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Case Study

T-Shaped Incision Technique for Second-Stage Dental Implant Exposure: A Conservative Approach for Optimized Soft Tissue Management

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Abstract

This case series presents a novel T-shaped incision technique used in the second-stage exposure of dental implants in three medically free female patients aged 22, 50, and 55 years old. The approach was designed to preserve papillae, minimize trauma, reduce bleeding, and eliminate the need for suturing. Healing was uneventful in all cases, with a favorable emergence profile and excellent soft tissue adaptation during six-month follow-up. This technique provides a conservative, predictable alternative to traditional flaps in non-esthetic zones.

Keywords: *T-Shaped Incision Technique; Dental Implant; Soft Tissue*

Introduction

The management of peri-implant soft tissues at the second-stage surgery of implant case (implant uncovering surgery) is a crucial step to improve the final functional and esthetic aspect around the implant supported restoration. Second stage surgery is not always taking with care and is considered unessential phase, although it could define the health stability of the peri-implant tissue, both hard and soft tissues. This step gives an excellent opportunity to preserve, preserve and even reconstruct the soft tissue to optimize the soft tissue profile around the implant components [1].

Conventional methods for second-stage implant exposure commonly use mid-crestal or punch techniques. These may lead to soft tissue trauma, loss of papilla, loss of a part of keratinized soft tissue [2], or increased healing time, especially when performed in cases where tissue preservation is essential. Several flap designs have been proposed for the second-stage exposure of dental implants, including the U-shaped flap, apically repositioned partial-thickness flap, rotated double-pedicle flap, and the modified roll flap [2]. Vertical mid-crestal incision, I-shaped incision and H-shaped incision are some of incisions used for dental implant exposure in the second stage also [3,4].

T-shaped incision, involving a crestal cut paired with a bucco-lingual component, is proposed to overcome these limitations. This case series evaluated the effectiveness of this method in different clinical contexts, emphasizing soft tissue stability, healing time, and esthetic outcomes.

Patients and Methods

Patient information

- Patient 1 (Female, 50 years): Missed lower incisors (32-42). Two implants placed (3.75 × 11.5 mm). Required buccal grafting.
- Patient 2 (Female, 55 years): Similar edentulous area as patient 1, with same implant dimensions. No grafting needed.
- Patient 3 (Female, 22 years): Missed lower left molars (36-37). Two implants placed (4.2 × 11.5 mm). No grafting needed.

All patients were medically free, non-smokers, and demonstrated acceptable oral hygiene. Osseointegration time was 4 months.

Surgical technique: T-shaped incision

Tools used

- 15C scalpel blade
- Mucoperiosteal elevator
- Implant screwdriver.

Incision design

1. Crestal incision: Begins just at the margin of the implant platform, extending from one side of the platform to the other (2 mm wider than implant diameter), preserving the interdental papilla.
2. Bucco-lingual incision: Perpendicular to the crestal incision, extending 1 mm buccally and 1 mm lingually beyond the implant diameter (Figure 1).

Figure 1: *T-shaped incision.*

Procedure

- Full-thickness mucoperiosteal flap was elevated.
- Cover screw removed and replaced with healing abutment (Figure 2).
- No sutures placed.
- Healing time: 2 weeks.

Figure 2: *Healing abutment in place.*

Results

- Healing was uneventful in all three patients.
- Emergence profile was well-established within 2 weeks (Figure 3).
- Esthetic and functional outcomes were satisfactory.
- No recession, soft tissue loss, or infection occurred.
- Follow-up at 6 months showed stable soft tissue contour and healthy peri-implant mucosa (Figure 4).

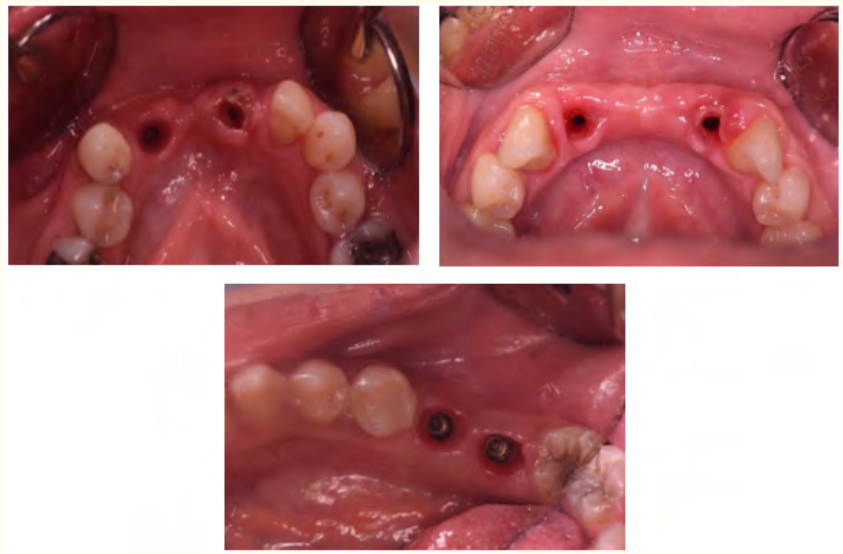

Figure 3: *Emergence profile after 2 weeks.*

Figure 4: *6 months follow up.*

Discussion

There are great efforts to preserve soft tissue around dental implant to gain good esthetics and specially when there is limited keratinized tissue, so many clinicians prefer flap than punch [5]. But flap approach has some limitations as less comfortable to the patient [6], crestal bone loss, bleeding and need suture [7]. In this T-shaped incision approach we could overcome a lot of these limitations. The flaps were minimally elevated and healing abutments were connected. Each flap was supported by the healing abutments and able to plump up stably.

Compared to conventional techniques, this novel approach offers several advantages, including reduced chairside time, minimized postoperative discomfort, shortened healing period, papilla preservation and preserve the bucco-lingual tissue dimensions (in comparison to other incisions, like I shape incision), which is crucial for both function and esthetic outcomes. By utilizing a suture-less design with minimal incision, the method preserves the vascular supply to the overlying flap and significantly lowers the risk of tissue trauma or inflammatory complications. It is recommended to be applied at upper anterior region too, to guarantee better esthetic results in both buccal and proximal soft tissue preservation levels.

Conclusion

The T-shaped incision is a minimally invasive and effective technique for implant exposure in the second-stage surgery phase. It allows for rapid healing, papilla conservation, and excellent soft tissue adaptation, offering clinicians a reliable alternative to traditional methods, particularly in limited keratinized tissue situation, trying to preserve it as much as we can. It is recommended to be applied in implant cases at upper anterior zone.

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