

## Immediate Implants Loading by 4 Units Temporary Restoration: A Case Report

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### Abstract

Immediate implant placement is the placement of dental implant in the extraction socket immediately after extraction with no healing of bone or soft tissues. The timing of implant placement has increased the debate, while patients have become persistent in their desire to be treated in an efficient and expedient manner. When seeking a solution, they wish for safe and effective treatment that can be performed in the shortest possible time and with as little pain and discomfort as possible. Dental professionals with their expertise are addressing patients request as much as possible. Immediate implant placement and loading are valuable techniques for the clinician to call upon, but their skill and experience, as well as case selection, are all crucial elements to ensure successful long-term results [1]. The placement of implants immediately in fresh sockets with immediate loading is a well known treatment modality, but the practitioner has to follow a very strict protocol. This case report describes the detailed procedures of immediate implant placement with immediate loading for 2 – implants supporting 4 – units' provisional restorations with 5 years follow-up.

**Keywords:** Dental Implants; Immediate Implants; Immediate Loading; Immediate Restoration, Flapless Technique

### Introduction

During the last decade, the effectiveness of implant therapy has greatly improved, and the demands of dental esthetics in implant dentistry have become an important issue. The traditional two-stage implant protocol with delayed restoration has treatment duration of 1–2 years, in which patients had to wear a removable appliance and experienced significant discomfort during the recovery period. Immediate implant placement into the extraction area followed by immediate restoration of a dental implant can minimize the time of dental rehabilitation and can preserve patients' esthetic appearance at all stages of treatment [2]. In recent decades, implant treatment protocols have been challenged, and new approaches aim to shorten the overall treatment period as follows: (1) immediate implant placement in extraction sockets; (2) immediate restoration following implant placement; (3) immediate implant restoration in extraction sockets; and (4) immediate implant restoration and immediate tissue reconstruction [3].

It was acknowledged by the scientific community as a treatment modality for the replacement of missing teeth with implantborne

restorations for the fully and partially edentulous patients. Successful placements of dental implants into the fresh extraction socket in the upper anterior teeth have been demonstrated in the recent reports, which are made possible due to modification in implant surface.

Recent clinical and pre-clinical studies concluded that immediate implant placement will not affect the physiologic remodeling in the post-extraction socket [4]. Tooth extractions or immediate implant placement using a flapless approach will result in a reduced alteration of the soft tissue contour, as this technique would minimize surgical trauma and, consequently, osteoclastic activity in the area [5]. The aesthetic outcome and minimal event of complications seem to validate the trimodal approach protocol (immediate post-extraction placement, flapless, and immediate provisional restoration) as a reliable and simple mean to restore immediate implants in the aesthetic zone [6].

Implant immediate loading includes all of the advantages of a one stage surgical approach. Also, during the osseointegration process, the patient does not have to use a removable denture, which increases function, speech, stability, comfort, and improves certain psychological factors [7, 8].

## Case Report

### Patient Description

A 43-year-old male patient was referred by a prosthodontist to the Department of Periodontology and Implant Dentistry at King Saud Medical City, with the chief complaint of uneven appearance of teeth in the upper frontal region following orthodontic treatment (Figure 1a). Past dental history revealed a multiple upper and lower restorations, upper and lower root canal treatments, upper crown, orthodontic treatment for 8 months in year 2013 with severe apical root resorption at teeth # 12,11,21,22 (Figure 1b).

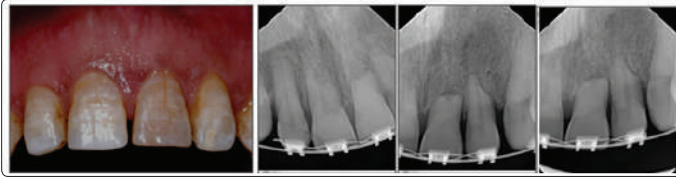


Figure 1a: Frontal region Figure 1b: Past Orthodontic Treatment

### Clinical Examination

Extra oral examination showed no abnormalities in the TMJ and in the smile analysis record. Intraoral examination revealed healthy gingival and soft tissues (Figure 2a). Tissue was thick biotype with scalloped margin and pointed interdental papilla particularly in the anterior region. Most teeth have amalgam restorations and few of them have composite restorations. Teeth # 12,11,21,22 have severe external root-resorption (Figure 2b & 2c) with hopeless diagnosis.



Figure 2a: Extra Oral Examination Figure 2b: Intra Oral Examination



Figure 2c: Gingival Examination

Periodontal Screening & Recording (PSR), Maxillary and Mandibular Dental Chartings were completed. Occlusion at Right and Left was reported as Class I malocclusion in molar and Canine; anterior relationship shows a vertical overlap of .5 mm and horizontal overlap of 1 mm; while midline shift of 1 mm to the left (figure 2d). Followed by radiographic interpretation this includes OPG, and CBCT (figure 2e).



