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Covering Palatal Donor Sites Using Flowable Dental Composite: A Case Series

Owen Trinh , Flavia Lakschevitz
Graduate Program in Periodontics, University of Minnesota

Introduction

Harvesting free gingival graft (FGG) for soft tissue augmentation has been associated with more postoperative discomfort, bleeding and swelling.¹⁻² Several studies have explored techniques to cover palatal donor sites after harvesting FGG, including acrylic resin or vacuum-shell palatal stents, collagen sponge, oxidized cellulose, cyanoacrylate tissue adhesive with dressing materials, and platelet rich fibrin (PRF) bandage.³ Although cyanoacrylate and PRF were associated with reduced postoperative pain and better bleeding control,⁴⁻⁶ the vacuum-shell palatal stent technique was shown to be most effective at reducing postoperative morbidities and leading to higher willingness of patients to go through the same procedure.^{3,7} However, the fabrication of a vacuum-shell palatal stent necessitates an impression of the maxilla and laboratory labor. Thus, a technique that offers the clinical benefits similar to those of the vacuum-shell palatal stent but without additional chair-side and laboratory labor would be beneficial to both patients and clinicians.

Aim

This case series illustrates using flowable dental composite to fabricate a palatal composite stent as a predictable and less time-consuming method for covering the palatal donor sites, and reports the patient-based outcomes, performance of the composite stent and the healing of the donor sites.

