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CASE SERIES

Optimized Healing of the Donor Wound Area with Ora-Aid, the Miracle Mix Containing Polymers and Vitamin E: A Case Series

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Abstract

Aim: To assess the donor site (in the palate) wound healing in free gingival graft (FGG) procedures after the placement of Ora-aid wound dressing.

Methods: A total of five patients who underwent treatment for isolated gingival recession with free gingival graft procedure were enrolled for the study. The palatal donor site was covered with Ora-aid instead of the traditional acrylic stent.The various parameters assessed were: thickness of palate, pain using the visual analogue scale (VAS), measurement of size of surgical wound, wound healing assessment, direct visual assessment of oedema, suppuration, haemorrhage and necrosis and patient satisfaction through direct interaction/communication. Thus, the purpose of this case series was an objective observation of the donor site after the placement of Ora-aid dressing.

Results: All of the enrolled subjects showed significant improvement of the wound healing parameters. No untoward post-operative complications were reported.

Conclusion: Ora-aid can contribute to a substantial reduction in patient discomfort and thus can be a substitute for the acrylic stent.

Keywords: Ora-aid, Wound healing, Palate, Pain

Introduction

Free Gingival Graft (FGG) procedures have a track record of simplicity and expediency when it comes to periodontal plastic surgeries. It has a dual purpose of root coverage as well as augmentation of attached gingiva. The credit for the discovery of this surgical technique goes to Bjorn (1963).[1] However FGG comes with a baggage of disadvantages namely colour mismatch, bulky appearance, pain, burning sensation and delayed wound healing at the donor site, all of which contribute to extreme discomfort for the patient.[2,3] The reason for delayed wound healing at donor site is due to healing by secondary intention. The heavy bleeding, food lodgement, tongue movements exaggerate the swelling and worsen the wound healing at the palate (Sato 2000, Zucchelli and Mounsiff 2015).[4,5] All of these necessitate the use of an oral dressing at the palatal donor site and not just a stent.

The adhesive wound covering material used in this study was Ora-Aid (TBM, Gwangju, Korea). It is a non-eugenol protective dressing composed of hydrophilic high-density polymers encapsulated in water-insoluble mucoadhesive synthetic cellulose and also contains vitamin E which has wound healing and homeostatic effects. (Technological biomaterials 2017) (Youngsuk

2017). It is available in two rectangular sizes (50 mm × 20 mm or 25 mm × 15mm). In this study, 25 mm × 15 mm sized Ora-aid was applied.

The adhesive surface of Ora-aid is placed directly on the oral mucosa which induces the oral cavity to produce a protective layer. The perks of Ora-aid are that it aids in haemostasis, provides physical protection from food, bacterial irritants, cigarette smoke and the inherent mint flavour reduces halitosis. One more added advantage is that it falls off in approximately 6 -12 hours precluding a separate visit for pack removal.[6]

Materials and Method

Study population

A total of five patients were included in the study, out of which three were males and two were females with a mean age of 20- 30 years.

Inclusion criteria

Patients who were indicated for root coverage, patients aged over 18 years, patients willing to participate, absence of uncontrolled medical conditions, and patients with full mouth plaque score </= 10% (O'Leary 1972) were included in the study.

Exclusion criteria

Pregnant or lactating females, patients with uncontrolled medical conditions, patients with untreated periodontal conditions were excluded from the study.

Pre-surgical treatment

All selected patients underwent a session of oral prophylaxis and oral hygiene instructions were given.

Intra-surgical measurement

After administration of local anaesthesia, the thickness of the palatal soft tissues in the harvesting area was measured according to Paolantonio.[7] The measurement was made at the mid palatine location 5mm apical to the gingival margin of the first premolar, by means of a no.15 endodontic reamer. The reamer was inserted perpendicular to the mucosal surface through the soft tissue with light pressure until a hard surface was felt. The silicone disk stop was then placed in tight contact with the soft tissue surface. The penetration depth was measured with a UNC 15 probe and rounded off to the nearest mm.

