

Modified Band and Loop Appliance for Retention of Periodontal Dressing on Denuded Bone: A Case Report

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ABSTRACT

Intraoral lacerations without gape heal spontaneously, whereas lacerations gaping open need to be managed with primary closure or advancement flap. Fall injury leading to a laceration over the left maxillary vestibular region extending till the alveolar ridge with avulsed tooth where primary closure was not possible was planned for debridement followed by periodontal dressing. Due to the lack of retentive area, modified band and loop appliance with a T-loop was fabricated and used for the retention of periodontal dressing for the healing of denuded bone following trauma.

Keywords: Laceration; modified band and loop appliance; periodontal dressing.

INTRODUCTION

Intraoral lacerations in children represent small percentage of lacerations which occur secondary to trauma. Lacerations without open gape heal spontaneously whereas, wider lacerations need to be managed with primary closure (wherever possible) or else may demand an advancement flap.¹This case report presents an innovative way with the use of a modified band and loop appliance with a T-loop for the placement of periodontal dressing which finally led to the healing of the denuded bone presented after trauma.

CASE REPORT

A 7-year-old female presented to the pediatric emergency with a lacerated wound in the mouth following fall injury from a tree two days back. On intraoral examination, she had laceration with necrotic slough over the left maxillary vestibular region extending obliquely, 1cm distal from labial frenum till the alveolar ridge anterior to 64, measuring

approximately 2.5cm x 2cm with extrusive luxation of 62, avulsion of 63 and slight mobility of the left anterior maxillary segment which was suggestive of nondisplaced dentoalveolar fracture (Figure 1). The orthopantomogram of the patient showed mesial displacement of 62 (Figure 2).

As there was delayed presentation of the patient with extensive tissue loss due to trauma, primary closure of



Figure 1. Initial presentation: two days after trauma.



Figure 2. Orthopantomogram of the patient showing extrusive luxation of 62 and avulsion of 63.

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Figure 3. 1 week follow up after debridement and extraction of 62.

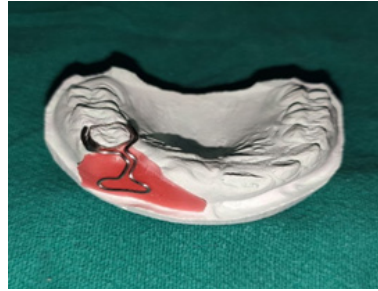


Figure 4. Fabrication of the appliance with wax spacer.



Figure 5. Modified band and loop appliance.

the wound was not possible. Hence debridement of the necrotic slough followed by extraction of 62 under local anesthesia was performed. The patient was instructed and kept under soft diet for two weeks. Chlorhexidine mouthwash (0.12%) and antibiotics were prescribed with proper instructions on oral hygiene maintenance prior to the discharge.

One week follow up showed complete clearance of necrotic slough leaving denuded bone over the injured site, which measured approximately 2cm x 1.5cm (Figure 3). An eugenol free periodontal dressing (Coe-pak) was planned for the coverage of denuded bone. This type of periodontal dressing is easily accepted by children and has good adaptation to the underlying tissue. But the retention of dressing on the injured site was quite challenging due to the absence of supporting multiple teeth, hence Modified

band and loop appliance with a T-loop was planned to hold the dressing on place. Band was fabricated on 64 and the loop was modified to form a T that aided in providing adequate periodontal dressing coverage over the exposed bone. During fabrication on the cast, a wax spacer (of base plate wax) was placed below the loop to provide adequate space for the periodontal dressing during its placement (Figure 4,5). The appliance was then cemented on 64 followed by placement of the periodontal dressing on the denuded area (Figure 6,7).

On the seventh day follow up, the periodontal dressing along with the appliance was removed. The wound showed satisfactory healing with granulation tissue formation over the bone (Figure 8). The patient was instructed to continue maintaining proper oral hygiene. Excellent healing was observed on one month follow up (Figure 9).



