www.jmscr.igmpublication.org
Impact Factor 5.84
Index Copernicus Value: 83.27
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v5i1.63

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Case Report

Evaluation of Single Dental Implant Replacement of Maxillary Second Premolar

Author
Dr Yousef S. Alalyani
General Dental Practioner

ABSTRACT
Replacing a single tooth with an implant has become a common dental procedure. Through diagnosis and planning including the use of diagnostic cast and cone beam computed tomography scan can help the surgeons to predict the final result prior treatment, and to help inform the patient of the potential result prior to perform any irreversible procedure. In the present case, the primary concern was the pre-surgical location of the implant in relation to adjacent teeth without orthodontic treatment or enameloplasty.
Keywords: *Dental, Implant, Tooth-replacing.*

Introduction

The utilization of dental implants for single tooth replacement has become one of the most common dental procedures.1 The advantages of single tooth implants include prevention of tilting adjacent tooth and supra-eruption of opposing one, the conservation of adjacent tooth structure, and the psychological benefits of tooth replacement.[1,2]

When a single tooth is considered non-restorable, atraumatic extraction necessary, followed by replac-ement with an implant-supported single crown.[3]

Case Report

A 23-year-old-male patient presented to my clinic for evaluation of his maxillary left second premolar. The patient's chief complaint was pain and inability to chew with his tooth. According to the patient, root canal treatment done before 1 year and restored with temporary filling that has been broken before 6 months. A radiograph of the tooth revealed badly broken tooth with no enough remaining tooth structure (Fig. 1). The case was discussed with the patient and decision made for atraumatic extraction and implant replacement. The patient agreed to this option. Following anesthesia, atraumatic extraction done using periotome and upper remaining root forceps. The buccal and palatal plates were sound, irrigation done using normal saline.

Fig. 1 A PA X-ray shows non restorable upper 2nd premolar.

The implant site healed for 4 months. At this time upper and lower alginate impression taken and diagnostic wax up made in the lap (FIG. 2). CBCT

scan was taken revealed that the bone width measured 6.2 mm, bone height measured 13.5mm from the sinus floor to crest of the ridge, while the mesio-distal space measured 7.3 mm, (Fig. 3). Soft tissue was evaluated prior to surgery and the attached gingiva was determined to be adequate.

Fig. 2 A diagnostic wax-up on mounted casts.

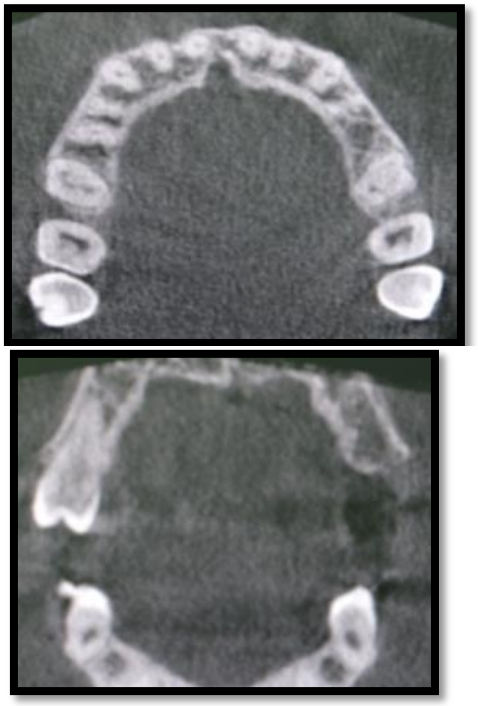

Fig. 3 A CBCT scan coronal and axial view show the bone width, height and length.

Implant size was determined to be 3.7mm width and 10mm height Zimmer tapered screw vent. Anaesthesia was administered to the surgical site, envelop flap raised, surgical stent inserted (Fig 4). The drilling sequence was performed, then Zimmer implant 3.7mm x10mm was placed (Fig. 5). Closure by 3.0 Vicryl suture. After 3 months, implant exposure and healing collar screwed to the fixture. Two weeks later, open tray impression taken (Fig. 6).

Fig. 4 a surgical stent inserted for exact position of the 1st drill.