Surgical technique

After the harvesting of free gingival graft and placement at the recipient site, the wound area was irrigated with saline solution and the Ora-aid was cut into the appropriate shape and size. It was then peeled off from the transparent release film using forceps and applied on the wound. The dressing was then gently pressed for 5-10 seconds till it adhered to the wound.[8]

Post-operative instructions

Patients were advised to avoid hot and hard foods and not to disturb the wound area. Routine antibiotics (3 times a day for 3 days) and analgesics (2 times a day for 3 days) were prescribed along with chlorhexidine mouthwash (2 times a day for 14 days). The importance of oral hygiene maintenance was emphasized.

Post-operative assessment

Patients were asked to report the time of shedding of Ora-aid. Photographs of the donor site were taken on the 2^{nd}, 7^{th}, 14^{th} and 30^{th} days.

The following parameters were evaluated and recorded on the same days:

1. Thickness of palate
2. Pain using the visual analogue scale (VAS)[9]
3. Measurement of size of surgical wound
4. Wound healing assessment (Landry *et al.*, 1988)[10]
5. Direct visual assessment of oedema, suppuration, haemorrhage and necrosis
6. Patient satisfaction through direct interaction/ communication

Statistical analysis

All analysis was done by SPSS version 20.0. Qualitative data was expressed in percentage and quantitative in mean(SD). Chi square test was used for associating qualitative variables. p value <0.05 was considered statistically significant.

Results

1). Retention time ranged from 6 hours to 24 hours.

Table 1: Retention time

	Retention time
Patient 1	8 Hours
Patient 2	6 Hours
Patient 3	8 Hours
Patient 4	24 Hours
Patient 5	11 Hours

Table 2: Thickness of palate

	Baseline	14Th day	30Th day
Patient 1	1.5Mm	1.0Mm	1.5Mm
Patient 2	3.0Mm	2.8Mm	3.0Mm
Patient 3	2.5Mm	2.2Mm	2.5Mm
Patient 4	1.0Mm	1.0Mm	1.0Mm
Patient 5	0.9Mm	1.0Mm	1.0Mm

2). Thickness of palate ranged from 1.5 – 4 mm with an average (mean) of 1.7 mm

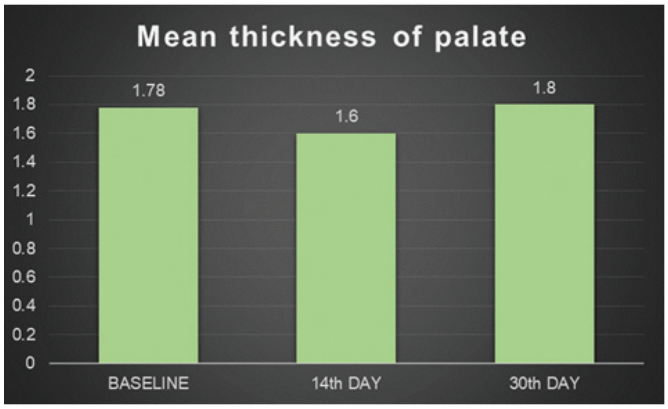

Figure 1: Mean thickness of palate

3). A Visual Analogue Scale was used to assess the pain immediately after the surgery for each participant. This recording was repeated on 14th day and 1 month later.

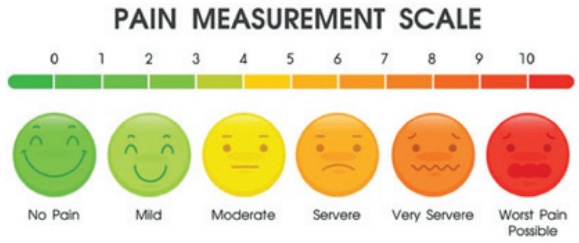

Figure 2: Visual analogue scale

Table 3: Assessment of pain

	Baseline	14Th day	30Th day
Patient 1	6	1	0
Patient 2	7	2	0
Patient 3	7	2	0
Patient 4	8	3	0
Patient 5	9	3	0

