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Immediate Placement of Implant with Chair Side Fabrication of Maryland type Customized Provisional Restoration for A Single tooth Implant tn the Maxillary Esthetic Zone: A Case Report

KEYWORDS: Immediate implant, Maryland provisional prosthesis, Emergence profile.

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ABSTRACT *This case report presents a staged approach for immediate implant placement with chair side conventional approach for fabricating provisional Maryland type bridge prosthesis for restoration of maxillary central incisor. The utilization of perio-tome for a traumatic extraction, and an optimal emergence profile was created by minimal soft and hard tissue manipulation during and after extraction and immediate implant placement and by fabricating the provisional restoration with Composite light- cure for an appropriate esthetic reproduction, By implementing this protocol, an optimal definitive result could be achieved, together with immediate patient satisfaction. However, cooperation among several disciplines and careful patient selection is required.*

Introduction

Rehabilitation &Maintaining aesthetics for maxillary Dental implants, remains a challenge due to the complexities of Form, Function and Aesthetics, an adequate framework of hard and soft tissue architecture have to be prevented & Restored, There are significant changes to the ridge architecture, bone, and soft tissue volume that begin almost immediately post-extraction. Thus, careful sequencing for surgical treatment planning and decision-making is essential to obtain optimal and predictable results.

One treatment option that has been previously recommended is to provide a simple dental extraction and delay regenerative therapy until the soft and hard tissue has healed. Approximately a waiting period of 4 to 6 months is required. This delay may result in significant bone and tissue loss that could otherwise be intercepted via preservation procedures performed at the time of extraction Maintaining bone dimension is not only crucial for a prosthetic driven implant placement but also aids in maintaining the soft tissue level.

The aim of this clinical report is to describe a sequence of minimally invasive treatment procedures for replacement of a maxillary lateral incisor with a dental implant along with chair side fabrication of provisional restoration of prosthesis to maintain the aesthetic. This report presents the transition from a maxillary incisor with soft tissue recession to a healthy dental implant with an aesthetic restoration and normal gingival contours.

Case report

A 40 year-old female patient was referred from Department of conservative Bharati Vidyapeeth Deemed University Dental College and Hospital PUNE, as her maxillary right side lateral incisor tooth was not salvageable and was a concerned for the form ,function and aesthetics .she reported a history of endodontic treatment, and a crown placement performed 15 years ago. During the past year, the crown has been re-cemented several times and the patient had constant mild discomfort. Clinical examination revealed soft tissue recession & conventional radiographs did not demonstrate any significant findings. It was determined that the tooth had a guarded prognosis and so after the patient education and consent a treatment plan for implant placement was established. To address the patient's chief complaint and request for provisional restoration and minimal invasive procedures, a perio-tome for a- traumatic extraction technique was planned with immediate implant placement, Along with chair side fabrication of Maryland bridge was planned to maintain the aesthetics. After extraction a curette is used to confirm that location of buccal plate is intact.

Figure1.Pre-operativephoto.

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A plan for the immediate implant placement at the maxillary right lateral incisor with minimal surgical approach (Figure 3). This approach was chosen to aid in maintaining the hard and soft tissue anatomy. The tooth was extracted a traumatically using Periotome instrument. Extraction socket was curetted thoroughly and irrigated with Gentamycin. Implant preparation and placement was performed using CBCT readings. This allowed for an accurate placement of a 3.8mm by 13mm fixture (Figure 4D). In maxillary anterior region it is important to avoid placing the implant directly into extraction socket. Otherwise, implant will invariably perforate the buccal plate and jeopardize survival. The axis of implant must correspond to the incisal edges of the adjacent teeth or slightly palatal to this landmark. Implant was placed 3mm below CEJ of adjacent teeth and apical to the interproximal and crestal bone. The surrounding extraction socket was grafted with nova bone putty and was covered with resorbable collagen membrane. The patient is instructed in proper post surgical care and sutures are removed in 7-10 days. A per apical radiograph was taken post-operatively (Figure 4G). A pre-operative diagnostic cast model was prepared in die stone, by taking an complete impression of maxillary and mandibular archs Patient was provisionalised by chair side immediate fabrication of provisional Maryland type bridge.(Figure

2A……
Immediate fabrication of provisional Maryland bridge (Figure 2B……..

Figure 3. Preoperative OPG Radiograph image of the right maxillary lateral incisor

Figure 4.Extracted tooth with overextended GP point

Figure 5. Extraction socket with buccal and palatal one

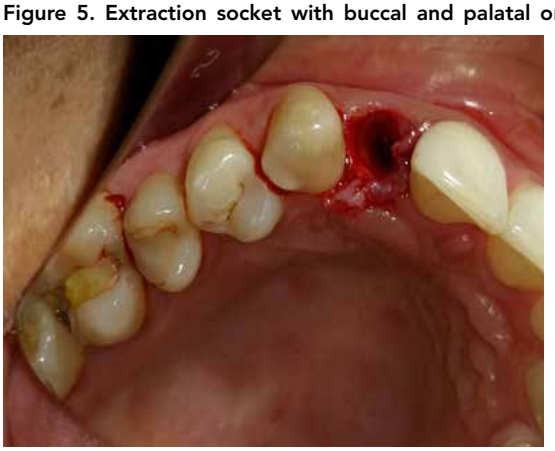

Figure 6.3 months after implant placement

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The site was allowed to heal for 3 months prior to second stage surgery. The implant was then restored using a full ceramic crown

Figure 7. Clinical photo of the final restoration.

Discussion

Aesthetic dental implants should meet the biological and functional needs to be sustainable over time. Establishing adequate bone and soft tissue is a necessity for the longevity and success of implants .In an effort to achieve aesthetic approach chair side use of light cure composite may be desirable. However, this should fulfill the overall surgical restorative and aesthetics goals.

A minimally invasive implant placement should not limit the accuracy of a restorative driven treatment, nor the safety and aesthetics regarding anatomic limitations. The use of chair side immediate placement of implant along with chair side provisional fabrication of prosthesis is advantageous for immediate implant placement, and for potential immediate provisionalisation. The case presented utilized immediate implant placement, with 3 months healing prior to second stage surgery.

Growth factor technology, such as PDGF, enhances regenerative potential for bone and soft tissue grafting procedures. The use of allograft and PDGF growth factor enhanced matrix increases the quality and volume of bone regeneration.

The predictability and success of aesthetic implant treatment is dependable on an accurate diagnosis and development of a restorative driven surgical treatment plan. The use of technology such as CBCT guided surgery, growth factors, and combined with careful sequencing of treatment may enhance the results.

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