Figure 2d: Occlusion



Figure 2e: Radiographic Interpretation

### Intervention

Patient was seen for endodontic consultation for prognosis of upper anterior teeth, and was recommended for extractions and implants. Patient was diagnosed with localized mild plaque induced gingivitis hopeless teeth # 12, 11, 21 & 22. The proposed treatment plan was Immediate Implants with Immediate Loading area of # 12 - 22 with alternative treatment plan of 6 units FPD and RPD. Implant Surgical treatment plan included used of Straumann # 12 & 22; size 4.1 x 12 BL – SLActive through Immediate Implant, Immediate Loading Surgical technique. Patient underwent diagnostic cast and wax-up, risk factors assessment for implants areas and SAC classification. In phase 1, therapy included Perio: OHI + scaling and polishing of all teeth.

### Surgical Phase



Figure 3: A traumatic extraction of teeth # 12, 11, 21 & 22

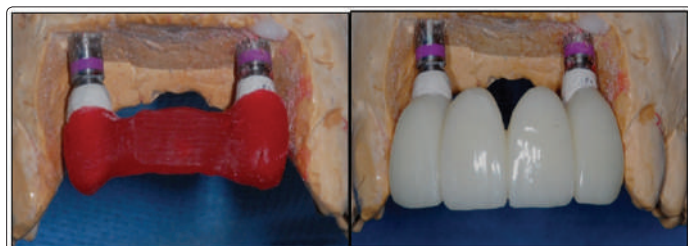


Figure 4: Immediate Implant Teeth # 12 & 21



Figure 5: Immediate impression for teeth # 12 & 21

Figure 6: Impression Coping for Teeth # 12 & 21



**Figure 7:** Implants Analogues with Temporary Abutment and Temporization of Teeth # 12 & 21



**Figure 8:** Immediate Implants Loading by 4 Unit Temporary Restoration of Teeth # 12,11, 21 & 22

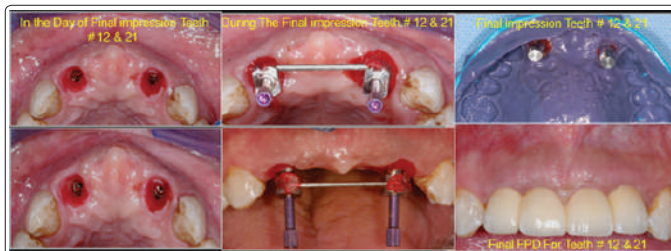
**Patients' Response to Treatment:**



**Figure 9:** Two (2) weeks follow-up



**Figure 10:** 12 weeks follow up



**Figure 11a:** after 8 months



**Figure 11b:** after 8 months



**Figure 12:** Recall after 5 years

**Discussion**

Immediate implant placement is when an implant is placed at the same time as the natural tooth is extracted. Implant placement in fresh sockets was first reported by Schulte and Heimke in 1976, termed 'immediate Implant [9]. Over the years there have been many studies reporting high survival rates.

Several papers suggest that immediate implant placement may provide some advantages, such as, (i) preventing bone resorption, (ii) maintaining alveolar crest width and height, (iii) reducing surgical procedures and treatment time, and finally, and (iv) good esthetic results, as the implant can be seated according to the natural tooth angulation and aligned with the adjacent teeth. 19,24-33 On the other hand, there are potential disadvantages of implants being placed in fresh extraction sockets, including, but not limited to the following: (i) Difficulty in controlling the final implant position, (ii) difficulty obtaining primary stability, (iii) inadequate soft tissue coverage, (iv) inability to inspect all aspects of the extraction socket for defects or infection, (v) osteotomy preparation difficulty due to bur movement (chatter) on the walls of the extraction site, and (vi) the additional cost of bone grafting. Since all the disadvantages listed are not present in every situation, any disadvantage may result in a compromised case [10].

Among the several long-term studies performed since then with 5-10 years' follow-up, high cumulative survival rates, such as around 97% – 100% were reported for immediately loaded implants placed in extraction sites for any indication [11-13].

In almost six years follow-up of the patient case, it was documented 100% success rate in immediate implant loading by 4 unit's temporary restoration, which made this case unique. In the present report after completion of treatment excellent esthetic rehabilitation was observed and patient was very satisfied with the outcome of treatment.

### Conclusion

Based on the outcomes of the present report and short review of the literature, it can be concluded that immediate implant placement with immediate loading may be a viable treatment option for cases requiring earliest restoration of teeth to be extracted. However, this approach is considered highly technique sensitive and requires expert dental implant team for its execution. Careful selection of cases, proper treatment plan and follow-up of surgical and prosthetic protocols are the keys to success [14].

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