



**ORIGINAL RESEARCH PAPER**

**Dental Science**

**A case report:- Immediate loading of implant in an immediate placed implant in extraction socket of an anterior maxillary region.**

**KEY WORDS:** Dental Implants, Immediate Placement, Immediate Loading.

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**ABSTRACT**

**INTRODUCTION:-** With respect to concerns of patients, new methods have come out to perform surgeries and deliver a prosthesis in which few appointments are scheduled (which will save the time of patients and reduce the stress they undergo during appointments), which includes removal of teeth and immediate placement of the implant and loading implant immediately within 72 hrs  
**METHODOLOGY:-** A female patient, aged 26, presented to Dental O.P.D. for replacement Maxillary Left Lateral Incisor. It was observed that root stump tooth was present and an immediate implant placement and loading procedure was advised. It was confirmed after CBCT that 13 mm height and 6.5. width was available. Hence it was decided to place an implant of 10 mm in length and 3.7 mm width.  
**CONCLUSION:-** In this study the extraction of anterior maxillary tooth with immediate placement of implant and immediate loading of single implant was done, which showed high success and survival rate with one year follow – up of the patient. Incidence of low osseointegration didn't occur and prosthetically no such complication occurred.

**1. INTRODUCTION.**

Implants in dentistry over a period of time have shown high success and survival rates on long and short term studies [1,2]. Aesthetics and function of implant supported single crown restoration shows faster and better outcome in a present time [3,4].

For the accomplishment of an implant-supported fixed restoration a good quality osseo- integration is a vital requirement [5]. Actually, with the purpose of supporting final prosthesis in a proper function, a implant has to efficiently osseo-integrate with the bone; eventually the assurance of the protection or preservation of osseo-integratiion is provided by soft tissue integration which is basically vital at the same period, and it is needed perquisite for aesthetically successful restoration [4,5,6].

In last few years, the patient's demands are for speedy, less invasive and not too costly replacement of teeth with aesthetically good final prosthesis [4,5,6]. It has been hard to execute it easily[4,5,6]. With respect to concerns of patients, new methods have come out to perform surgeries and deliver a prosthesis in which few appointments are scheduled (which will save the time of patients and reduce the stress they undergo during appointments), which includes removal of teeth and immediate placement of the implant and loading implant immediately within 72 hrs[4,7,8,9]

**2. MATERIALS AND METHODS.**

**a. Patient Presentation**

A female patient, aged 26, presented to Dental O.P.D. for replacement Maxillary Left Lateral Incisor. It was observed that root stump tooth was present and an immediate implant placement and loading procedure was advised. It was confirmed after CBCT that 13 mm height and 6.5. width was available. Hence it was decided to place an implant of 10 mm in length and 3.7 mm width. Patient was in good general and oral health; ready to sign an informed consent; and willing to participate in annual check ups. Patient did not have any history of the following:- chemotherapy; radiotherapy; treatment with intravenous amino-bisphosphonates any medication for psychiatric disorders; abuse of drugs/alcohol and smoking. Intra oral examination showed absence of chronic periodontitis. No peri apical pathology in the concerned tooth. No parafunction (ie, bruxism/clenching) habit.

**b. Dental implant**

The implant inserted in this study (ARDS) was characterized by a

tapered design with self-cutting threads. These implants possessed an internal hexagon and a 5-mm-deep conical connection (10 degrees) with built-in platform switching. This implant was available in different lengths (10.0 and 11.5 mm) and diameters (3.75 and 4.2 mm).

The patient was subjected to periapical and panoramic radiograph for preliminary study of the residual bone anatomy and to assess the compromised element to be extracted. The preliminary examination was completed with diagnostic impression and development of stone casts for diagnostic purpose.

**c. Surgical and prosthetic procedures**

Two days before surgery, patient was asked to rinse two to three times daily with chlorhexidine 0.12% mouth rinse for a total time of 1 minute. The same procedure was repeated 15 minutes before surgery. The surgery was performed under local anesthesia obtained by infiltration with lignocaine with adrenaline 1:100,000. The procedure was performed with the flapless approach. The number 10 (Universal System) tooth was gently extracted, with care taken not to damage the remaining socket walls, particularly the buccal wall. The post extraction alveolus was curetted to remove any remaining granulation tissue. The integrity of the residual walls of the alveolus was verified, and the procedure continued with the preparation of the implant site. Again, drill selection was based on the bone quality of the receiving site. The implant was placed in prepared osteotomy, apically pushed 3 to 4 mm to the peak of the post extraction socket. Particular attention was paid to placing the implant palatally and avoiding contact with the buccal wall of the alveolus. The implant was manually placed in a slightly subcrestal position, using a hand ratchet. This gave a rough estimate of the maximum insertion torque obtained.. Immediately after implant placement, a prefabricated titanium abutment was prepared and screwed onto the implant. Temporary crown was made from light-curing composite resins, they were relined with light-curing flowable resin. The provisional crown was finished and polished meticulously to obtain the desired emergence profiles. The temporary restoration sealed the socket and maintained clot formation subgingivally. The provisional restoration was screw retained; had a hole in the occlusal surface, which was closed with composite resin. A careful check of occlusion was conducted using articulating papers. Disocclusion was obtained. An intraoral periapical radiograph was taken. Ice pack and analgesics were prescribed (diclofenac 50mg twice a day for 2 days). Patient was prescribed antibiotics (amoxicillin +

