Case Report

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PERI-IMPLANTITIS MANAGEMENT AFTER IMMEDIATE IMPLANTS PLACEMENT IN DUAL GRAFTLESS OSTEOTOMY SITES: A CASE REPORT

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ABSTRACT:

Immediate implant placement is the procedure of preparing the osteotomy site in freshly extracted tooth sockets and this can be carried out with or without accompanying bone grafting procedures. Till date there is no sufficient evidence from well controlled trials to decide if grafting is mandatory or not when immediate implant therapy is carried out in patients. This case report highlights the management of peri-implantitis which developed in a patient who had underwent immediate implant placement in dual graftless sites.

Key words: Immediate implants, bone grafting, peri-implantitis

INTRODUCTION

Dental implant therapy continues to rule as the superior choice of prosthetic rehabilitation for patients with partial or complete edentulism. Implants are placed in patients immediately following tooth extraction or in healed extraction sockets as well as in patients with long standing edentulism. In spite of adherence to a strictly asterile operating protocol and an absence of systemic and environmental superimposing factors, there are chances of peri-implant gingival and periodontal attachment apparatus destruction that can occur in certain cases.

In case of immediate implant placement into freshly extracted bony sockets, the potential advantages include a shortened treatment time and that bone volumes might be partially maintained thus possibly providing good aesthetic results [1]. A study by Devorah et al in 1997 concluded that implants placed into fresh extraction sockets have a high rate of survival, ranging between 93.9% to 100% [2].Immediate implant placement not only reduces the number of surgeries necessary but also decreases the treatment time and treatment costs [3]. While placing immediate implants into fresh extraction sockets, bone grafting procedure is not always warranted and it is the operator's discretion as well as the amount of space present around the implant after placement that become the deciding factors. Immediate implant placement requires very careful case selection and high surgical skill levels if esthetic outcomes are to be achieved [4].

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This case report details the management of peri-implantitis that developed in a patient who underwent dental implant therapy in bilateral graftless osteotomy sites of maxillary arch.

CASE DETAIL:

A 56-years-old female patient reported to the out-patient department of Faculty of Dentistry, Melaka-Manipal Medical College, Malaysia for regular dental check-up. All histories were non-contributory and the patient had no parafunctional or social habits which can adversely affect dental treatment outcomes. Clinical examination showed mild plaque and calculus deposits and generalized gingival inflammation. Teeth #15 was root canal treated and was fractured to the gingival level as there was no crown placed on this tooth after root canal therapy was completed (Figure 1). Examination also showed a composite restoration and tooth fracture extending below the gingival line with grade III mobility in relation to root canal treated #25 (Figure 1). Orthopantamogram was obtained and since both #15 and #25 were non-restorable and their prognoses were questionable, patient agreed to the treatment plan of extraction of #15 and #25 followed by immediate implants placement (Figure 2). A written informed consent was obtained and patient was scheduled for implant therapy after completion of a thorough scaling and polishing of remaining dentition.

Surgical technique: The surgical site was anesthetized by local administration of 2 % Mepivacaine hydrochloride with adrenaline (Scandonest 2% special, Septodont, Kuala Lumpur, Malaysia). Teeth #15 and #25 were extracted with care taken to minimize trauma to the extraction sites; the sites were then gently debrided. Osteotomy sites were prepared, 4.3mm x 11.5mm and 4.3mm x 13mm implants (Nobel Active, Nobel Biocare) were placed in #25 and #15 regions respectively. Post-operative instructions including a prescription of Amoxicillin 500 milligrams thrice a day for five days and metronidazole 400 milligrams twice daily for five days was given. An analgesic Ibuprofen 400 milligrams three times a day for three days was also given. Patient was asked to rinse with warm saltwater rinses for the first two weeks to promote healing. Following this, the patient was instructed to use chlorhexidine gluconate mouth rinse 0.12 % (Peridex, Zila Pharmaceuticals, Phoenix, AZ, USA) to facilitate plaque control [5]. The surgical sites were evaluated for wound healing and follow-up visits up to one month following the surgeries were uneventful. Six months later, when the patient reported for second stage surgery appointment, there was clinical and radiographic signs of peri-implantitis with reddish inflammation of gingiva in the buccal and palatal aspects as well as bone loss as seen in radiographs even though patient was asympotomatic. Both the implant sites were re-visited, the area around the implants were thoroughly debrided and the buccal bone loss was clearly visualized with implant thread exposure (Figures 3 and 4). The implants were well osseointegrated and immobile

with no suppuration in spite of the implant threads exposure. Bone grafting using xenograft particulate grafting material (Cerabone Granulate 0.5 -1.0mm, Botiss, Germany) was performed to complete cover the buccal bony defects in both the implanted sites and resorbable native collagen membranes (Jason membrane, Botiss, Dieburg, Germany) were adapted over the bone graft material (Figures 5 and 6). Tension- free flaps were adapted to attain complete wound closure and sutured using 3-0 non-resorbable silk suture material. The post-operative instructions were reinforced. Patient was placed on a strict supportive maintenance regimen and reviewed every month for any clinical signs of inflammation. The healing was uneventful and nine months later, radiographs obtained showed adequate bone regeneration at both the implanted sites (Figures 7 and 8). Prosthetic stage was initiated at this time and permanent crowns were fabricated and placed in both the regions. Patient is currently under strict maintenance protocol and reviewed on a quarterly basis.