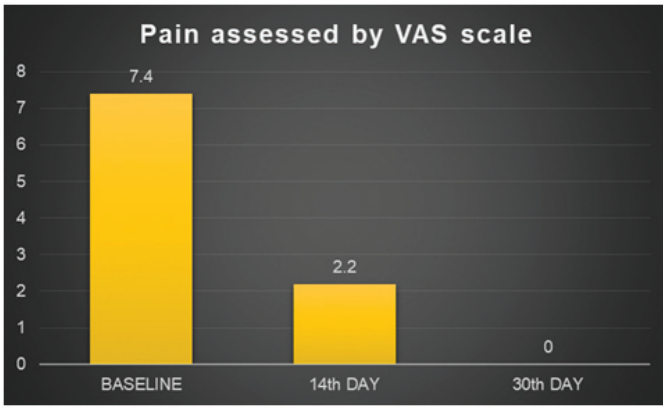

Figure 3: Pain assessed by VAS scale

4). Assessment of size of the surgical wound

The surgical wound area was assessed on the day of surgery and on all the subsequent visits (14th day and 1 month).

Table 4: Size of the surgical wound

	Baseline	14Th day	30Th day
Patient 1	10Mm	5Mm	0 Mm
Patient 2	10Mm	6Mm	0 Mm
Patient 3	10Mm	4Mm	0 Mm
Patient 4	9Mm	5Mm	0 Mm
Patient 5	9Mm	4Mm	0 Mm

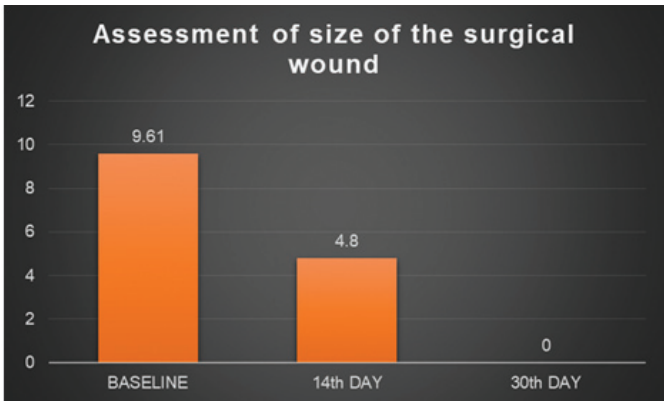

Figure 4: Assessment of size of the surgical wound

5). Wound healing assessment (Landry*et al.*, 1988)

This wound healing index assessed various aspects of the wound namely colour, response to palpation, granulation tissue, incision margins and suppuration.

Table 5: Assessment of wound healing

	Baseline	14 Th day	30 Th day
Patient 1	1	3	5
Patient 2	1	2	4
Patient 3	1	3	5
Patient 4	1	3	5
Patient 5	1	3	5

