

Management of Anterior Single Tooth Emergence Profile in Implantology: A Case Report

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Keywords

Dental implants, Oral hygiene, Natural tooth.

Introduction

The implant solution has become a standard treatment for replacing missing teeth. Implant placement in the anterior region is a challenge for the practitioner. Success of an implant restoration, particularly a single implant crown depends on several factors namely, treatment planning, quality and quantity of bone at the recipient site, surgical technique, type of restoration and appropriate oral hygiene and follow-up [1]. An additional important factor is the management of the emergence profile. Emergence profile was defined as the contour of a tooth or restoration, such as the crown on a natural tooth, dental implant, or dental implant abutment, as it relates to the emergence from circumscribed soft tissues [2].

A proper management of the emergence profile and soft tissues allows a natural and aesthetic integration of the prosthetic device within the arch as well as a promote a biological peri-implant environment favorable to the survival of the implant. The purpose of this work is to describe, through a clinical case and based on the literature, the current concepts guiding in the management of the emergence profile during the realization of single-tooth implant restorations in the anterior sector.

Clinical Case

A 22-year-old woman was referred by the department of orthodontics and dentofacial orthopedics once the orthodontic treatment has been completed.

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The patient presented with agenesis of the 22 and requested an implant solution. Clinical and radiological evaluation revealed a healthy periodontal tissue, adequate alveolar bone, so it was decided to place an implant (Euroteknika Naturactis 3.0*12 NIP_30.120 Lot: SB1503041159).

In order to obtain the best esthetic result, a temporary prosthesis was performed. It will allow to organize the shaping of the gingival margin and the emergence profile of the future restoration and to recreate the aesthetic determinants: the presence and the volume of the interproximal papillae, the alignment of the gingival collars and the situation of adequate proximal contact points. For this reason, after the healing period, we proceeded in a first time to the placement of a provisional abutment, then we realized the provisional prosthesis directly in mouth by veneer technique (Figure 1). The buccal implant position means that the access to the implant is located at the incisal ridge (provisional phase) (Figure 2).



Figure 1: Provisional restoration recreating a natural emergence profile assembled with the provisional abutment.



Figure 2: Provisional restoration that recreate a natural emergence profile assembled with implant abutment.

The final impression was made after the soft tissue contour has matured, and the desired emergence profile was reached, the provisional prosthesis has played an essential role in soft tissue shaping (Figure 3). It is therefore necessary to record and transfer this situation to the prosthetic laboratory, a conventional impression transfer does not provide any information about this gingival architecture and only records the position of the implant. We therefore opted for the custom impression coping described by Hinds 1997 [3]. We used duralay resin to record the emergence profile (Figure 4). We received the final anatomic tissue cast showing the accurate transfer record of the heated tissue (Figure 5) and we proceeded to clinical and radiographic verification of the complete seating of implant abutment (Figure 6). The final prosthesis is a Lisi Gc crown bonded to a zirconia abutment which is itself bonded to a ti-base (Figure 7). The custom screw-retained abutment shows how well it is adapted to the supra-implant gingiva from the start (Figure 8). The final result reveals a perfectly supported gingival architecture for an optimal aesthetic integration of the prosthesis (Figure 9).



Figure 3: Soft tissue shaping with a natural emergence profile.

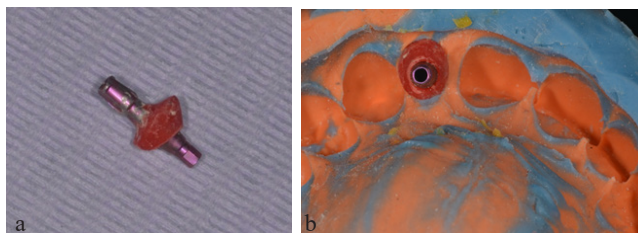


Figure 4: a: Impression post removed and evaluated, b: Custom impression coping retained in the impression material.

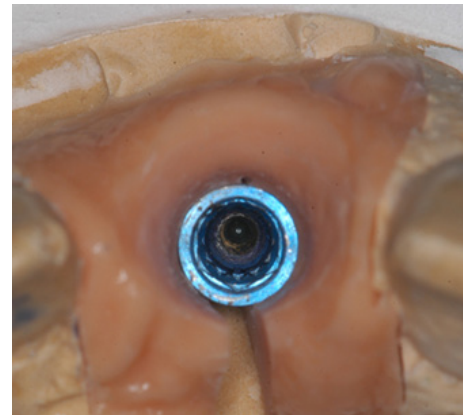


Figure 5: Final anatomic tissue cast showing the preservation of papilla.



Figure 6: Clinical verification of the implant abutment.



Figure 7: a Lisi Gc crown bonded to a zirconia abutment which is itself bonded to a ti-base.



Figure 8: Buccal view of the custom screw-retained abutment.



Figure 9: The final result immediately after placing the prosthesis in the mouth.

Conclusion

The elaboration of the emergence profile by provisional prosthesis and the use of custom implant impression copings are essential steps in the success of supra-implant restorations, especially for the anterior region.

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