

## CASE REPORT

# Root Coverage using Double Papilla with Connective Tissue Graft: A 13-month Report of a Successful Case

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## ABSTRACT

**Introduction:** Several techniques have been used to achieve root coverage and augment attached gingiva, including laterally positioned flaps, coronally positioned flaps, free gingival grafts, guided tissue regeneration, and connective tissue grafting. The decision of using a pedicle procedure or free tissue grafts is based on availability of the adjacent donor site and the width and depth of the defect site.

**Case report:** In this report, a young female patient reported with a deep and wide recession defect (Miller's class I) in the upper right central incisor with minimal keratinized gingival width. As the adjacent papillae were wide and showed good donor tissue and augmentation of width and thickness of keratinized gingiva were intended, double-papilla flap and connective tissue graft was performed. The 13-month postoperative showed Cairo's root coverage esthetic score of 6, satisfying the patient's esthetic needs.

**Conclusion:** The root coverage achieved was structurally and functionally stable at 13-month follow-up satisfying the patient's esthetic needs.

**Clinical significance:** This procedure seems to be a promising treatment option for deep-wide gingival recessions for root coverage and increasing the thickness and width of keratinized gingiva.

**Keywords:** Connective tissue graft, Double-papilla flap, Root coverage.

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## INTRODUCTION

Various mucogingival procedures have been used to achieve root coverage and augment attached gingiva, including laterally positioned flaps, semilunar coronally positioned flaps, free gingival grafts, as well as

guided tissue regeneration (GTR) and connective tissue grafting.<sup>1-6</sup> Treatment of gingival recession defects with pedicle flaps results in a long junctional epithelial attachment,<sup>7</sup> but shows good root coverage and keratinized tissue augmentation as the pedicles have their own blood supply. Placement of a free gingival graft results in regeneration of cementum, bone, and connective tissue attachment.<sup>8</sup> New bone and new cementum formation are observed with GTR.<sup>9</sup> However, in a recent review, Danesh-Meyer and Wikesjö<sup>10</sup> mentioned that GTR does not provide additional clinical benefits over connective tissue grafting or advanced flap procedures and can be hazardous than helpful for the clinician in controlling primary wound closure, membrane exposure, space maintenance, and unacceptable foreign-body reactions. Furthermore, connective tissue grafts over gingival recession defects have shown periodontal regeneration.<sup>11-13</sup>

Double-papilla laterally positioned flaps for the treatment of gingival recession were first described by Wainberg in 1964 and refined by Cohen and Ross in 1968.<sup>14</sup>

In this case of gingival recession, we wanted to make use of the advantages of double papilla and connective tissue as the young female patient presented with a deep-wide recession in the esthetically critical upper anterior region. We used the connective tissue graft underneath the double papilla to successfully achieve the required outcome.

## CASE REPORT

A 29-year-old female patient reported to the dental clinic with a long appearance of upper front teeth. On examination, multiple gingival recessions were seen in the upper anterior teeth. The patient was highly concerned about the long appearing upper right central incisor, which had Miller's class I recession defect. The recession defect was deep-wide recession, measuring 7 mm deep and 5 mm wide, with lack of keratinized gingiva (Fig. 1). Patient insisted treatment only for this particular tooth.

As the adjacent papillae were wide, double-papilla flap was planned and increase in the width and thickness of the keratinized gingiva was intended, connective tissue graft was utilized.

## SURGICAL PROCEDURE

The recipient area was prepared with adequate anesthesia using 2% lignocaine HCl containing 1:80,000 adrenaline.