Figure 6. Cementation of the appliance.



Figure 7. Placement of the periodontal dressing over the appliance.



Figure 8. 1 week follow up: healing with granulation tissue formation.



Figure 9. 1 month follow up: excellent healing of the wound.

DISCUSSION

Intraoral lacerations in children represent small percentage of lacerations and occur most commonly secondary to trauma i.e., road traffic accidents, sports injuries, and personal violence. They are often associated with tooth avulsion, maxillofacial fractures, and other injuries.^{2,3} In the present case, laceration was associated with luxation of 62 and avulsion of 63 with dentoalveolar fracture which was managed conservatively.

Application of periodontal dressing following surgery or excision of intraoral adhesion to allow the exposed surface to heal has been described and practiced quite commonly.⁴ Periodontal dressings provide an optimal environment for the healing of wound and also prevent exposure of wound to intraoral bacteria and saliva.⁵ With the teeth to provide support for the retention of periodontal dressings, the dressing usually adapts well to the underlying gingival and bony tissues, thereby providing excellent tissue healing and patient comfort.⁴ However, in traumatic cases where tooth loss is common, the use of periodontal dressing poses a big challenge due to its retention problem. This exactly was the situation in the present case as well since the patient had no supporting teeth.

In the present case, a modified band and loop appliance with a T-loop was fabricated. As primary closure was not possible and supporting teeth were absent, modification of a commonly used appliance in pediatric dentistry (band and loop) was used to provide additional support for the periodontal dressing following wound debridement. On subsequent one week follow up, after periodontal dressing application, adequate healing of the wound was observed. Similarly, various methods have been described in the past to aid for retention of periodontal dressings which includes the usage of various splints and stents, acrylic resins, wirings, brackets, light cured dressings, etc.^{1,6}

In this present case, as the patient presented to the pediatric emergency two days after the trauma the initial assessment of the patient was done to rule out any life-threatening conditions, after which extraoral and intraoral examinations were carried out. In most instances, as intraoral lacerations occur secondary to trauma, the initial assessment should identify any life-threatening conditions. Airway compromise should be excluded during the primary survey and the secondary survey followed thereafter.

Here, clinical examination showed skin abrasion on the philtrum region and upper lip, laceration with necrotic slough in the left maxilla extending from labial vestibular region till the alveolar ridge, slight mobility of left anterior maxillary segment indicating non displaced dentoalveolar fracture. Lips, mucosa and teeth should be thoroughly examined for any soft tissue or dental trauma and facial or jaw fractures need to be ruled out as well.⁷ Soft tissue wounds should be evaluated for its location, depth, extent, damage to the deeper structures, avulsion, and any kind of foreign body impactions.

After completion of this secondary survey, the attention of the clinician should now focus towards addressing the wound needs along with the prophylactic antibiotics use and tetanus toxoid (if required).⁸ Similarly in this case, the patient was managed with conservative approach which included antibiotics, diet modification and wound debridement.

Here in this case, primary wound closure was not possible and after debridement there was denuded bone, for which periodontal dressing was planned. Due to the complexity of flap coverage in children, secondary healing of the wound augmented by periodontal dressing with Coe-Pak was opted. Because of extensive vascular supply in the orofacial region, lacerations that do not gape open heal rapidly without intervention. Primary closure is done wherever possible for wounds that gape open and for wounds with flap between occlusal surfaces.⁸ However, some injuries are associated with extensive tissue loss making primary closure inapplicable. These injuries are managed with flap coverage such as buccal advancement flap, palatal pedicle flap, etc.⁹

CONCLUSIONS

Periodontal dressings can be extremely beneficial in preventing the wound dehiscence that occurs during the conservative management of dentoalveolar fractures. Minor modifications of the conventional appliances like this band and loop with a T-loop was beneficial during this challenging clinical scenario in the region having no teeth support for the retention of the dressing.

Conflict of Interest: None

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