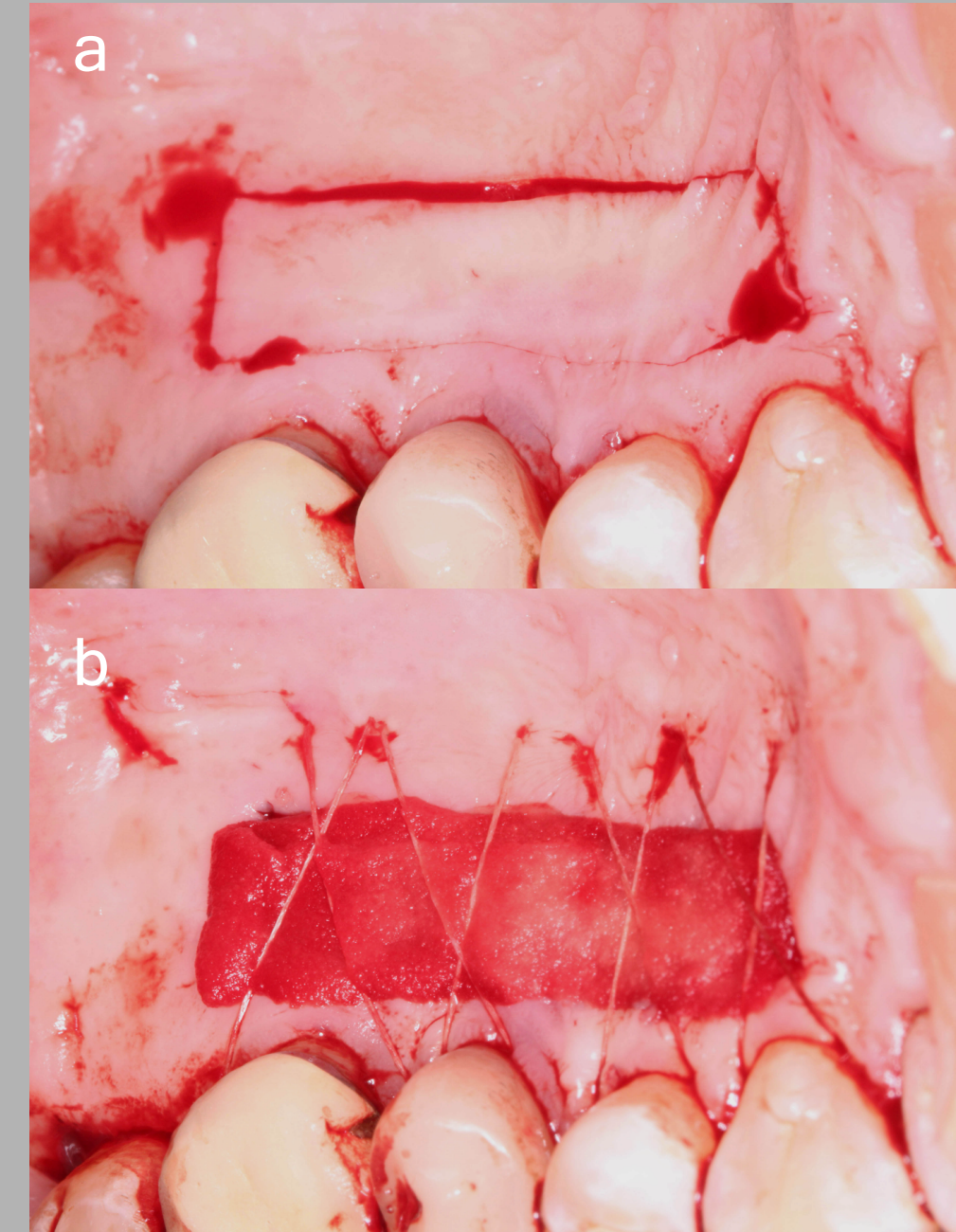


Figure 1

Figure 1 - Traditional wound dressing technique

Collagen tape, compression suture, with or without a vacuum-formed palatal stent

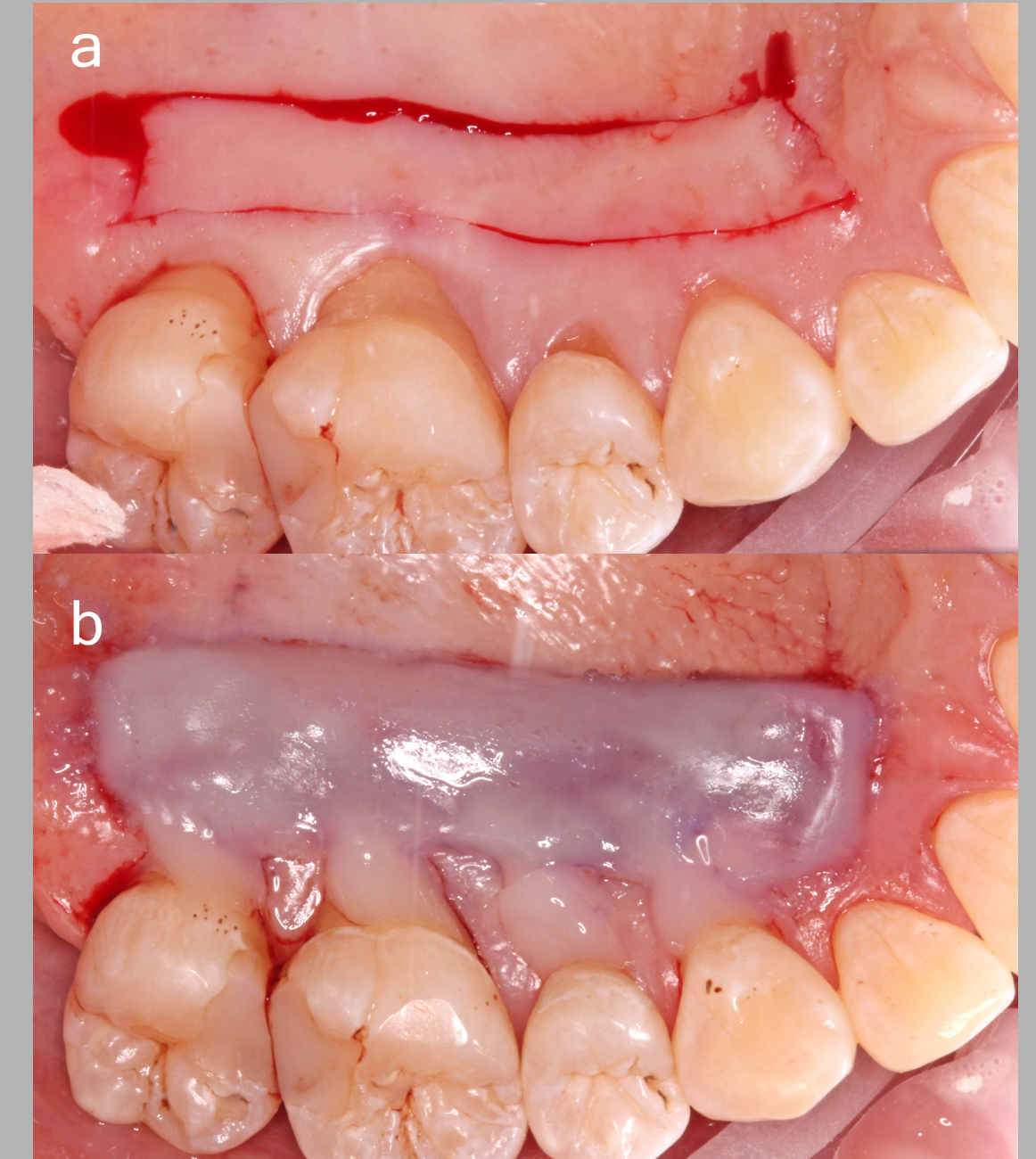


Figure 2

Figure 2 - Palatal composite stent technique

Donor site covered with palatal stent fabricated with flowable composite

Covering Palatal Donor Sites Using Flowable Dental Composite: A Case Series

Materials & Methods

This technique was utilized in two patients who received root coverage for multiple gingival recession defects and in ten patients who received gingival augmentation on natural teeth or implant sites.

Protocol:

Fig. 3a - Palatal donor tissue was obtained with free tissue harvesting technique.⁸

Fig. 3b - Donor site was dressed with collagen tape.

Fig. 3c - Flowable composite was layered and light-cured on top of the collagen tape with extensions attached to the spot-etched palatal teeth surfaces.

Cyanoacrylate oral adhesive was applied along the borders of the stent.⁴

Fig. 3d to e - At 2-3 weeks follow-up, stent was removed with a periodontal curette

Fig. 3f - Enamel and root surfaces were scaled and polished to remove residual composite and deposit.