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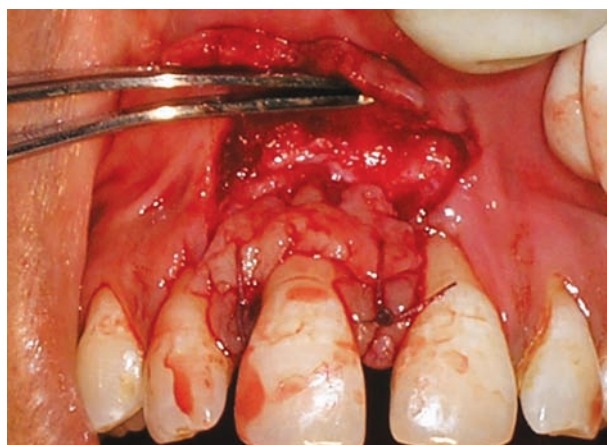
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**Fig. 1:** Preoperative picture showing 7 mm deep and 5 mm wide gingival recession on upper right central incisor



**Fig. 2:** Combined full-partial thickness double-papilla flap reflected



**Fig. 3:** Connective tissue graft sutured over the recession site



**Fig. 4:** Double-papilla flaps sutured over the connective tissue graft

A trapezoidal flap was designed using three different types of incisions:

1. Primary incisions were made in mesial and distal directions at the base of the interdental papilla of upper right central incisor, preserving the interdental papilla.
2. A sulcular incision was made connecting the primary incisions.
3. Two apically diverging vertical incisions were made starting at the end of each of the primary incisions, extending apically into the alveolar mucosa.

A full thickness flap was raised till the mucogingival junction beyond which a sharp dissection was made to raise a combined full-partial thickness flap (Fig. 2). The flap was extended well beyond the mucogingival junction to relieve the tension when placed over the connective tissue graft. The root was thoroughly planed and convexities of the root were reduced. At this stage, the desired dimension of connective tissue graft was procured from the patient's palate using the technique suggested by Bruno<sup>15</sup> and sutured over the recipient recession site (Fig. 3). The mesial and the distal pedicles were sutured together in the midline, placed over the connective tissue graft, and secured to the interdental papilla. Vertical releasing incisions were sutured (Fig. 4)

and periodontal pack was placed. The patient was recalled for suture removal after giving postoperative instructions and medication. The sutures were removed on the 12th day, which showed good augmentation of keratinized gingiva and root coverage (Fig. 5). The patient was told not to brush in that area for 1 week and to maintain hygiene using chlorhexidine mouthwash. The 13th month follow-up showed Cairo's root coverage esthetic score (RES) value<sup>16</sup> of 6 with good periodontal health with increase in thickness and width of keratinized tissue and root coverage of up to 5 mm (Fig. 6), satisfying the patient's esthetic needs.

## DISCUSSION

In recent times, with the proper case selection and the appropriate technique from the various treatment options available, root coverage has become more predictable. Although multiple gingival recessions were observed in this case, the patient was mainly concerned about treatment for the upper right central incisor. A double-papilla flap was chosen as the interproximal papillae adjacent to the recession were sufficiently wide, attached gingiva on an approximating tooth was insufficient to allow for



**Fig. 5:** Day 12 postoperative picture at the time of suture removal



**Fig. 6:** Postoperative picture of 13 months follow-up showing 5 mm recession coverage

a laterally positioned flap, and periodontal pockets were not present.<sup>14</sup> Since the recession was wide and deep and augmentation of keratinized gingiva was intended, connective tissue grafting was combined in the present case. In this report, Cairo's RES scoring system<sup>16</sup> was used for an objective way of measuring the treatment outcome with RES value of 6.

Borghetti and Louise<sup>17</sup> have shown predictability of a connective tissue graft under a double-papillae flap. Our case showed a successful result similar to the study conducted by Harris<sup>18</sup> in which double-pedicle flap with connective tissue graft produced a larger increase in keratinized tissue and greater root coverage when recessions exceeded 5 mm. Thus, the double-papilla flap with connective tissue graft might be considered a useful technique in the treatment of deep-wide gingival recession defects.

## CONCLUSION

The root coverage achieved was structurally, esthetically, and functionally stable at 13 months follow-up. Patient was extremely happy with the treatment outcome and the procedure seems to be a promising treatment option for root coverage and augmentation of keratinized gingiva.

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