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Replacing Missing Teeth with Screw-Cement Retained Implant Supported Fixed Partial Denture: A Case Report

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Abstract:- An accurate impression with proper interocclusal relationship are the two essential criteria used for the best fit and functionality of the final prosthesis when replacing a partly edentulous arch with an implant-supported fixed partial denture. A detailed process about the open tray impression technique and registering the interocclusal relationship for implant-supported partial denture has been described in this case report.

Keywords:- *Implant Impression, Implant Supported Fixed Partial Denture, Open Tray Impression Technique, Maxilla-Mandibular Relationship.*

I. INTRODUCTION

Steps that influence the fit and function of the implant supported FPD during the restoration of partially edentulous arches with implant retained fixed partial dentures (FPDs) includes : (a) the correct transfer of the implant position (b) the correct transfer of vertical height and maintenance of the maxillomandibular relationship (c) the determination of optimal occlusion and (d) the correct shaping and angulation of the implant abutments.[1-4]

This case report describes the method of restoration with implant supported FPDs that allows the transfer of correct implant position, interocclusal relationship and occlusal recording.

II. CASE REPORT

The primary complaint of a 35 year old female patient who came to the Department of Prosthodontics with a partially edentulous left posterior mandible was for implant placement and prosthetic restoration (Figure 1). On clinical examination intraorally, teeth number 35,36 and 37 had been extracted due to root caries 5 years previously. The patient had no medical history. The treatment was planned with patient's consent and with a reference from CBCT report. After the elevation of a full-thickness flap, the implant site was prepared at 1000 rpm, and the implants were placed manually at a torque of 25Ncm, following a 2-step surgical protocol. Two screw retained implants (3.8mm diameter, 10.5mm length, and 4.6mm diameter with 10.5mm length BioHorizons) were placed without augmentation. Two implant-retained FPD was planned for the prosthetic reconstruction.

➢ *Procedure*

- Complete oral prophylaxis was done
- An alginate impression was made and a diagnostic cast was prepared
- Tooth preparation followed by 3 unit FPD was done with 33,34 and 35
- A CBCT was done to measure the width, height and density of the bone (Figure 2)
- A surgical guide was prepared for the implant insertion with 45 and 47
- Punch holes were done through the surgical guides
- Mid crestal incision with releasing incision was given and parallelism were checked (Figure 3,4)
- Implant placement of dimesion (3.8mm X 10.5mm and 4.6mm X 10.5mm) (Figure 5)
- A radiograph (RVG) was taken after implant placemnt (Figure 6)
- After 3 month , healing abutment were placed (Figure 7)
- On 2 weeks recall visit open tray impression technique was performed through implant impression copings (3.5mm yellow and 4.5mm green) and impression was recoreded through heavy and light body impression materilals (Figure 8,9,10)
- Wax pattern was done on nthe mounted cast followed by Casting of the copings for 3 unit Implant FPD (Figure 11)
- Implant FPD coping tryin was done on the patient (Figure12)
- Ceramic Layering was done with glazing of crowns (Figure 13,14)
- Implant crown cementation was done with a hand torque of 25 Ncm (Figure15)

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III. DISCUSSION

There are biological, mechanical, and aesthetic factors that should be taken in consideration while reconstructing partly edentulous arches using implant-supported fixed prosthetic prosthesis. The outcome of the restoration is greatly influenced by a number of clinical procedures, such as accurately documenting the vertical height and the maxillary-mandibular relationship and transferring the proper implant location.[5,6]

A long-term performance of the implants could be impacted by occlusal pressure and the passive fit of the suprastructure of the prosthesis.[7] The open tray impression technique was employed in this case. The passive fit of the restoration is necessary to achieve optimal long-term success. A proper fit requires the accurate transfer of the intraoral implant position to the master cast and an exact fit of the impression copings.[7]There are several benefits associated with coping tryin. It permits the assessment of form, occlusion, and fit and space available for the ceramic of the FPD.

