

Rehabilitation of Anterior Maxilla with Implant—A Case Report

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Abstract:

Modern dentistry has changed tremendously with implant therapy and key to success for the implant therapy is making a proper treatment plan and considering prosthetic part. Implant supported fixed dental prosthesis. It is the solution for cases that need restorations for esthetics, functions, lip support. This case report aims to present the esthetics and functional prosthetic rehabilitation partially edentulous maxilla with implants. Treatment by this option is a reliable alternative for porcelain fused metal fixed restorations.

Keywords : Esthetic Zone, Fixed Prosthesis, Implant Prosthesis

Introduction:

Tooth loss is multifactorial, complex interaction of multiple comorbidities which when left unresolved may progress to edentulism. Dental implants have taken over the contemporary dental treatment as a substitute of missing teeth that involve the use of titanium or titanium alloys for tooth root replacement (Dental Implant Fixture) to support fixed and removable oral prosthesis which are meant to restore the missing tooth.

In search for esthetics and functionality, both oral and dental, demands orthodontic and endodontic treatments, for the purpose of periodontal conditions, in extreme cases, lead to tooth loss. Currently, endosseous implants are used with established success in various clinical situations. A significant problem, however, is insufficient height or width of the alveolar bone at the implantation site. This may be caused by resorption of the alveolar bone after infection, extraction, or trauma, Restoration of missing teeth with implants in the anterior maxilla while maintaining acceptable interdental papillae presents a major restorative challenge. Full coverage of the implant surface with bone is a prerequisite for reliable insertion of an endosseous implant. Dental implants have greatly condensed the treatment time and number of surgical interventions. Recently it has been noted that this treatment modality can be used in aesthetically demanding cases especially the anterior maxilla.

The main objective in implant therapy is either to avoid conventional removable dentures by placement of implant and having implant supported fixed prostheses and that enhances the retention and stability of removable complete dentures. There are two approaches exist for an implant supported fixed prosthesis. The first one is a metal ceramic implant supported fixed prosthesis consists of a ceramic layer bonded to a cast metal framework that can be cemented to transmucosal abutments or secured with prosthetic retention screws.¹

The advancement of replacement of missing teeth by Endosseous Implants had reflected on the practice of dentistry. Successful oral implantation depends on the proper preoperative treatment planning which involves evaluation of the edentulous area. The objective of placing an implant is to achieve a successful prosthetic restoration.

The purpose of this clinical report is to present the clinical experience and positive outcomes of treating the patients with implants to meet the esthetics and function in the anterior maxilla.

Case Report 1:

A 35 year old female patient reported to the department with a chief complaint of compromised esthetic and missing teeth and had esthetic concern. On examination of the dental history the patient had generalized spacing in maxillary anterior region, partially edentulous with missing tooth with respect to 22 and a faulty prosthesis wrt 21. In patient medical history nothing abnormal detected. The treatment options that were told to the patient about the conventional removable partial denture implant supported fixed prosthesis. So the patient expressed the desire for the fixed prosthesis and the closing of the space present in the anterior teeth. As the treatment plan the patient was informed about placing an implant in the maxillary left lateral incisor followed by the orthodontic closer of the remaining teeth with spacing.

Pre surgical radiographic evaluation was carried out with CBCT for the available bone in the region of missing tooth. After measuring the socket lengths implants (ADIN) of size 3.75*11.5 mm were selected. Following day of surgery prophylactic antibiotic (Augmentin 625mg t.i.d for 5 days) was given orally. After injecting 2% lignocaine, with 15 no. blade a supra crestal incision was given and mucoperiosteal flap was raised to expose the implant placement site after sequential drilling with copious irrigation, the implants were placed. The implant resists a torque of 35 Ncm indicating good primary stability.



