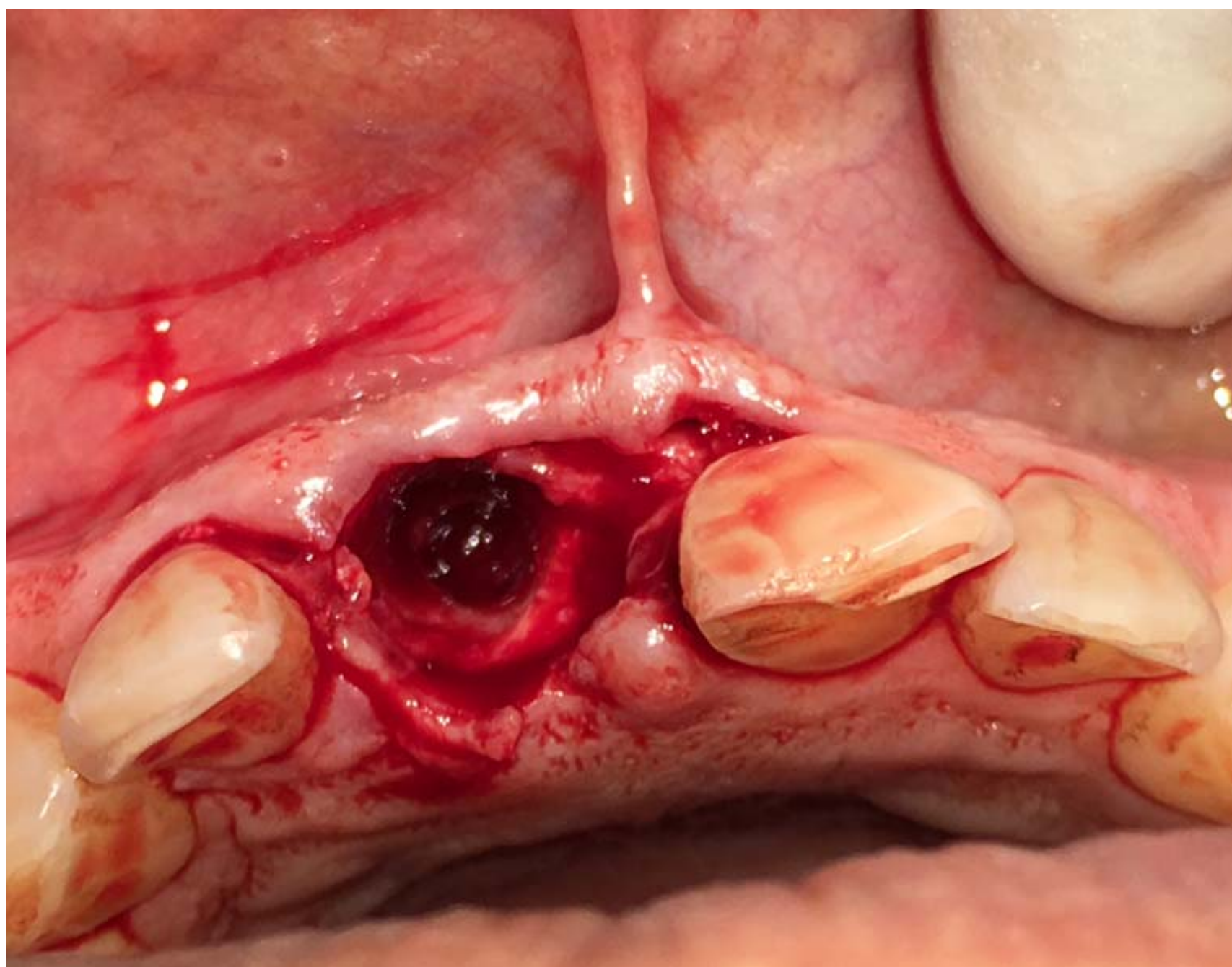


Fig-14: On bone sounding, a large labial/buccal bone dehiscence was noticed

