

IMPLANTS

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Pre-extraction Therapy for Immediate Implant Placement

By Gonzalo Blasi (/spear-review/author/gonzalo-biasi/) on February 29, 2024 |  (/bookmarks/bookmark/40075) SHARE

In implant (<https://www.speareducation.com/spear-review/category/implants>) dentistry, the immediate placement and loading of implants stands out as a highly desirable practice. It is an approach that offers many patient-centered advantages, foremost among them being a substantial reduction in overall treatment duration and a corresponding decrease in the need for multiple interventions, thereby reducing the associated morbidity.

Moreover, applying provisional restorations in immediate implant (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4439681/>) placement and loading may play a pivotal role in preserving the integrity of both hard and soft tissue, ultimately contributing to achieving optimal esthetic (/spear-review/2013/08/evaluating-facial-esthetics-facial-profile) outcomes. In cases where sites exhibit local anatomical features categorized as high-risk factors, such as lack of buccal bone and/or greater than 2 mm gingival recession, practitioners commonly consider other approaches. Nonetheless, adjunctive treatments, such as connective tissue grafting, are commonly considered when moderate risk factors, such as minor gingival recession, are present. It has been advocated that an augmented mucosal thickness using a connective tissue graft can contribute to the stability of the peri-implant soft tissue margin in the long term.

With this in mind, let's take a look at a situation where pre-extraction therapy was used in an immediate implant (https://journals.lww.com/implantdent/fulltext/2010/04000/immediate_implant_placement__positives_and.3.aspx) placement case:

Initial Presentation

A 45-year-old female patient, free from systemic health conditions, initially presented with a compromised upper left central incisor. The affected tooth exhibited conspicuous characteristics, including an extensive composite restoration, cervical caries, and a 2.5 mm gingival recession compared to the contralateral tooth. Notably, it also featured a 5 mm band of keratinized tissue and exhibited probing depths ranging from 1 to 3 mm.

Radiographically, the tooth displayed evidence of previous root canal treatment, a horizontal fracture, and a periapical lesion. Also, the adjacent upper left lateral incisor was observed to have an all-ceramic crown supported by a metallic post, accompanied by indications of coronal leakage and symptomatic to percussion. (Figure 1.)

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Figure 1: How the patient presented.

Pre-extraction Therapy

The metallic post in tooth #10 was removed, and a root canal re-treatment was carried out. Additionally, a vertical preparation of tooth #9 was performed to reduce its cervical contour and optimize the positioning of the gingival margin prior to extraction. Subsequently, both teeth were provisionally restored using two splinted PMMA crowns.

After an initial period of 15 days, a 2mm portion of the margin of the provisional restoration on tooth #9 was carefully trimmed. This procedure was repeated at 15-day intervals until the gingival margin of tooth #9 migrated coronally, nearly aligning with the position of the contralateral tooth's margin. (Figures 2-4.)



Figures 2-4: The pre-extraction process.

Extraction and Implant Placement

Tooth #9 was extracted using an atraumatic approach involving a sulcular incision and gentle forceps manipulation. Concurrently, the tooth's periapical lesion was addressed, and the socket was meticulously cleaned using hand instruments and saline solution.

A surgical guide was employed to ensure precise placement of a 4.2 x 12 mm implant, achieving a torque of 35 Ncm. Importantly, the implant was positioned with a deliberate 2 mm gap between its connection point and the buccal bone plate. Also, it was positioned 4 mm apical to the envisioned mucosal margin.

Following the initial surgical phase, a pick-up procedure was executed using the same provisional restoration. Subsequently, a surgical pouch was created in the area of tooth #9 using tunneling instruments. A connective tissue graft was harvested from the tuberosity and inserted into the pouch, secured in place with 6-0 polypropylene sutures. The gap was then filled with a demineralized bovine bone mineral. The provisional crown underwent meticulous polishing in the laboratory, ensuring that the cervical margin was positioned 1.5 mm

coronally to the level of the contralateral tooth's gingival margin. Additionally, the provisional crown played a pivotal role in anchoring a cross suture, assisted by a flowable composite, to facilitate coronal advancement of the mucosal margin. (Figures 5-8.)



Figures 5-8: Extraction and Implant placement process.

Final Restoration

After a healing period of 4 months, modifications were made to the provisional crown margin, adding material buccally to shift the mucosal margin apically, aligning it with the contralateral tooth's gingival margin. Once this alignment was successfully achieved, a final impression was taken to facilitate the restoration of the implant. This entailed the customization of an anodized titanium abutment followed by the placement of a ceramic crown. (Figures 9-11)



Figures 9-11: Final restoration in place.

I hope the example outlined here helped further your understanding of how techniques such as pre-extraction therapy can help facilitate optimal outcomes in immediate implant placement (<https://campus.speareducation.com/workshops/implant-fundamentals/details/syllabus/>) cases.

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