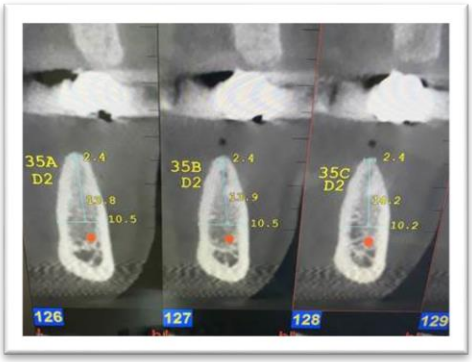
(a)

(b)

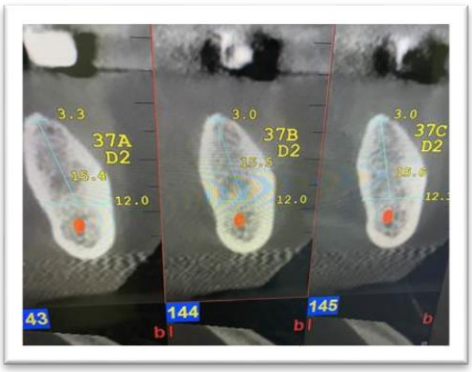
(c)

(d)

Fig 1 (a) Occlusal View of Maxillary Arch (b) Occlusal View of Mandibular Arch (c) Right Lateral View (d) Left Lateral View



(a)



(b)

Fig 2 CBCT of (a) 35 and (b) 37

Fig 3 Midcrestal Incision

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Fig 4 Pararellism of Implants

Fig 5 Implant Placement

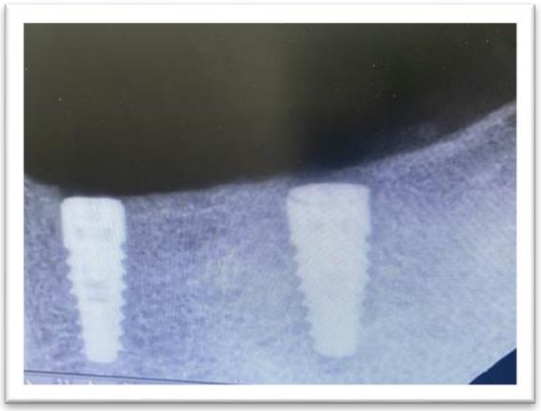

Fig 6 Radiograph (RVG) of Implant Placemnt

Fig 7 Healing Abutment Placement

Fig 8 Lab Analogue Placed for Open Tray Technique

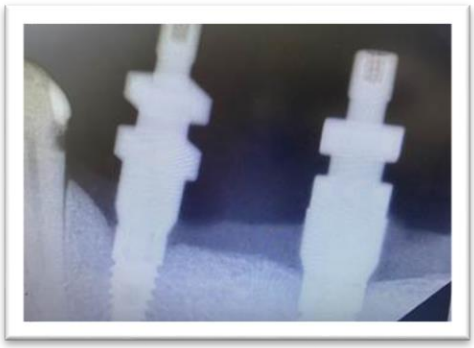

Fig 9 Radiographic Representation of 45 and 47

Fig 10 Open Tray Impression of Mandibular Arch

Fig 11 Wax-Up Preparation on the Mounted Cast

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Fig 12 Tryin of the Copings for Implant Supportd FPD

Fig 13 Cementation of the PFM Crowns

Fig 14 Post Cemntation Radiographic Representation

Fig 15 Post Operative View of the Patient

IV. CONCLUSION

Implant supported FPDs are a good treatment option in the posterior region of edentulous mandible, with stable peri-implant bone levels and a high patient satisfaction. It is a valid solution for the patient's with short span edentulous ridge. The reliability of the implant supported FPD is better in all aspect rather than any removable prosthesis. Furthermore, whatever the treatment option chosen, the clinician should be prepared to manage every possible complications that could be associated with the tooth to implant supported FPDs.

REFERENCES

[1]. Stamoulis K. Intraoral registration coping formation using an interim restoration as a matrix. J Prosthodont. 2010;19:406–408.
[2]. Stamoulis K. Intraoral acrylic resin coping fabrication for making interocclusal records. J Prosthodont. 2009;18:184–187.
[3]. Ntounis A, Pelekanos S. Custom copings for accurate impressions of multiple internal connection implants. Implant Dent. 2010;19:365–369
[4]. Ghazal M, Albashaireh ZS, Kern M. The ability of different materials to reproduce accurate records of interocclusal relation- ships in the vertical dimension. J Oral Rehabil. 2008;35:816–820.
[5]. Wood MR, Vermilyea SG. A review of selected dental literature on evidence-based treatment planning for dental implants: report of the Committee on Research in Fixed Prosthodontics of the Academy of Fixed Prosthodontics. J Prosthet Dent. 2004;92:447–462.
[6]. Ghazal M, Albashaireh ZS, Kern M. The ability of different materials to reproduce accurate records of interocclusal relation- ships in the vertical dimension. J Oral Rehabil. 2008;35:816–820.
[7]. Ntounis A, Pelekanos S. Custom copings for accurate impressions of multiple internal connection implants. Implant Dent. 2010;19:365–369.