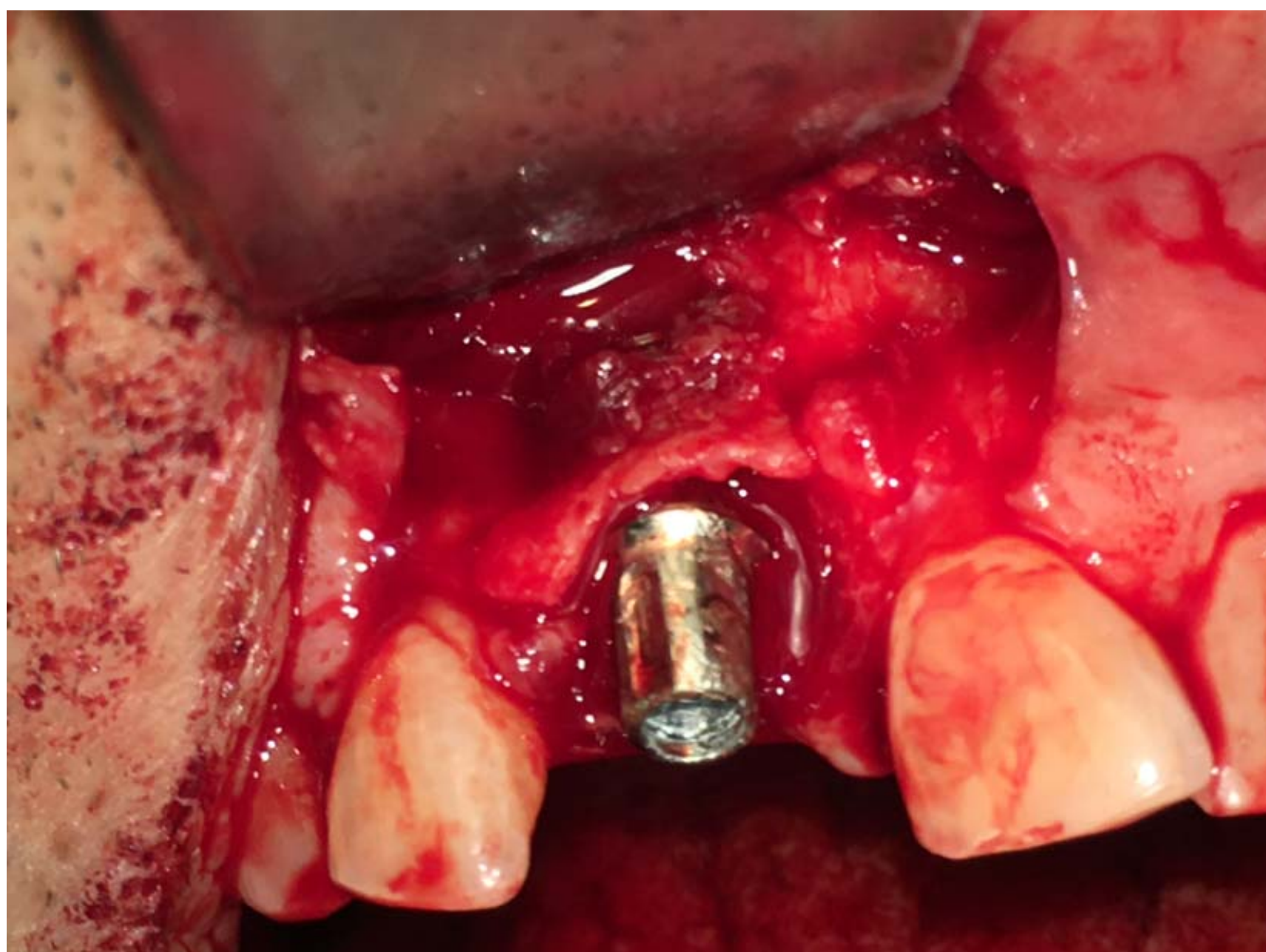


Fig-15: The labial/buccal flap was elevated and the abutment was used to check the final position of the Implant

