Micro-Marsupialization: A Novel Non-Surgical Method to Treat Mucocele in Children

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Abstract

Treating Mucoceles in small children is a complicated task as small children do not sit still and cooperate during surgical procedures. Also, on seeing the surgical armamentarium required for removal of a mucocele and suturing, many small children and their parents become anxious and fearful. The location and size of the lesion also dictates, whether the surgery has to be done under GA or LA. This technique involves passing of 1 or more sutures through the base of the lesion to create alternate drainage pathway for the collected mucus so that the cyst dissolves and dissipates by itself thereby avoiding surgery. Micromarsupialization is a wonderful non invasive, comfortable technique for both patient and operator, with a decent percentage of successive rate.

Keywords: Mucocele; Marsupialization; Suture; Noninvasive; Ranula; Conservative;

Introduction

Mucocele is one of the most common lesion of the oral mucosa resulting from either trauma or change in the drainage system of the salivary glands resulting in mucous accumulation. They are benign lesions, usually painless, depending where they are located. They do cause discomfort though and create trouble especially in Pediatric population. Based on how the lesion has occurred they are classified in 2 categories. If there is a breach in the duct of the salivary gland, it results in oozing out of the mucous in surrounding tissue, giving rise to mucous Extravasation Cyst. [1,2] But if there is obstruction of the duct, the mucous that is being produced starts getting collected within the salivary gland itself giving rise to mucous retention cyst. These cysts may be present for weeks or months before patient seeks for treatment due to their painless nature. Equal gender predilection is seen in children and recurrence rate is high. The aim of this paper is to provide a noninvasive approach to treat mucoceles in oral cavity in a painless, cost effective way with less time duration and maximum patient cooperation with significantly reduced anxiety in patients and their parents.

Etiopathology

Pathology of Mucocele is usually due to trauma, lip biting habit or accidental injury to the salivary glands due to any reason. The lesions can be sessile or pedunculated varying in

sizes. Evolution is rapid or slow with periods of remission and exacerbation. [8-10] Lip Mucoceles are usually located on lateral area of lower lip. Ranula is mucoceles present in floor of the mouth which may extend bilaterally resulting in difficulties while speaking and swallowing. Histopathologically, these lesions are surrounded by granulation tissue characterized by an epithelial lining preferentially.

Prognosis is favorable and several treatments have been proposed in the literature, such as excision of the lesion associated or not with removal of the gland involved,

Marsupialization, cryosurgery, laser and micromarsupialization. Redish [16] reported that the placement of a wire suture through the lesion is a method of treatment that may be utilized for ranulas.

Based on the size of the lesion and cooperation of child, these lesions are treated under LA chair side or under GA. Treating a child patient GA for just a Mucocele is not feasible most of the times. In an adult too, if there is a huge ranula present on the floor of the mouth or the ventral surface of the tongue, treating under LA becomes very difficult as manipulating tongue position in a conscious patient is complicated. Treating a child patient GA for just a Mucocele is not feasible most of the times. Micro-marsupialization is a minimally invasive technique carried out under topical anesthesia, and the procedure is carried out by draining the accumulated saliva and creating a new epithelialized tract along the path of the sutures; however, the required procedure time is approximately 5 min with no tissue damage or inflammation. [3, 4, 11, 12].

The following is a description of 2 case reports of Micromarsupialization procedure carried out in a 12 year old and 28 year old patients.

Case Report 1

A 10 year old girl reported with a cystic swelling on the ventral surface of the tongue present since 20 days. The gradually increasing cystic lesion caused the patient pain and difficulty in swallowing. No significant medical or history of allergy was recorded. On clinical examination, a 3.5 x 3 cm cystic lesion (Fig.1 & 2) was seen on ventral surface of the tongue, which

was painful to palpation. The lesion was sessile, soft and non-infected. After obtaining consent from the patient and the parent, micromarsupialization technique was planned for the patient on the same day.