The final crown was tried in for evaluation of function, fit and aesthetic. Abutment was screwed to 35Ncm and PFM crown was cemented using (GC Fuji Plus Cement) (Fig. 7).

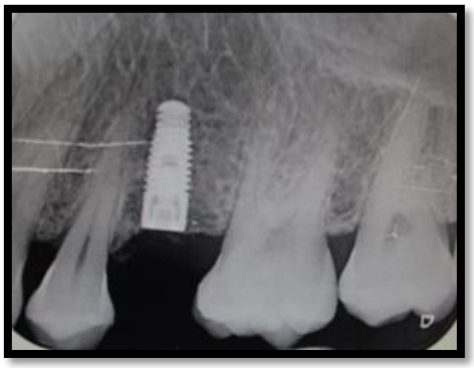

Fig. 5 A PA X-ray shows the implant position

Discussion

The use of dental implants for single posterior tooth replacement has become a predictable treatment modality.[4] The quantity of available bone for

implant placement in the posterior is limited by the sinuses in the maxilla.[5] There is also generally an inferior quality of bone in the posterior region compared with the anterior region of the same arch. These conditions create a need for carefully selected treatment plans for posterior single-tooth replacement using Osseo integrated dental implants.[6,7]

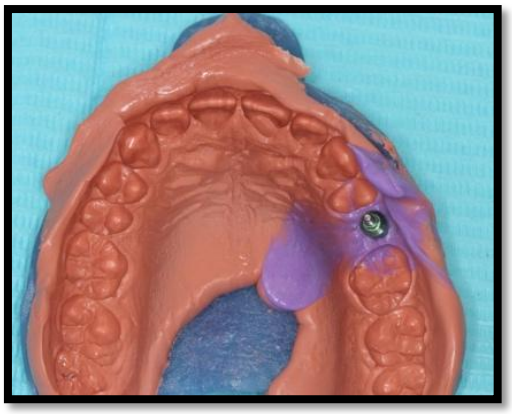

Fig. 6 An open tray impression taken.

Conclusion

Replacing a single missing premolar with dental implant providing excellent and predictable long-term results. The present case report showed that careful surgical and restorative interdisciplinary planning, along with the inclusion of the laboratory technician in decision-making and excellent motivation of the patient, resulted in a highly functional and aesthetic case as well as a satisfied patient.[7,8]

Fig. 7 A PFM crown cementation

References

1. Misch CD. Misch C. Contemporary implant dentistry. 3rd ed. St Louis, MO: Mosby Elesvier; 2008.
2. Den Hartog L, Slater JJ, Vissink A, Mejjer HJ, Raghoebar GM. Treatment outcome of immediate,early and conventional single-tooth implants in the aesthetic zone; a systematic review to survival,bone level,soft tissue, aesthetics and patient satisfaction. J ClinP eriodontol. 2008;35 (12):1073-1086.
3. Trobinejad M, Anderson P, Bader J,et al. Outcomes of root canal treatment and restoration ,implant supported single crowns, fixed partial dentures, and extraction without replacement: a systematic review. J Prosthet Dent. 2007;98(4):285-311.
4. Abu Hussain M Azzaldeen A, Aspasia SA Nikos K (2013) implants info fresh extract-ion site: a literature review , case immediate placement report. J Dent Implant 3: 160-164.
5. Abdulgani A, Kontes N, Chlorokostas G, Abu-Hussain M (2015) Interdisciplinary management of maxillary lateral incisors Agenesis with mini implant prosthesis: A case report . IOSR-JDMS14:36-42.
6. Kois JC. Predictable single-tooth peri-implant esthetics: ve diagnostic keys. Comp ContinEduc Dent. 2001; 25(11):895-896.
7. Spray JR, Black CG, Morris HF, Ochl S. The in uence of bone thickness on facial marginal bone response: stage 1 placement through stage 2 uncovering. Ann Periodontol. 2000;5(1):119-128.
8. Lekovic V, Camargo PM, Klokkevold PR, et al. Preserva- tion of alveolar bone in extraction sockets using bio- absorbable membranes. J Periodontol. 1998;69(9): 1044-1049.