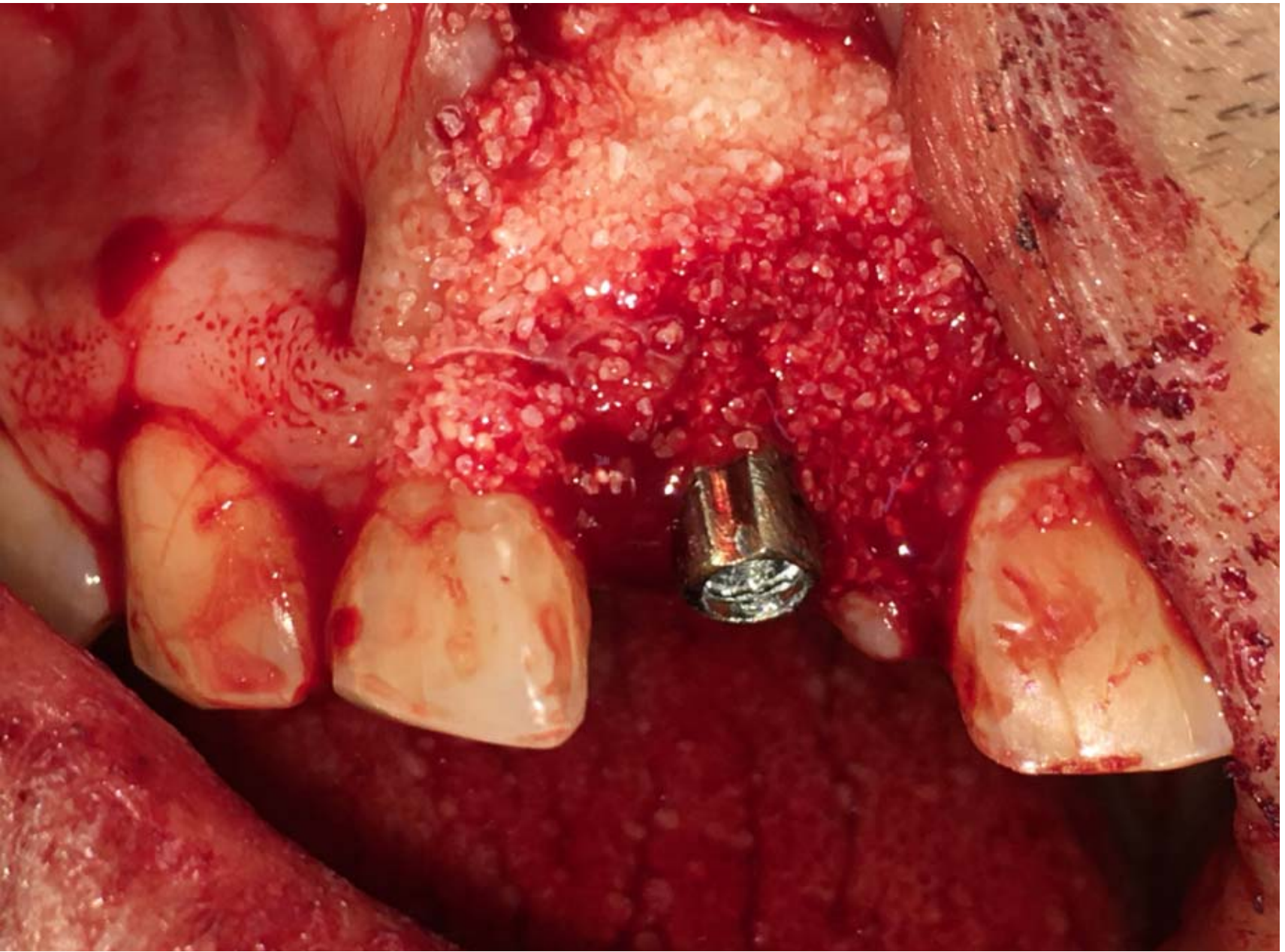


Fig-16: The bony defect filled with bone graft



**Fig-17: Fabrication of customized temporary prosthesis
– I**



**Fig-18: Fabrication of customized temporary prosthesis
– II**



Fig-19: Fabrication of customized temporary – III

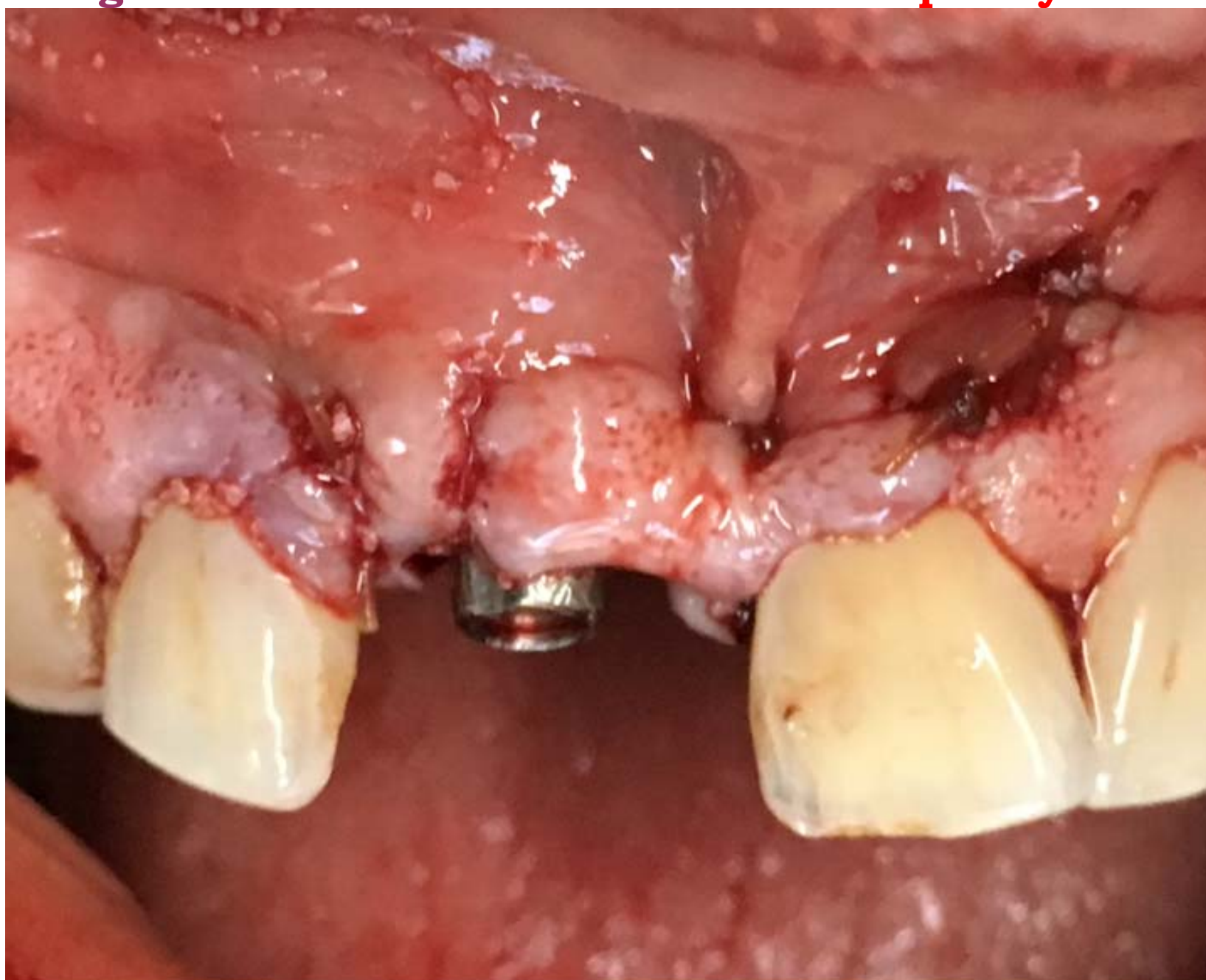