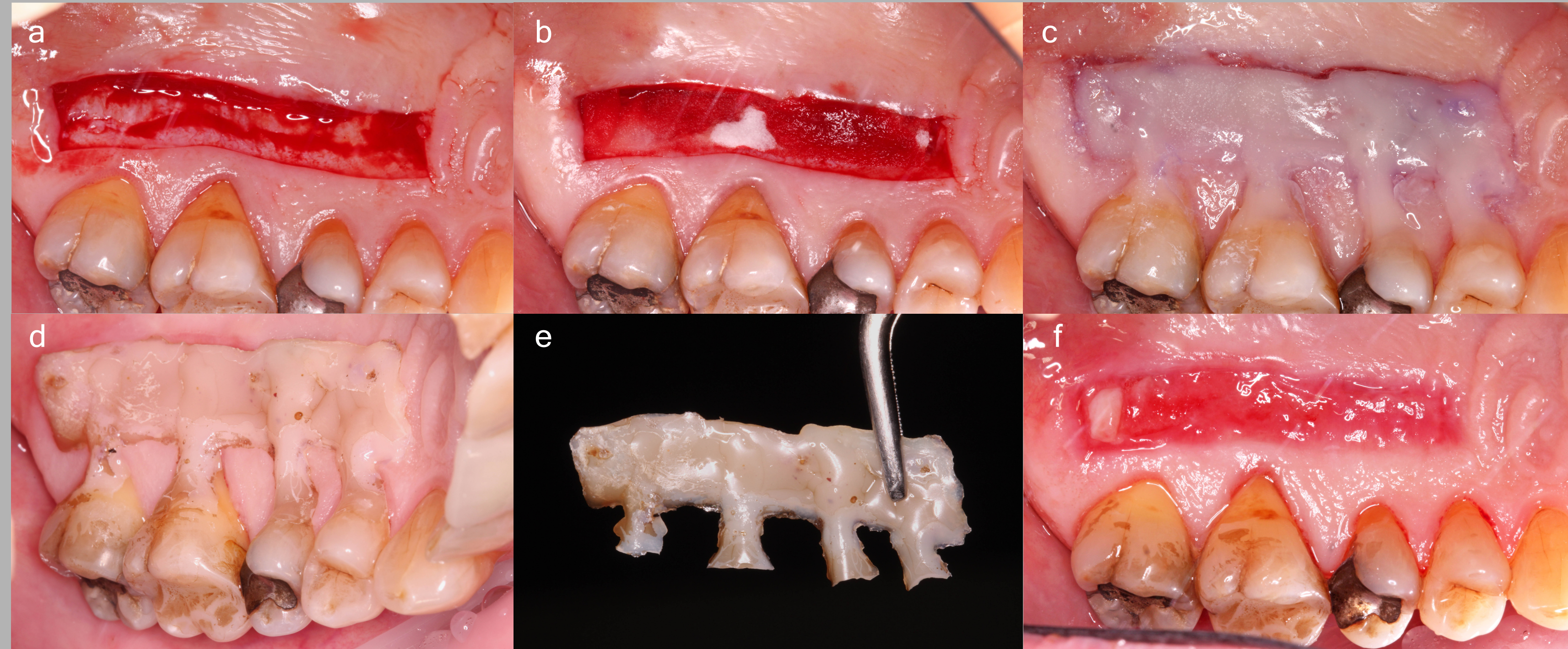


Figure 3 - Palatal composite stent fabrication and removal protocol

At 2-3 weeks follow-ups, patients were asked to report postoperative pain (0-10 scale), bleeding, swelling, complication with palatal composite stent, chewing and oral hygiene tolerance, and their willingness to go through with another soft tissue grafting that involved harvesting FGG.

Covering Palatal Donor Sites Using Flowable Dental Composite: A Case Series

Results

Pt. #1

Pt. #2

Pt. #3

Pt. #4

Pt. #5

Pt. #6

Pt. #7

Immediate
after
placement



2-3 weeks
post-op

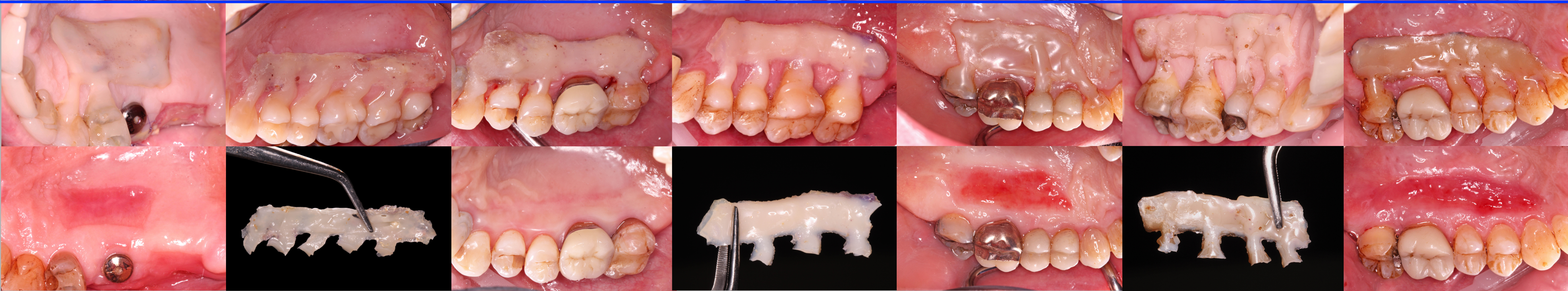


Figure 4 - Patients with palatal composite stents that required clinical removal at 2-3 weeks follow-ups.

Covering Palatal Donor Sites Using Flowable Dental Composite: A Case Series



Figure 5 - Patients with palatal composite stents that spontaneously dislodged between day 4th and 7th after placement

- Excellent hemostatic control immediately after placement
- At 2-3 weeks follow-ups, absence of ulceration and minimal erythema at the donor sites.
- Five stents dislodged between days 4th and 7th (Fig. 5), and the other seven were clinically removed at 2-3 weeks follow-ups (Fig. 4).
- Upon removal of the stents, the interdental and free gingival margin tissues were not severely inflamed, and they quickly returned to health after debridement (Fig. 6e-f).
- Despite minimal thickness of 0.8mm to 1.3mm (Figs. 4, 6d), the stents maintained their structural integrity.
- All patients reported minimal pain and no post-operative bleeding at the donor sites, high activity tolerance (speech, chewing soft food and performing oral hygiene).
- The patients whom were instructed to floss and brush with soft surgical toothbrush in the donor area were able to do so without causing bleeding and dislodging stent.
- All patients indicated willingness to go through another procedure that involves harvesting palatal tissue.

Covering Palatal Donor Sites Using Flowable Dental Composite: A Case Series

Conclusion

- Covering palatal donor sites with light-cured flowable composite provided excellent hemostatic control.
- The composite stents were stable despite being attached to dentin, or having as few as two available maxillary teeth for anchoring.
- The stents remained in place for four or more days, exceeding the three days that clinicians typically recommend patients to wear the traditional vacuum-shell palatal stent.
- Despite being thin, the stents maintained their structural integrity during healing and mechanical removal.
- This technique was associated with no postoperative complications, acceptable healing of the donor sites, minimal discomfort and activity restriction, and high patient's willingness to have same procedure.
- This technique avoided the need to fabricate a vacuum-shell palatal stent, and was neither technically-demanding nor time-consuming to perform.