FIG: Raised mucoperiosteal flap

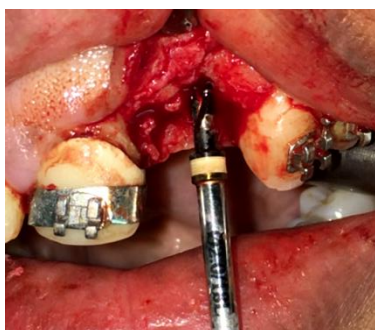


FIG: Parallisum of the drill

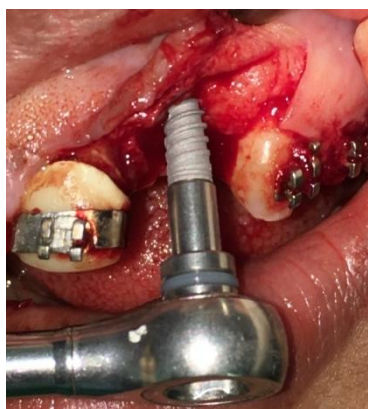
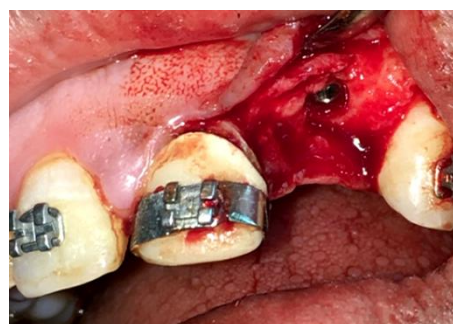


FIG: Placement of implant



Following a healing period of 3 months, periapical radiographs was taken for evaluation of the complete oseointegration, therefore, no obstacle to moving onto the prosthesis stage. Healing screw or gingival former was placed using small incision without raising any flap followed by impression making after one week. The rehabilitation of the faulty prosthesis irt 21 was done, with the implant prosthesis. For the purpose of implant the abutment level impression was made.



FIG: Intra-oral Prepared abutment



FIG: Final Prosthesis

Case Report 2:

A 27 year old male patient reported to the department with a chief complaint of compromised esthetic and missing anterior teeth. On examination the patient was partially edentulous with missing tooth with respect to 21, 22 and a faulty prosthesis wrt 21. In patient medical history nothing abnormal detected .The patient had a history of trauma in relation to front tooth region and undergone with the root canal treatment for 21 22, and mobility with the severity in mobility of the teeth the extraction was advised to the patient. The treatment options that were told to the patient about the conventional removable partial denture, fixed dental prosthesis and implant supported fixed prosthesis. So the patient expressed the desire for the fixed prosthesis with implants. Due the financial issue with the patient both the implant were done at different point of time. The radiographic evaluation was done with help of CBCT of the available bone and decision of the implant sizes was made. The defect was FP3 so to cover the defect gum porcelain was used.



FIG: After the second stage surgery



FIG: Final prosthesis on cast



FIG: Final Prosthesis

Discussion:

Planning for esthetic cases requires different diagnostic perspective; it should include additional factors such as smile patterns and lip size, etc². In addition, the restorative space for the prostheses, which is measured from the platform of the implant to the opposing occlusion, is often overlooked when implant positions are planned. The intra-arch distance in which implant components, metal substructure, placed plays a major role on selecting appropriate restoration.

Different study conducted by many researches has reported that, the success and survival rate of dental implant placed in anterior maxilla are almost same to other segment of jaw³. However, there is often inadequate bone to receive support implants. This can be the result of trauma, periodontal disease, endodontic infection, post-extraction ridge defects, disuse atrophy, etc.

Another pre-requesting of this case to achieve optimal result is soft tissue management. Successful dental implant restoration in issue framing esthetic zone required a healthy and correctly contoured soft tissue framing, which is defined as the gingival contour that surrounds the prosthesis⁴. Preservation of interdental papilla and gingival margin which is symmetrical with gingival architecture of adjacent gingival⁵. Achieving aesthetics interdental papilla which is completely fill the space between teeth or implants required interproximal bone crest of 5 mm. of estimated contact point in planned restoration⁶.

Three dimensional position of implant required to achieve optimal emergence profile⁷. Mesiodistally positioning of implant required 1.5 mm space between implant and adjacent teeth or between implant.

CONCLUSIONS

This clinical report has documented the esthetic and functional rehabilitation of the patients with implant supported fixed prostheses. A team approach is always necessary to rehabilitate such patients. An interdisciplinary approach is essential to evaluate, diagnose, and restore the function and esthetic problems using a combination of periodontist, prosthodontist, and oral surgeon. In this case, even orthodontic opinion was obtained to view the possibility of space maintenance. Periodontist worked on controlling the disease before implant placement and prosthodontist participated in the surgery for implant positioning. An improperly placed implant may result in compromised esthetic and functional outcome. However, it was concluded that this type of prosthesis can provide satisfactory results in patients of whom dental implants were placed regardless careful treatment planning. The authors also believe that it is essential to evaluate the patient not only with a surgical perspective, but also from a prosthodontic point of view.

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