Fig-20: Normal Abutment with normal emergence



Fig-21: Customized abutment for a good emergence profile



Fig-22: Temporary Prosthesis given for 4 months

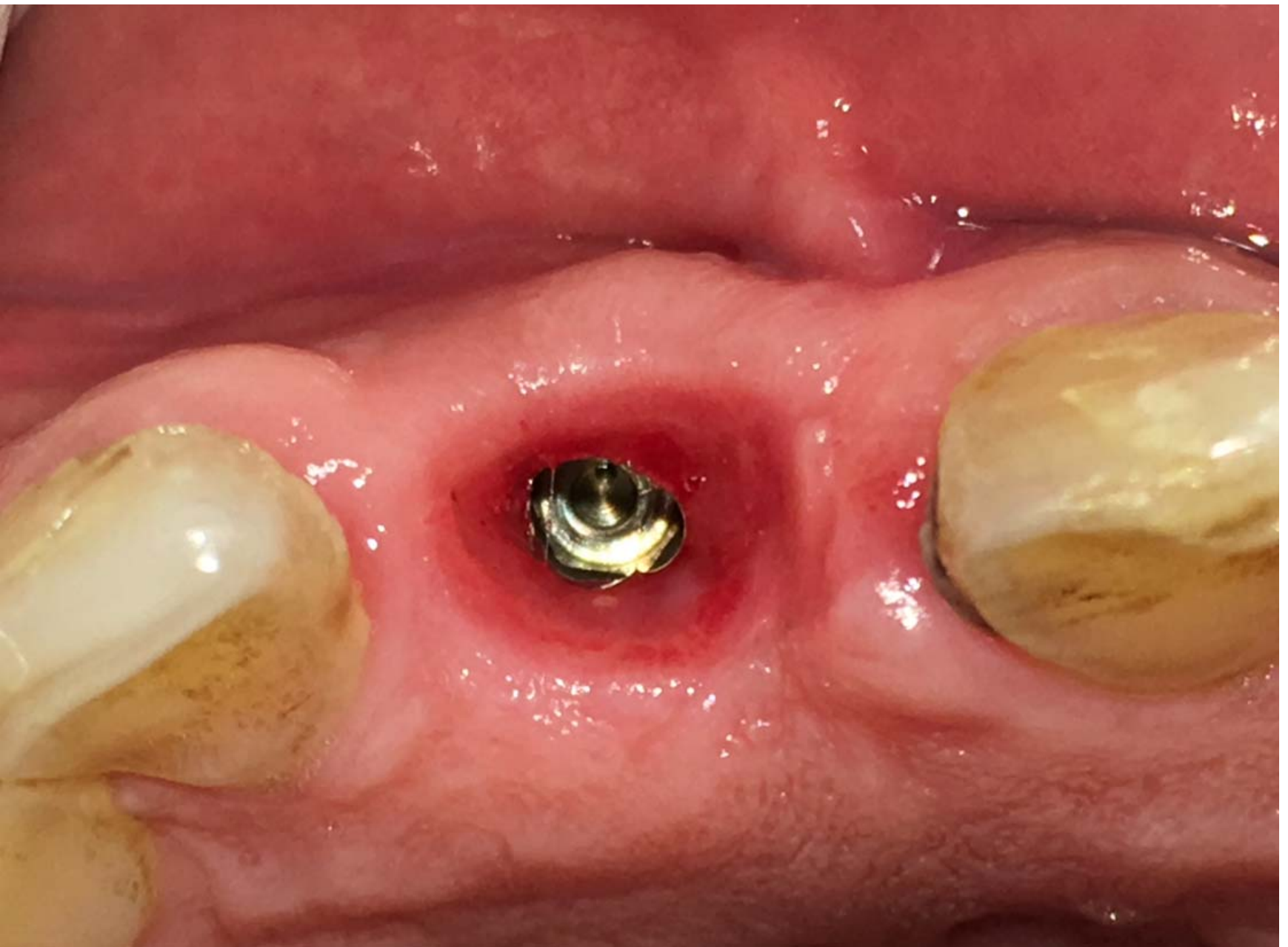


Fig-23: Soft tissue Contour and Emergence after removing the temporary crown



Fig-24: Temporary prosthesis used for recording the soft tissue contour



Fig-25 & Fig-26: Impression taking for recording the soft tissue contours – I



Fig-27 & Fig-28: Impression taking for recording the soft tissue contours – II



Fig-29: Transfer of soft tissue contour from the temporary crown for impression purpose

