Case report

Contouring And Preservation Of Soft Tissue Emergence Profile Around Dental Implant In Esthetic Zone- Case Report

ABSTRACT-

Implantology are becoming important in surgical dental practice and one of the major objective of an implant is considered the successful osseointegration. Although osseointegration is the key for implant survival but it does not ensure patient satisfaction. Now a days considering success as a goal, along with patient expectations playing a crucial role concerning esthetic outcomes. Soft tissue health and esthetics are critical to patient's perception and this is most challenging task for clinician for successful restoration. Implant position, abutment selection and final restoration are important parameters for a successful long term results of implant therapy.Due to multiple surgical procedures soft tissue contours are often compromised and it affects the esthetic of final resoration. Balance and symmetry of gingival margine and emergence profile of restoration are imperative for esthetic results. The emergence profile of dental implant should mimic the adjacent natural tooth.

Keywords: Anterior esthetic implant, emergence profile, customized prosthetic components, Immediate non function loading.

AIM- In this case report emergence profile was created by transferring the soft tissue contour from provisional to the final restoration and fabrication of final implant restoration was made with predictable esthetic results.

PRESENTATION OF CASE-

A 25 years old non smoker, male patient with malaligned dentition and missing right central incisor came to the department of prosthodontics Subharti Dental College & Hospital. The patient chief concern was to get the properly well aligned dentition with replacement of missing right central incisor and to preserve the natural appearance of gingival complex. Pre operative investigations were done including necessary radiographs, 3 dimentional imaging, clinical photographs and study model. Patient was referred to the department of orthodontics for correction of maloclussion and to create a space between right lateral incisor and left central incisor to obtaind sufficient space for prosthetically driven implantation.

After completion of orthodontic correction and obtaining optimum space patient surgery was planned. Appropriate local anesthetic solution was administered and flap was reflected. Osteotomy was prepared with sequential drilling and angulation was checked to ensure final implant positioning (fig 1). 3.75X11.5 mm diameter Alpha bio implant was placed and then stability of implant was checked using ostell devise. The implant stability quotient was 62 and immediate loading was planned. A laboratory processed customized acrylic crown was prepared on definitive abutment and non functional provisional loading was performed and flap was sutured(fig 2).

Patient was recalled after 15 days of surgery and sutures were removed and patient was advised to maintain the oral hygiene. After 1 month of surgery, orthodontic braces removed and provisionally loaded crown was modified by light cured microfilled composite to create the emergence profile (fig 3). The material was contoured via extra oral or indirect technique and polished to minimize

plaque accumulation and tissue irritation and placed to create the emrgence profile closest to adjacent natural tooth.

After 3 month when emergence profile has become scalloped by adding material on provisional restoration and due to pressure on soft peri-implant tissue. Crown was removed with abutment and placed in implant analogue. A putty index was made later impression coping is placed in implant analouge. Then light cured composite material added in space between implant analogue and impression coping on the putty index and later customised impression coping is placed in patient's mouth(fig 4) and closed tray implant impression was made. Final implant restoration was fabricated on final cast and delivered according to the design made with the provisional restoration (fig 5).

DISCUSSON-

The term "emergence profile" was first used in 1977 by Stein and Kuwata[1] to describe tooth and crown contours as they traversed soft tissue and rice towards the contact area interproximally and height of contour bucally and lingually. The soft tissue contours created during the provisional restoration must be preserved on the definitive model to have an accurate communication with the laboratory.Direct and indirect two techniques are used to create the emergence profile. Indirect techniques use the fabrication of custom impression copings, whereas direct techniques use the interim restoration or an in situ registration of the surrounding tissues.

In 1990, a photographic analysis of natural teeth by Croll, confirmed that most emergence profiles are relatively straight as opposed to convex or concave.[2]Improperly contours emergence profile may accumulate plaque and are difficult to maintain their hygiene. Accordingly, properly contoured restoration with a natural emergence profile and gingival architecture that harmonizes with adjacent teeth is very important for aesthetic and functional implant therapy.[3]Neale and Chee in 1994 were perhaps the first todescribe a technique for surgically sculpting soft tissuearound an implant to more closely mimic nature.[4] Morerecent published technique describes modifying provisionalcrowns incrementally rather than a surgical approach.[5] Aesthetic result of implant restorations depends on prostheticallyand biologically driven implant placement, visually satisfying restoration and architecture of the surrounding peri-implant soft tissue.[6-9]

In the present case report emergence profile was created and transferred to the final restoration via indirect or extraoral method to minimize the error. This dynamic compression technique in the estheticzone is a clinical method based on the initial pressure and subsequent modification of provisional restoration by adding composite material to mimic the natural tooth contours.

The long-term maintenance of the gingival architecture is depend upon the preservation of the crestal bone. In single-tooth-implant restorations, the preservation of the interdental papillae is also influenced by the condition of the adjacent teeth, a factor that can be helpful to achieve an esthetic result if the teeth are in a healthy periodontal condition.[10]Incorporation of restorative principles into surgical phase of implant dentistry are important for immediate provisionalization of implant restoration throught the healing phase. The benefits of creating an emergence profile around implant are proper contouring of facial gingival profile, proper interproximal contact points, proper contouring of line angles.

CONCLUSION-

This case report aiming to restore the complicated case of anterior maxillary implant where esthetic is of utmost important. A successful emergence profile was preserved, transferred, created and maintained in the long trerm with excellent esthetic clinical outcomes.

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LIST OF FIGURES-

FIGURES

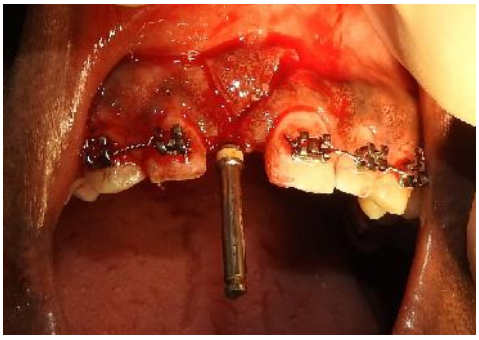

Fig 1- Osteotomy site prepared and angulation checked to ensure final implant position

Fig 2- Immediate non functional loading with provisional customized acrylic crown

Fig 3- Round appearance of emergence profile after 1 month of surgery

Fig 4- Scalloped emergence profile after 3 months of surgery

Fig 5- Final Restoration