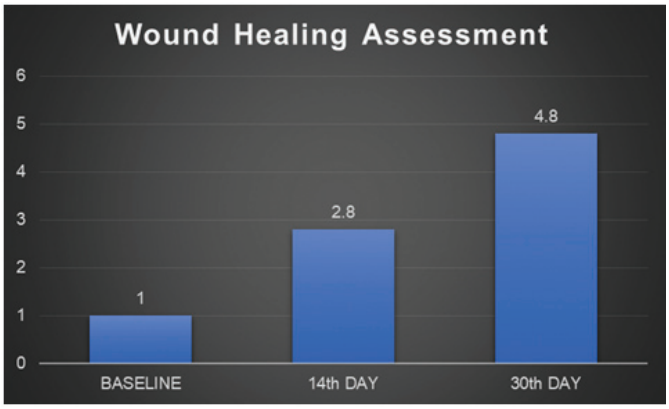

Figure 5: Wound healing assessment

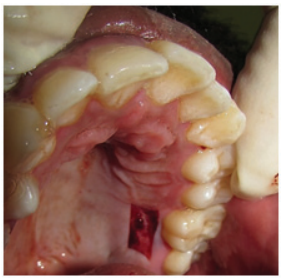

Figure 6: Donor site

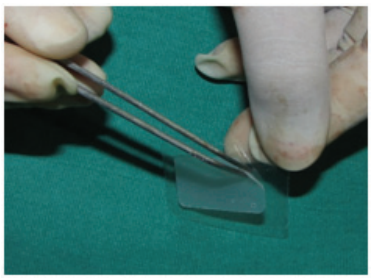

Figure 7: Removal of Ora-Aid

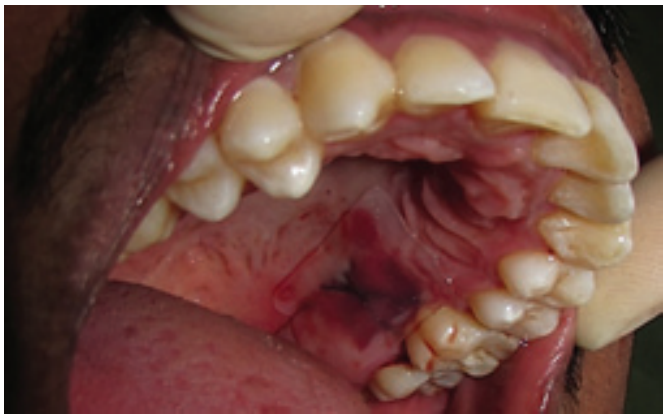

Figure 8: Placement of Ora-Aid on donor site

Discussion

The often ignored area in mucogingival surgery is the donor site. From the patient's perspective, it is the most alarming part of the surgery with excessive bleeding, pain and in general a lot of discomfort. Thus for this area, several biomaterials have been tried such as collagen sponges, cyanoacrylate, Platelet-rich fibrin (PRF) membrane etc. The Ora-aid dressing is a more recent addition to this category.

Traditionally, the quantification of pain is done through VAS scoring. In the present study, all the five patients scored at baseline, 14th and 30th day. All the baseline scores were high for obvious reasons and there was a significant decrease of scores on the 14th day post-operatively which became nil on 30th day (Figure 3). These findings are similar to the findings of Femminella *et al*.[11]

In a study by Karim *et al*.,[12]Alvogyl and absorbable gelatin sponge were used for palatal wound dressing and the efficacy of alvogyl was tested. The baseline VAS scores for the test group were 0-10 which reduced to 0-2 on day 14.

In the current case series, the VAS scores ranged from 6-9 at baseline and reduced to 1-3 on day 14 (Table 3). The veritable combination of ingredients in the alvogyl could have probably contributed to marginally better VAS scores on day 14.

The surgical wound was rectangular and the bigger size was the length of the rectangle. In all the patients, at baseline the length ranged from 9-10mm which reduced to almost 50 percent, that is 4-5mm. Patient 3 had the best reduction in length as noted in the wound healing on 30th day (Table 4).

The Landry's Wound Healing index is quite explicit and takes into consideration several parameters like tissue colour, bleeding, granulation tissue and closure of incision margins. The scores range from 1-5 with 1 being very poor to 5 being excellent.[10] In the current case series, the score was 1 at baseline for all the cases. This improved significantly to score 3 which translates to good healing, in all but for case 2 on 14th day. The variation in the single case could be explained due to patient related factors. The most notable finding was that in all the four cases, the scores improved to 5 on 30th day which was excellent. The only exception was case 2 (Table 5).

In the study reported by Karim *et al*., and Beatrice Femminella *et al.,* healing was assessed with basic H_2O_2 test and the results coincide with the findings of our case series.[11,12] Overall it could be said that Ora-aid patch takes very limited time and least effort.

Conclusion

In the present case series, the usage of Ora-aid resulted in a fairly superior outcome from the patient's and clinician's perspective. The application, post-operative pain reduction and wound healing were moderately enhanced. All in all, Ora-aid patch is efficacious and has potential for wider usage as a palatal wound dressing material.

Conflicts of Interest

None.

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