

Poly Trauma Case Immediate Implant Placement-A Case Report

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INTRODUCTION

Dental trauma can present with severe injuries on multiple teeth that had no previous history of dental treatment. When teeth present with multiple concomitant injuries, the relative prognosis of individual units may be difficult to ascertain^{1,2,3}. As such, long-term planning may be best carried out after the acute healing phase is complete. In complex cases such as those of polytrauma, multidisciplinary team planning may be sought. Once post-trauma stabilization has been achieved, an objective assessment of the dentition can commence. Where non-vital teeth have questionable restorability but are amenable to endodontic treatment, the primary aim of preventing the development of an apical lesion and postponing extraction can be considered an astute way of preserving the alveolar form. Maintenance of teeth in this way can aide implant provision especially where extraction and immediate placement is envisaged^{4,5}.

Immediate implant placement reduces the number of surgical episodes and treatment time. Hence, in severely fractured teeth where extraction has to be done, placement of immediate implants in the fresh extraction sockets can be beneficial as it rules out the need for two stage surgeries required for implants in healed sockets⁶. Also use of bone grafts as gap filling material can also help in augmentation of fractured cortical plates at the same time. Where adequate alveolar mass and gingival biotype is present, the provision of implant restorations anteriorly can be predictable providing adequate aesthetics and function⁷.

Case History

A 40 years old male patient reported to our department with complain of broken front teeth. Patient gave history of road traffic accident 1 month back. He was treated for multiple fractures in his hand and leg and brain injury. He was willing for replacement of his front teeth. His intraoral radiograph revealed fractured crowns of his right upper central and lateral incisor. There was no associated pain. Treatment plan was immediate extraction followed by implant placement.

Surgical procedure

The procedure was done in local anesthesia, with prior prophylactic antibiotic dose. Immediate extraction was done for the teeth by help of periotome. On exposing the socket it revealed that there was buccal cortical bone loss with loss of tissue over the teeth. Initial pilot drilling was done following sequential drills. Then implant was placed, torque of 30 N was achieved other than 45N normally as the buccal cortical bone was fractured. Autogenous bone graft particle was compacted to replace the fractured buccal corticle bone and tissue closure done with buccal advancement flap. A healing period of four months was given for the implant, following abutment placement with prosthetic rehabilitation.

DISCUSSION

Planning for implants in the trauma patient can be challenging as well as clinically difficult particularly when the extent of trauma is directly related to the feasibility of treatment where multiple teeth are lost or alveolar bone has resorbed

following trauma, the need for adjunctive bone grafting prior to provision of implants may need to be considered^{9,9}. Part of the anterior maxilla is a protruding alveolar process with thin labial and thick palatal cortical plates covering and protecting upper front teeth. A prominent position of anterior maxilla and upper front teeth in the face is responsible for bone and soft-tissue injuries of the facial skeleton in children and adults¹⁰. Direct trauma to both teeth and alveolar process often happens during falls, in motor-vehicle accidents, and in cases of domestic trauma. Fracture of crowns

and roots, subluxation, and displacement and avulsion of teeth with associated soft tissue concussion are frequent in this zone.

Post-extraction bone resorption is always three-dimensional, with the greatest loss of bone in the bucco-palatal or horizontal direction (the width) and occurring mainly on the buccal side of the alveolar ridge¹¹. Schropp et al⁹ reported that two-thirds of the horizontal bone loss occurs within 3 months and one-third takes place within the remaining 9 months of the first year postextraction.



Fig. 1: Pre Operative IOPA



Fig. 2: After placement of immediate implants



Fig. 3: After Abutment placement



Fig. 4: Placement of prosthetic crown

If a bone grafting and implant treatment approach is not considered soon after trauma, the atrophy of the alveolar process of anterior maxilla continues with time. Resorption of the buccal plate compromises the anatomy of the edentulous alveolar ridge and makes it difficult to place an implant in the prosthetically favorable position¹². Hence, immediate implants are favoured over convention delayed implants in such scenarios.

Newer innovative implant designs (platform-switching concept for a crestal bone preservation, others) and osteoconductive roughened implant surface topography (acid-etched, RBM, others) can significantly improve an implant success rate in any zone of the jaws by enhancing primary mechanical implant stability and BIC, allowing an immediate provisional restoration and, in some cases, an immediate load, reducing

healing time, maintaining a crestal bone level, and facilitating an implant hygiene.

CONCLUSION

The provision of tooth replacement in the traumatized dentition has specific challenges that may not be present in patients who have suffered plaque-related tooth loss. This can make the treatment planning process more difficult requiring adjunctive procedures to aid the definitive result.

In conclusion, immediate implant installation and provisionalization combined with simultaneous guided bone regeneration in postextraction sockets with bony defects in cases of history of trauma are appealing to clinicians. According to the literature, high implant survival rates and predictable good esthetic outcomes can be achieved with short-term follow-up. Although postextraction bone remodeling will occur irrespective of the placement of an implant, the time saved is truly a great advantage for patients and implant practitioners.

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