DISCUSSION:

Peri-implant bone loss and thread exposure during healing period can occur due to any reason giving the multifactorial etiology of peri-implantitis. The management of peri-implant disease will be based on the extent of spread of inflammation, whether it is confined to mucosa (peri-mucositis) or has spread to involve deeper tissues (peri-implantitis). In peri-implantitis, the treatment will depend on the amount of bone lost and the esthetic impact of the implant in question[6]. If bone loss is advanced or persists despite initial treatment, it will be necessary to surgically debride the soft, peri-implant tissues affected by the chronic infection, decontaminate the microimplant surface, and finally apply bone regeneration techniques aimed at recovering the lost bone [6]. This is the treatment protocol that was followed in this patient where a thorough debridement was performed after surgical flap reflection and guided bone regeneration techniques were employed.

According to a retrospective study of 110 cases of immediate implants placement in graftless osteotomy sites, with a follow-up of five years, it was found that with proper patient selection, immediate implant placement without bone grafting has predictable survival rates and clinical success [3].

A study by Schwarz et al in 2006 demonstrated that both nanocrystalline hydroxyapatite and guided bone regeneration provided clinically significant improvements in clinical parameters following 6 months of non-submerged healing [7]. The 2-year results by Schwarz et al of the same clinical study as published in 2008 once more demonstrated that both treatment modalities were efficacious in providing clinically significant reductions of pocket-probing depth and gains in clinical attachment level, but the application of the combination of natural bone mineral and collagen membrane seemed to correlate with greater improvements in

those clinical parameters and, hence, was associated with a more predictable and enhanced healing outcome [8].

This case report not just depicts the immediate placement of implants into fresh extraction sockets, but it also highlights the management of complications that had arisen at the healing phase after first stage procedure. It is thus, important for clinicians to manage complications, if any that arises, prior to proceeding with second stage procedures or crown placement. This case reports highlights the importance of maintenance of surrounding peri-implant tissue in health in order to ensure a long term survival of the implants.

Evidence available indicates that immediate implant placement is a successful procedure that may benefit patients. However, careful planning and case selection are needed to ensure implant success and final esthetic outcomes [9]. Along with careful patient selection and phase-wise treatment planning, it is also essential to ensure that the patient follows a meticulous home care regime to ensure an overall successful result to the treatment rendered.

CONCLUSION

Till date, there is not enough reliable evidence supporting or refuting the need for augmentation procedures at immediate implants placed in fresh extraction sockets or whether any of the augmentation techniques is superior to the others. Prognosis as well as long term survival of immediate implants placed into graftless or grafted sites will depend on early detection and management of any peri-implant tissue inflammation, if it arises.

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FIGURES:

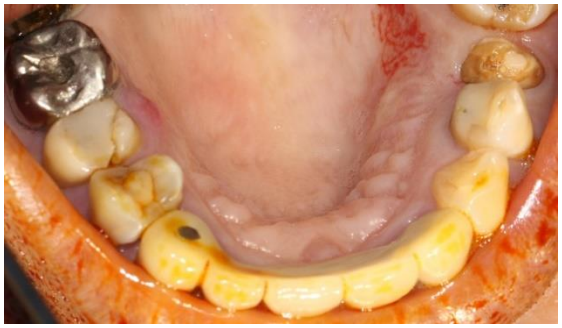

Figure 1.

Figure 2.

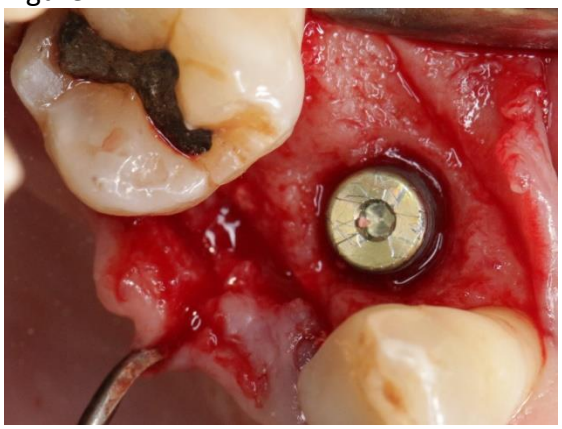

Figure 3

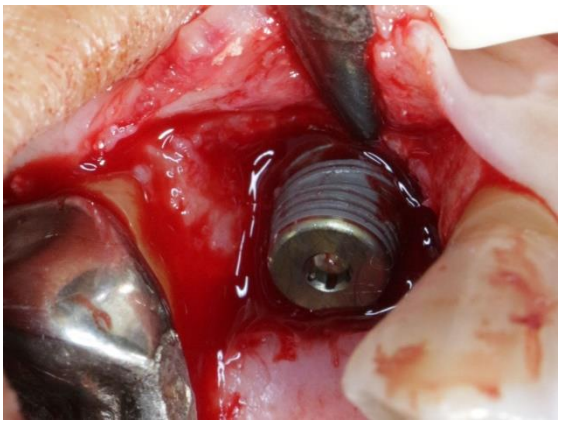

Figure 4

Figure 5

Figure 6

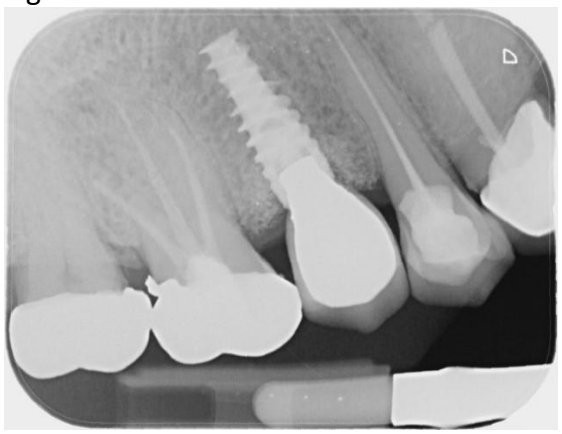

Figure 7

Figure 8