



IMMEDIATE PLACEMENT OF IMPLANT AFTER EXTRACTION IN MAXILLARY AESTHETIC ZONE-A CASE REPORT

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ABSTRACT

The loss of teeth in an individual can lead to improper mastication, digestion; phonation and it may also affect the appearance of the patient leading to the psychological trauma to the patient. The traditional method of implant placement takes almost 1 year, which is quite a lengthy waiting period for the patients. To shorten this time period, immediate implant placement in fresh extraction site has been considered promising and also has several advantages. This case reports the immediate aesthetic rehabilitation with the use of immediate implants in maxillary anterior teeth region.

KEYWORDS: Immediate Implant Placement, Trauma.

INTRODUCTION

Tooth loss in the aesthetic zone is a traumatic experience without a doubt. Hence, in the aesthetic zone implant supported single tooth replacement is one of the most challenging situations confronting the clinician. According to the guidelines 3-4 months of healing period is required for the consolidation of extraction socket. Considering the prosthetic treatment, patients are often required to wait up to 1 year for replacement of a missing tooth.^[1] Therefore to avoid the problem of post-extraction and implant-related bone resorption, the concept of immediate implants was introduced in the late 1970s². It was suggested that this approach could not only limit physiological bone resorption leading to better aesthetic outcomes but also minimize the number of surgical procedures.^[3]

Efforts to shorten the overall length of treatment period have focussed on approaches like early or immediate loading following implant placement, immediate implant placement in fresh extraction site, and immediate implant placement and early or immediate loading.^[4] Immediate implant placement following tooth extraction in appropriately selected cases has been considered the optimal procedure for the following reasons: the natural healing process are mobilized to the maximum, no bone resorption has taken place yet, drilling is reduced, a number of surgical stages are reduced, design and

construction of prosthesis is simplified, and positive psychological effect on the patient.^[5,6]

The loss of maxillary anterior teeth has major detrimental social implications, and it also causes serious functional, esthetic disabilities, in addition to compromising the patients quality of life.^[7] The concept of immediate implant loading has recently become popular due to fewer trauma, reduction in overall treatment time, decrease in hard and soft tissue resorption, increase in patient's acceptance, along with better function, aesthetics and has a psychological benefit also. This case, reports the immediate aesthetic rehabilitation with the use of immediate implants in maxillary anterior teeth region.

CASE REPORT

A 32 years old female patient in good health, reported with pain and mobility of the maxillary left central incisor. There was a history of trauma sustained about 12 years ago. Intraoral radiograph showing root stump of the fractured maxillary left central incisor highlighting the internal and external resorption. There was no periapical lesion or periodontal bone loss appreciable on the X-ray. The patient's periotype was assessed and found to be a thick gingival type, with a high scallop and bone sounding for the labial plate revealed the crest of labial bone 3 mm apical to the gingival margin. The

mobility was attributed to the fracture and extraction followed by an attempt at immediate implantation was planned after obtaining the appropriate consent. The patient was scheduled for surgery and extraction was performed under local anaesthesia using periostomes and luxators with appropriate precautions to ensure that the labial plate of bone was not traumatized. The extraction socket was carefully examined for dehiscence and fenestrations and debrided of residual periodontal fibers using curettes (Fig. 1). A tapered implant of 4.5 mm diameter and 11.5 mm length (OSSTEM) was placed after preparing an osteotomy along the palatal wall of the socket and 3 mm beyond the apex of the socket to ensure a palatal orientation of the implant with no contact between the implant and the labial bone plate (Figs 2 and 3). The provisional crown was bonded to the unprepared enamel after acid etching, using Unicem (3M ESPE). No sutures were used and the colla plug was held in place solely by the ovate pontic (Figs 4). The immediate postoperative period was uneventful and the patient returned after 4 months for the definitive implant restoration. The soft tissue around the pontic was healthy, with no signs of inflammation or recession. The radiograph at this stage revealed nothing untoward. The provisional crown was retrieved and a thin layer of soft tissue was seen over the coverscrew of the implant which was curetted away, and a closed tray technique was used after connecting the impression post to record the impression in Impregum Penta (3M ESPE). The pontic was relined with composite to contact the cover screw and bonded back. A platform switch was performed using a standard abutment of the 3.5 mm platform and the final restoration in PFM was cemented a week later. A Periapical X-ray at this stage showed that the restoration was short of the prepared margin which was unacceptable considering current standards of practice. However, due to paucity of time, since the patient was travelling the same day, it was decided that the crown would be changed at his next visit. At 1 year follow-up, after functional restoration, the peri implant soft tissue was healthy, with no signs of inflammation and the zenith was at a lower level than of the neighbouring incisor and no bone loss radiographically.



Figure. 1: Post-extraction socket.



Figure. 2: Immediate placement of implant.

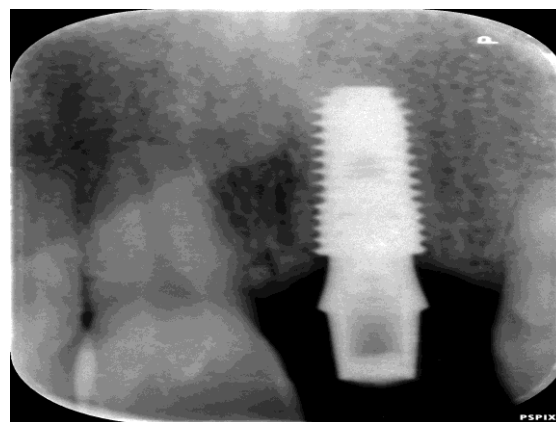


Figure. 3: IOPAR showing placement of immediate implant.