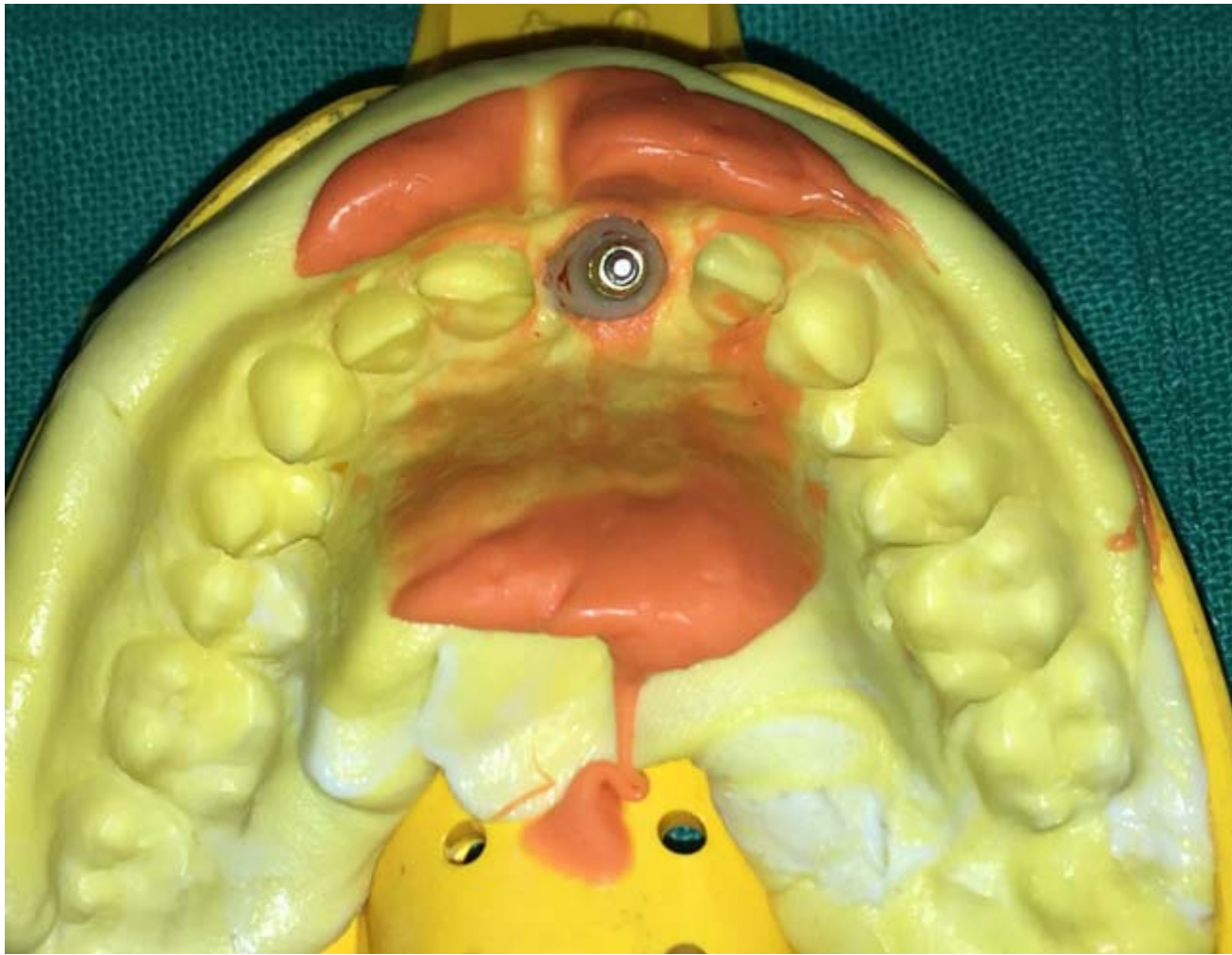


Fig-30: Impression recorded with soft tissue contour transferred from the temporary crown