clavulanic acid, 625 mg thrice a day for 6 days) and asked to avoid hard foods, at least in the first weeks after implant placement. Patient was recalled at 10 days, for a control and for removal of sutures, where present. After 3 months, the provisional restoration was replaced with the final metal-ceramic crown; that was screw retained. Occlusion was carefully checked and an intraoral periapical radiograph was taken to check final restoration seating. Patient was thereafter enrolled in a maintenance program with professional oral hygiene sessions every 6 months.

**3. Discussion**

The important factor for high success and survival rate of immediately loaded implant is their special microtopography and surface treatment of implants, which helps in osseointegration by deposition of new bone and promotes healing [10,11,18].

There has been comparison between delayed loading of implant and in cases of extraction followed by placement with immediate loading of implant, because the outcome of delayed is by undisturbed bone healing period compared to immediate loading of implant where bone training is done, this also provides high success and survival rates. [11,12]. Actually, the placement of implants in extraction sockets can be difficult [11,13]. It is difficult to obtain insertion torque or primary stability in extraction socket because the socket is generally larger than implant [11,13].

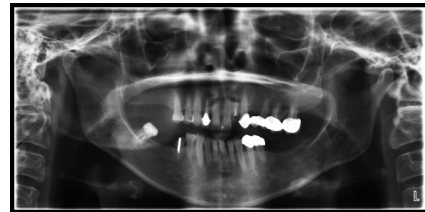
It is necessary requisition for success of implant to attain primary stability or else it will not succeed in early healing period because of mobilization, actually during early healing period initial bone deposition occurs which is important to form secondary stabilization i.e osseointegration which can happen only after achieving initial stability [14,15]. If this remodeling is not effectively counteracted and balanced by an adequate and rapid deposition of new bone on the implant surface, an adequate secondary stabilization (or osseointegration) of the implant is not possible, with a high risk of failure [14,15].

In one of the study it is shown that immediate loading of implant placed immediately after extraction doesn't affect the success and survival rates of implants [15]. In the same study the comparison was done between immediate loading using flapless method with delayed loading of implants with regular elevation of a surgical flap [15]. In another study the high success and survival rates were seen in cases of immediate loading of implants in posterior regions of maxilla and mandible, which had 4 year follow-up period [16].

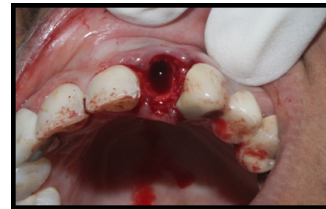
Initial stability after extraction of a tooth is gained good apical implant engagement, 3-4 mm deeper than the alveolus [11]. Better outcome for the primary stability can be achieved by incorporating the usage of fixtures with a better design i.e macrotopography are used, which are designed to gain primary stability [16,17]. Many studies are available in literature on immediate loading of implant which is placed immediately after extraction in anterior maxilla [18,19].

**4. CONCLUSION**

In this study the extraction of anterior maxillary tooth with immediate placement of implant and immediate loading of single implant was done, which showed high success and survival rate with one year follow – up of the patient. Incidence of low osseointegration didn't occur and prosthetically no such complication occurred.



Pre – Operative OPG



Post – Extraction of 21



Extracted 21.



Placement of Implant.



Immediate Loading with Composite.



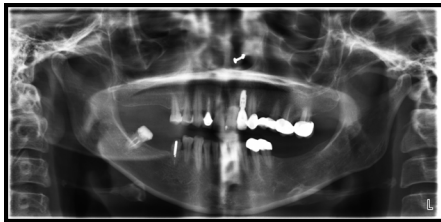
Post – operative



Pre – Operative



Post – operative IOPA



Post-operative OPG



Final Restoration after 4 months



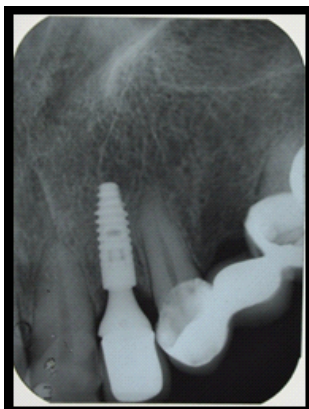
Final Restoration



Final Restoration.



Final Restoration



IOPA After final Restoration.

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