Figure. 4: Provisional Crown.

DISCUSSION

Ever since Lazzara^[8] reported on the surgical advantages of immediate implant placement, it has become an increasingly popular treatment modality particularly with teeth of poor prognosis in an otherwise healthy setting of the anterior maxilla. The potential benefits include maintaining the integrity of the labial plate of bone and if adequately temporized, maintaining the volume and position of the soft tissues.^[9] A number of articles in literature expound the purported virtues and demerits of immediate implantation.^[10,11]

In the 2008 Cochrane^[12] review on immediate implants, Esposito and his co-workers observed that immediate and immediate delayed implants may offer some advantages over conventional delayed implants in terms of patient satisfaction and aesthetic outcome possibly by preserving alveolar bone. Discussing the protocol for immediate implant placement into extraction sockets, Schwartz and Chausa^[13] concluded that a) Immediate implants have a high-rate of survival, ranging from 93.9 to 100%, b) Implants must be placed 3 to 5 mm beyond the apex to achieve maximum stability, c) Implants must be placed as close to the alveolar crest as possible (0 to 3 mm), d) There is no consensus regarding gap filling or the best grafting material, e) The use of a membrane does not imply better results; on the contrary, membrane exposure may cause complications, f) The absolute need for primary closure is to be established.

To add to these observations, a few additional guidelines would be

A thorough examination of the periotype prior to:

1. Atraumatic extraction.
2. The presence of an intact labial plate.
3. Avoid raising a flap as far as possible.
4. Orient the osteotomy palatally.
5. Use an appropriate size of implant to ensure engagement of bone 3 to 5 mm beyond the apex and no contact/pressure on the labial plate; the aim is not to try and fill the entire socket with the implant.

In the preceding case report, all conditions were favourable and the guidelines could be followed to the letter. The use of a graft material for gap filling was a matter of personal preference, rather than a specific indication. The Bio-Col protocol was used based on its sound biologic rationale. The choice of temporary restoration was owing to the advantage offered by the clinical situation of no incisal guidance and considering that bone – implant contact in immediate implant is considerably less than in conventional delayed implants, the chosen temporization ensured that no micro-movement was possible at the bone implant interface. The thick gingival type in this case ensured that there was no recession of soft tissue even 1 year after extraction, with the platform switch possibly furthering this cause.

CONCLUSION

Immediate implants are increasingly predictable and as illustrated in this case, with all parameters being favourable to success, can provide aesthetically superior results at least in the short-term follow-up period.

REFERENCES

1. Brånemark PI, Adell R, Breine U, Hansson BO, Lindstrom J, Ohlsson A. Intra-osseous anchorage of dental prostheses, I: Experimental studies. *Scand J Plast Reconstr Surg*, 1969; 3: 81-100.
2. Schulte, W.; Kleinekenscheidt, H.; Lindner, K.; Schareyka, R.; Heimke, G.; Gerlach, C.; Hardegg, W. Animal experiments on the question of healing around the Tübingen immediate implant. *Dtsch Zahnärztl. Z.*, 1978; 33: 326-331.
3. Paolantonio, M.; Dolci, M.; Scarano, A.; d'Archivio, D.; Placido, G.D.; Tumini, V.; Piattelli, A. Immediate implantation in fresh extraction sockets. A controlled clinical and histological study in man. *J. Periodontol*, 2001; 72: 1560-1571.
4. De Rouck T, Collys K, Cosyn J. Immediate single tooth implants in the anterior maxilla: A 1-year case cohort study on hard and soft tissue response. *J Clin Periodontol*, 2008; 35: 897-904.
5. Zahnmed SM: Prevention of alveolar ridge resorption after teeth extraction. *Int J Oral Maxillofac Surg*, 2004; 114: 328.
6. Esposito M, Grusovin MG, Kwan S, Worthington H V, Coulthard P: Intervention for replacing missing teeth: bone augmentation techniques for dental implant treatment. *Aust Dent J.*, 2009; 70: 54.
7. Haralur SB, Al-Qahtani AS. Replacement of missing anterior teeth in a patient with chronic mouth breathing and tongue thrusting. *Case Rep Dent.*, 2013; 2013: 759162.
8. Lazzara RJ, Immediate implant placement into extraction sites: Surgical and Restorative advantages. *Int J Periodont Rest Dent.*, 1989; 9(5): 332-43.
9. Garber DA, Salama, Salama MA. Two Stage versus one stage: Is there really a controversy? *J Periodontol*, 2001; 72: 417-21.
10. Saadoun Andre P, Sebbag Phillipe *Compendium*, 2004; 25(4): 277-96.
11. Mazar Ziv, Peleg Michael, Redlich Meir *JADA*, 1999; 130: 1767-70.
12. Esposito MAB, Koukouloupoulou A, Coulthard P, Worthington HV Interventions for replacing missing teeth: Dental implants in fresh extraction sockets (immediate, immediate-delayed and delayed implants) *Cochrane Database of Systematic Reviews*, 2006; 4. Art. No.: CD005968. DOI: 10.1002/14651858.CD005968.pub2.
13. Schwartz-Arad D, Chausa G. The ways and wherefores of immediate placement of implants into fresh extraction sockets: A literature review. *J Periodontol*, 1997; 68(10): 915-23.