CLINICAL CASE REPORT

Sinus Augmentation with Immediate Implant Insertion

Multidisciplinary Approach to Anterior Implant Therapy

Immediate Implant after Extraction of Lower Molar Tooth

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Immediate Implant After Extraction of Lower Molar Tooth

Patient History

A 67 year old female of no known significant medical conditions was admitted to the clinic for evaluation of lower right first molar (#30). Her chief complaint was chronic suppurative odontogenic infection involving the right first molar, and painful upon biting. Clinical evaluation revealed a 10 mm depth of sulcular incision. The tooth was mobile. The clinical crown was also fractured on the distal side involving the buccal cusp. Patient also showed history of bruxism by the severely worn dentitions in her mouth. A periapical radiograph was taken which revealed radiolucency surrounding the distal root (Fig.1), a possible suggestion of perio-endo lesion. Treatment options of 1) Extraction, 2) Root Canal therapy and periodontal surgery with bone graft for tissue regeneration and crown, 3) Extraction and implant, were given to the patient. The pros and cons of each treatment options were explained to the patient. Patient decided to go with extraction and implant on the basis of long term success rate, and preservation of adjacent teeth.

Materials and Methods

Patient was prepped for implant surgery. 2g of Amoxicillin 500 was given for pre-op prophylaxis. Patient was anesthetized with Inferior alveolar nerve block and local infiltration around the tooth (#30). The entire healing phase of the implant therapy was uneventful. 4 Months post-op show good soft issue healing and new bone regeneration. The prosthetic was in good function and stable after 2 years follow up. Patient was pleased with the outcome, especially the less than expected pain level of the therapy. The two year follow up radiograph showed good preservation of the crestal bone, and cortication.

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The surrounding space of the implant fixture and bony defects were filled with these autogenous particulates as the graft material (Fig.6). A nonresorbable membrane (PTFE) was tucked under the gingiva and sutured in place to cover the implant site (Fig.7). Post-op radiograph was taken (Fig.8). Patient was dismissed with post-op care instruction and the follow up antibiotic regimen and pain medications (Amox.500mg and Vicodin as needed). Patient was recalled in one week for evaluation and the following week to remove the suture. One month later patient returned for membrane removal. 4 months later the implant was uncovered with minimal crestal incision and flap.

The implant site was evaluated (Fig.9,Fig.10), then an healing screw of 5.0mm diameter and 2.5 gingival height was screwed on to the fixture, and the site was suture closed with chromic gut suture.

Two weeks later, the Final impression was taken at fixture level using the transfer post (Dentium company). Gingival height was measure with a perio-probe. Abutment selection was made. The case was sent to the lab for fabrication of the final crown. Patient was dismissed with a healing abutment screw back in place. Ten days later, the patient returned for delivery of the final prosthesis. The selected abutment of 2.5 mm in gingival height and 5.5mm in diameter (Dual abutment by Dentium) was screwed in place at 25 N-m. the final PFM crown was cemented on to the abutment (Fig11). A peri-apical radiograph was taken for evaluation before the final cementation(Fig12).

A night guard was fabricated for the patient as part of post-op care. Patient was scheduled for follow up appointments at 6 months intervals during the hygiene appointments. A two year post-prosthetic radiograph was taken on record (Fig.13).
MULTIDISCIPLINARY APPROACH TO ANTERIOR IMPLANT THERAPY

Patient History

A 44 years old male in good physical condition was admitted to the clinic for a loose crown on left central incisor (#9). The patient also wished to have a better alignment and esthetics of his anterior teeth. Clinical and radiographic evaluation revealed a fracture tooth that was endodontically treated many years ago (Fig.1). The clinical crown had fractured to the gum line. The tooth was non-restorable without undergoing crown lengthening to expose more tooth structure.

Treatment plan.

The patient agreed and chose to do other available options. A limited orthodontic therapy to better align the anterior teeth followed by extraction and immediate implantation and temporization of tooth #9 was proposed to the patient. Patient concurred and wished to proceed with the treatment plan.

Materials and Methods

The crown of tooth #9 was removed, an endodontic post was placed (Fig.2), and a temporary composite crown was fabricated on top of the post (Fig.3). Orthodontic brackets with straight arch wire were placed from tooth #6 to tooth #11 to better align the anterior teeth (Fig.4). After 6 months of limited orthodontic treatment, patient was satisfied with alignment of his anterior teeth (Fig.5). Occlusion was checked and remained uneventful. Patient was then prepped for extraction of tooth #9 with immediate implantation. Orthodontic wire was removed. Tooth number #9 was carefully elevated out of the socket with minimal trauma by using periosteal instruments and piezoelectric unit. No gingival flap was raised. The socket was left well intact, with slight bucal dehiscence detected. A titanium fixture (Dentium Company) of 4.3mm body, 4.5 mm platform, and 10mm in length was inserted into the socket. Excellent primary stability was achieved.

post-operative instructions and antibiotic regiment. 10 days follow up check revealed uneventful. Patient was checked one month later. At 5 months after the initial placement of implant, patient was recalled for restorative procedure of tooth #9. The arch orthodontic was removed. A Round tissue punch of 4.5 mm in diameter was used to uncover the implant. Final impression was taken at implant level with transfer post. Gingival depth was measured, and appropriate shade was selected. The case was sent to lab for fabrication of final crown. The patient was dismissed with a temporary abutment and a composite temporary crown.

The orthodontic arch wire was reattached to the anterior teeth. Ten days later patient was readmitted for final cementation of the crown. A 4.5mm diameter Dual abutment (Dentium) and gingival height of 2.5mm was screw retained on to the fixture and the final crown was cemented on to the abutment (Fig7).

Results

Patient was very pleased with the final treatment result. The recovery phase of implant therapy was uneventful. Radiographic analysis of subsequent years showed well preserved crestal bone level. Dense cortical formation of the crestal bone surrounding the implant was also evident.
MATERIALS AND METHODS

Patient was instructed to take 2 grams of Amoxicillin 500 one hour before surgery for prophylaxis. Patient was surgically prepped and anesthetized. A full thickness flap was made from distal of tooth #2 to distal of tooth #5 by combination of sulcular, crestal, and vertical incision to gain access for lateral window sinus augmentation technique. Piezoelectric surgical unit was used for the osteotomy of sinus window. Using a specially designed sinus lifting elevator, the sinus membrane was fully lifted without any perforation nor tears in all dimensions of the sinus space. 6cc of pure phase Beta-Tricalcium phosphate (B-TCP) particulate of 500-1000 um in size were syringed into the prepared sinus cavity; care was taken not to over condense the graft material to ensure space for angiogenesis and cellular apposition. An implant fixture of 4.8mm body diameter, 10mm height, and 5.0mm diameter platform by Implantium (Dentium) company was inserted simultaneously at the implant site. Excellent primary stability was achieved. The sinus window was covered with resorbable collagen membrane and primary closure of the surgical site was achieved with 4-0 PTFE suture. An immediate post op X-ray was taken for evaluation (Fig.2).

RESULTS

Healing and patient progress was monitored periodically from post-surgical phase to final restorative phase and was uneventful. No complications were noted. The prosthesis remained stable and fully functional for 6 years, and the surrounding gingival tissue as well. In the radiographs taken during the 7 years interval, preservation of the bone level is well observed.