Case Report 2

A 28 year old female sustained injury over her left floor of mouth mucus membrane while having a sharp Nachos for dinner. She experienced gradually rapid increase in the ranula over next 3 days which caused difficulty while deglutition. She reported with a 2.5 x 3.5 cm Mucocele on her left floor of the mouth (Fig 6). Though she herself was a dentist, she insisted to try with Micromarsupialization technique first rather than proceeding with surgical excision due to invasiveness of the surgical procedure. Micromarsupialization technique with 2 sutures in different directions was carried out the same day.

Material and Method

Micro-marsupialization was performed according to the following technique: After disinfecting the area with Betadine solution, Topex Spray was applied (Benzocaine 20%) over the entire lesion. Local anesthesia with 2% lignocaine with 100,000 Adrenalin was given submucosally in the tissue surrounding the lesion. 3.0 silk sutures were passed through the widest diameter of the lesion from the base and a surgical knot was made in Case 1 (Fig 3). In Case 2, two sutures were passed (Fig 4), in different directions as the lesion was large and single suture may not have been sufficient enough to drain the mucous efficiently. The Mucocele was then compressed to help extravasation of mucus. 0.5% chlorhexidine gel was applied postoperatively to prevent secondary infection. In case 1 suture were removed after 15 days and in case 2 sutures were removed after 30 days resulting in complete remission of the lesion. Follow up after 1 year did not show any remission. (Fig 4, 5 & 8).

Discussion

Although micro-marsupialization has been described in the literature since 2000, mainly for the treatment for ranulas, its use in the treatment for other mucoceles has been limited. The micro-marsupialization technique was selected because it is of simple execution, less traumatic, and well tolerated by the patient. The most important advantage of this technique is virtually no bleeding and zero side effect. Even if the lesion does not resolve with this technique at any point surgical excision can be easily carried out. These are fundamental features to be considered in pediatric dentistry. Simple incision and drainage will result in recurrence of mucus retention phenomena. The introduction of a suture presumably maintains a tract while permitting an epithelial tract to form between the surface and the underlying salivary glandular tissues [13, 14, 15].

In Case no. 1, since the child was young, and the mucocele large in size that too on the ventral surface of the tongue, excising it under local anesthesia would have been very challenging considering the longer duration of cooperation expected out of the patient and holding the tongue in position

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

during surgical procedure. Treating the patient under general anesthesia would have been the treatment of choice. Opting for micromarsupialization, not only reduced the surgical time, but also saved the patient from day care surgical procedure causing patient minimum discomfort.

This technique has found to be very effective in small mucoceles on lip, cheek and other areas of oral cavity, especially in young children who can cooperate thereby saving the surgeon the time and efforts required in excision, giving the same results. Even if micromarsupialization technique fails, or a recurrence occurs, the lesion can always be treated by more definitive methods as mentioned earlier. Micromarsupialization is the harmless and easiest technique to be tried before opting for a surgical approach.

Marsupialization is a surgical technique that involves incising into a cyst and suturing the edges of the subsequent slit to form a continuous surface from the exterior to the interior of the cyst. [5, 6] Micro-marsupialization consists in draining the accumulated saliva and creating new epithelialized tracts along

the path of the sutures. It is a minimally invasive technique, and most cases can be carried out under topical anesthesia alone. The required procedure time is brief (approximately 3 min), there is practically no tissue damage or inflammation, and it appears to be a particularly suitable technique for children who cannot tolerate long or invasive procedures

Micromarsupialization does not enable a biopsy to be conducted, and the diagnosis remains exclusively clinical.[17] Furthermore, it should be carefully used in palatal or buccal lesions, as minor salivary gland tumors are often located in those areas and can be wrongly diagnosed as mucoceles.

Conclusion

This study suggests that micro-marsupialization could be a treatment option for children and adolescents with mucoceles. It is simpler to perform, minimally invasive, requires no local infiltration of anesthesia, has a lower postoperative complications rate, and is well tolerated by patients.

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Figure 6

Figure 7

Figure 8

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