Fig-31: Screw and Crown assembly



Fig-32: Angulated screw used to get crown access palatally



Fig-33: Final Crown in place



Fig-34: From Start

Pre-Operative View of the Patient's Prosthesis





Fig-35: To Finish – I



Fig-36: To Finish – II

DISCUSSION

The anterior region of the maxilla is frequently termed the aesthetic zone due to its high visibility and

influence on facial appearance. Single tooth implant replacement in this region can present many clinical challenges. Not only must the crown conform in contour, shade, and texture to its neighbors, but the gingiva must also be in symmetry and harmony with the adjacent tissues. Dental implants are becoming the most popular method of replacing lost natural dentition. Esthetic replacement of the natural tooth system with implants will grow increasingly more common as patients seek esthetic enhancement and/or tooth replacement of their natural dentitions. The focus of implantology over the past years has shifted from basic tooth replacement for function to include attention being paid to the aesthetic requirements of both the teeth and soft tissues surrounding them. Various protocols are being developed to ensure predictable, long lasting and esthetic implant supported restorations. Implant designs and surface treatments are changing to achieve earlier and greater bone to implant contact.

CONCLUSION

Successful and predictable maxillary single tooth replacement can be achieved with proper case selection and attention to both surgical and prosthetic technique. Extraction followed by immediate implant placement can allow for the preservation and maintenance of hard and soft tissues. This translates into fewer surgical appointments and lower costs to the patient, both of which have been major causes of

resistance to treatment with implants. The clinician must know the advantages and limitations of a proposed treatment and negotiate the best health-esthetic compromise for the situation. The customized transfer abutment technique described is simple to implement and is an accurate method of recording the gingival contours achieved during the temporization stages. This technique easily transfers important three-dimensional information to the laboratory in order to fabricate final restorations whose contours duplicate those developed in the provisional restorations.

REFERENCES

1. *Kois J. Single Immediate Implant Compendium 22(3) 215 2001*
2. *Saghezchi K. Replacing a Single Anterior Tooth Immediately After Extraction with a Single Implant to Preserve Interproximal Papilla and Screw-Vent Implant, and Provisionalization in the Esthetic Zone: A Case Report Implant Dentistry 12(2) 123-129 2003*
3. *J. Matani, S. Jambhekar, M. Kheur, S. Sethi, S. Kheur 'Customized impression post: An innovative way for esthetic implant restorations' Journal of*

Implant and Advanced Clinical Dentistry Apr 2013
pg. 13-17

4. Larry C., Breeding et al Transfer of gingival contours to a master cast *J Prosthet Dent* 1996, 75 : 341-343
5. Panagiota Eirini Spyropoulou et al Restoring implants in the esthetic zone after sculpting and capturing the peri-implant tissues in rest position : A clinical report *J Prosthet Dent* 2009 102: 345-347
6. Donitza A, Prosthetic procedures for optimal esthetics in a single tooth implant restoration : A case report *Pract Periodont Aesthet Dent* 2000 12(4) 347-352 Mariano A., Simple method of fabricating an impression post to reproduce peri-implant gingiva on the master cast *J. Prosth Dent* 2002 88 : 221-23
7. <http://www.oralhealthgroup.com/features/immediate-implant-placement-and-temporization-in-the-maxillary-aesthetic-zone/>
8. <http://endoexperience.com/documents/ImmediateimplantplacementBeckeretalPerio2K2008.pdf>

9. *Dhanzajani P.J., Al-Rafee M.A. Single Tooth Implant Implant Restorations : A Retrospective Study Implant Dentistry 14(2) 125-129 2005*
10. *Tepret F., Seitgoz A., Basa S. Immediately Loaded Anterior Single Tooth Implants: Two Cases Implant Dentistry 14(3) 242-245 2005*
11. *Creughers N.H., Kreulen C.M., Snoek P.A., DeKanter R.J. A Systemic Review of Single Tooth Restorations Supported by Implants J of Dent 28(4): 209-217 2000*
12. *Petrungaro P.S. Bone Grafting at the Time of Extraction : A New Technique for Achieving Natural Bone and Tissue Contours in Esthetic Tooth Replacement The Journal of Cosmetic Dentistry 16(1) 30-45 2000*

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