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Revitalizing Contours: A Case Report

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Abstract
The common occurrence of mucositis and peri-implantitis has demonstrated that soft tissue health and thickness play important roles as a protective barrier to bacteria that can shorten the lifespan of dental implant treatment. Emergence profile can be defined as the contour of the tooth or restoration as it emerges from the gingiva. With dental implants, it is the contour of an implant restoration as it emerges from the implant platform. This article contains a case report demonstrating a technique of tissue sculpting to optimize the emergence profile and aesthetics for an implant in the aesthetic zone.

INTRODUCTION

Contrary to missing a posterior tooth, most patients have a strong response to a missing front tooth. The highly esthetic zone of the premaxilla often requires both hard and soft tissue augmentation. Maintenance and development of the soft tissue drape is often the most difficult part of the treatment, due to which maxillary anterior tooth replacement often poses a significant challenge irrespective of the skill and experience of the practitioner. [1]

Most Gingival formers and impression copings are cylindrical in shape and do not mimic the contours of the natural teeth. This leaves the laboratory technician to either make a prosthesis with a cylindrical or a hypothetically designed emergence profile, thus squandering any tissue sculpting done by the clinician with the help of provisional restorations. [2] Tissue sculpting and customized abutments can help us overcome this aesthetic concern.

CASE REPORT

A 23 year old patient reported to the department of prosthodontics with the chief complaint of missing upper front tooth. The patient was also dissatisfied with a chipped off neighbouring

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tooth. A history of trauma was reported 9 months ago resulting in the loss of 21 and a Class 1 Ellis fracture with respect to 11 (Figure1) . A treatment plan for an anterior Implant and veneer prosthesis was formulated for this patient.

Relevant radiographic investigations were made for implant placement.

Diagnostic impressions were made with irreversible hydrocolloid and models were poured.

An aesthetic diagnostic wax up (Figure 2) was done for the models and a thermoplastic sheet was used to make a stent for the same (Figure 3).

A veneer preparation was done for 11 .

Appropriate prophylactic antibiotics were started prior to implant surgery.

Mucosal flap reflection was done and the thermoplastic stent was placed and used as a guide for prosthetically driven implant positioning.

A bredent implant of size 3.5x 10mm was placed and a torque of 35N was achieved (Figure 4). Roll's technique of suturing was adopted for optimised soft tissue profile. (Figure 5 and 6)

11&21 were immediately temporized based on the aesthetic mock up done.

After 3 months of healing and osseointegration, stage 2 surgery was perfomed with the help of laser (Figure 7).

Abutment was attached and flowable composite was used to simulate the ideal emergence profile needed (Figure 8). Gingival profile was achieved.

A putty index was made of the customized abutment. Flowable composite was flow into the putty index made and fixed to the impression coping. (Figure 9-12)

A peek abutment was fabricated with the customized emergence profile and the work was sent to the lab for fabrication the Implant crown and veneer after shade matching. (Figure 13, 14)

Occlusal adjustments were performed to attain even centric and eccentric contacts. (Figure 15, 16)

Figure 1 Ellis Fracture Class 1 - 21

Figure 2 Aesthetic diagnostic wax-up

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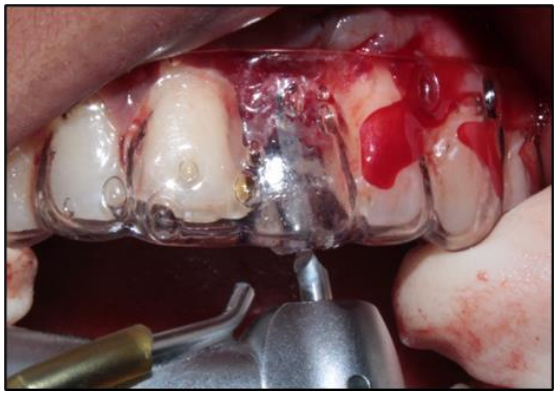

Figure 3 Thermoplastic sheet was used

Figure 4 Bredent implant was placed

Figure 5 Roll's technique suturing

Figure 6 Post-suturing

Figure 7 Stage 2 surgery with help of laser Figure 8 Abutment was attached

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Figure 9 Putty index was made

Figure 10

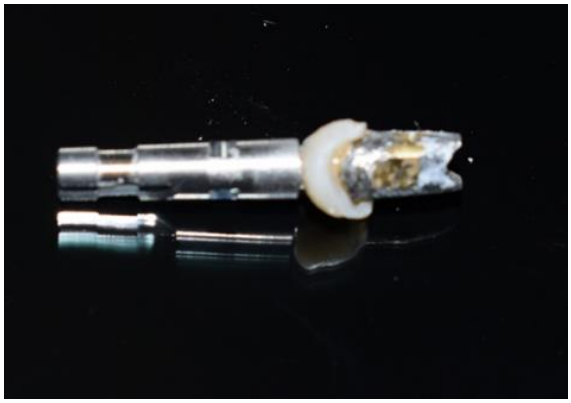

Figure 11

Figure 12 Fixed into impression coping

Figure 13 Putty index

Figure 14 Veneer after shade matching

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Figure 15 Occlusal adjustments in centric Figure 16 In eccentric

DISCUSSION

The emergence profile of an implant has a significant correlation with the hygiene, health of the peri-implant mucosa and the visual aesthetics. The adoption of a properly countered provisonal prosthesis is the best approaching to sculpt the peri-implant soft tissue. The final prosthetic reconstruction must mimic the soft tissue modifications established intra-orally thus making sure the lab technician can fabricate a final prosthesis with the same contours. [3,4]

A thick gingival biotype offers the most flexibility in terms of tissue sculpting.[5]

A thin gingival biotype when applied with a compressive load is more likely to collapse and lead to gingival recession thereby increasing the chances of gingival asymmetry. [5,6]

Standard gingival formers and tranfer copings often do not simulate the cross section of a natural tooth owing to their cyclindrical shape.

Many authors concur with the need for the final implant crown needs to simulate the peri-implant tissue anatomy obtained with the help of a provisonal for a succesful prosthetic outcome. [6]

The key aspect to achieve a natural and aesthetic outcome is the transfer of the impression coping. The operator should adopt an easy and reproducible technique to transfer the emergence profile to the impression and there on to the model cast in order for the dental technician to create the suitable contour for an optimum final esthetic outcome. [7]

CONCLUSION

In the ever evolving field of implant dentistry, there is a constant of upgradation. The technique of tissue sculpting gives us the control to manipulate the emergence profile of our implant prosthesis, thus elevating the aesthetic and functional final outcome that we can provide to our patients.

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