References

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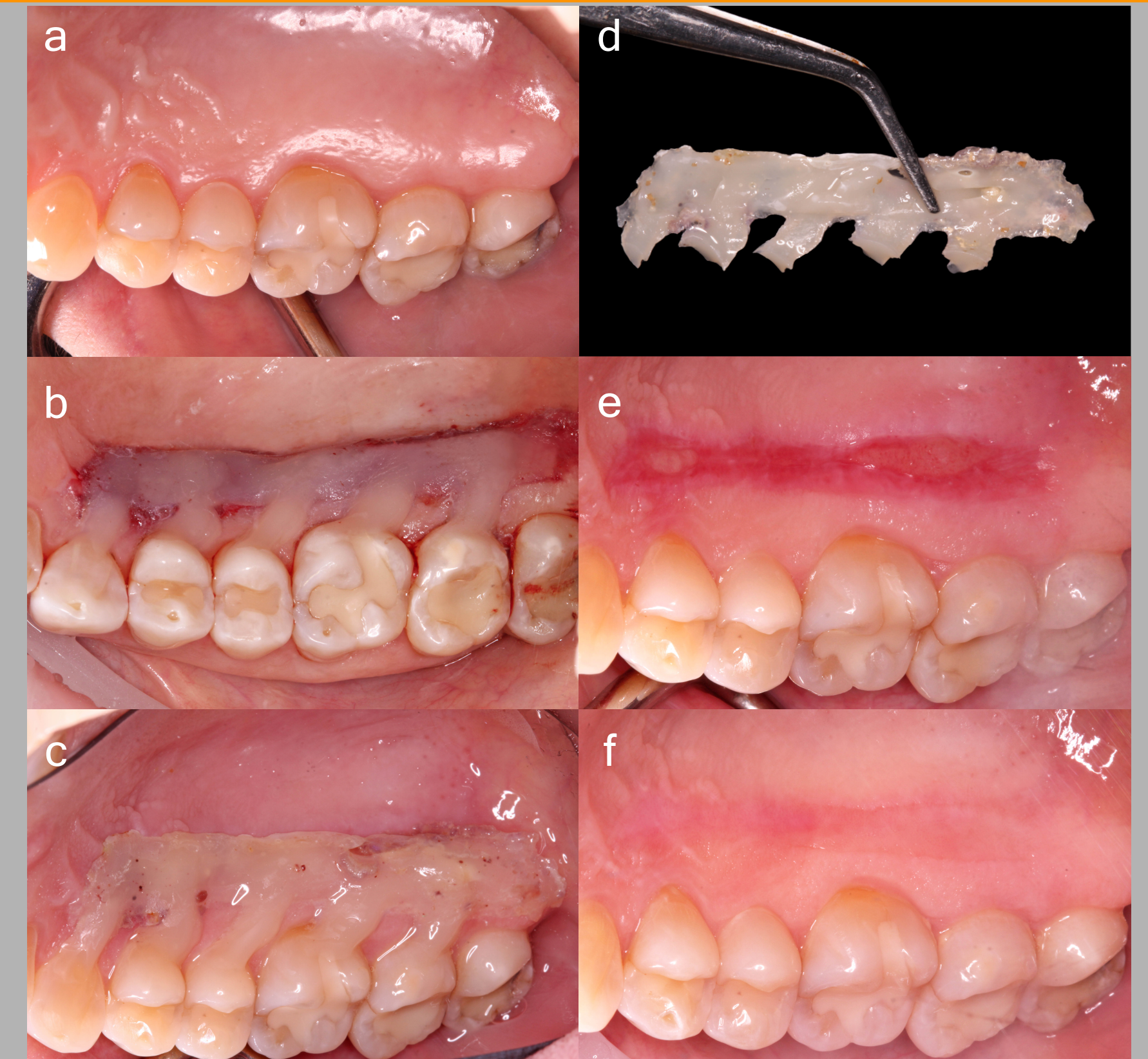


Figure 6 - Palatal gingival tissue pre and post stent placement