Sublingual Ranula Cases and Our Surgical Approach

ABSTRACT

Objective: In ranula etiology, trauma in submandibular and sublingual glands and trauma in secretory ducts have role. There are many different treatment strategies ranging from drainage to ekcision of sublingual gland with ranula. Aim of this study is evaluation of the effects of usage of surgicel in ranula surgery instead of marsupialization with gauze ped.

Materials and methods: We included 26 patients to our study who had sublingual ranula surgery and fulfil study criteria

Results: Significant differences were not determined according to age,sex, anesthesia type and ranula size. Infection signs were not seen in post-operative one week control of patients. In six months controls, oral base wound was healed totally and there were no relapse cases.

Conclusions: In result of this study, We showed that using of surgicel with marsupialization is an effective therapeutic method and it decreases relaps rates in ranula patients.

Keywords: ranula, surgicel, marsupialization.

Bulletpoint

Drainage, marsupialization, usage of gauze ped with marsupialization, cryosurgery, sclerotherapy, excision with laser, excision of ranula and excision of ranula with excision of sublingual gland are used traetment choices of ranula

In Baurmash study, she applied gauze to wound site for 7-10 days in order to exfoliate wound area naturally She reported that only one of 12 patients needed excision of sublingual gland after using this method. Other authors using this method showed decreased relapse rates similarly. Although this technic is very effective, depending on our experience from previous cases, we see that exchange of gauze ped is very difficult in children, anaerobic infections can be seen because of not changing gauze for a long time and it can lead to sistemic infections.

In order to cope with this problems, we used surgicel instead of gauze ped in ranulas and determined that postoperative care was easier and no relapse was seen.

Introduction

Ranula derives from Latin word rana due to looking like fogs lower abdomen [1,2]. In ranula etiology, trauma in submandibular and sublingual glands and trauma in secretory ducts have role [1]. Ranula differs from cyst epithelium , it is a pseudocyst composed of granulation and connective tissue [3]. It seems as a unilateral, bluish and fluctuant soft tissue mass in oral base. It is classified sublingual, submandibular and sublingual- submandibular based on occuring site. Sublingual ranula is the most seen one [4]. It is seen a slow growing painless fluctuant mass in oral base [4]. Submandibular and submandibular-sublingual ranulas are called plunging ranulas and they occur by herniation of mucus content through mylohyoid muscle [2]. In 45% of cadaver studies, ranulas were localizated in dehissant area of 2/3 anterior portion of mylohyoid muscle in oral base [2,5].

Drainage, marsupialization, usage of gauze ped with marsupialization, cryosurgery, sclerotherapy, excision with laser, excision of ranula and excision of ranula with excision of sublingual gland are used traetment choices of ranula [2,6].

In this study, effect of usage of surgicel with marsupialization therapy, instead of usage of gauze ped with marsupialization therapy was evaluated.

Materials and Methods

Patients and ethical issues: This clinical retrospective study was confirmed by Harran University Ethics Committee and it was done between January 2017- December 2019 at XXXXX Hospital on 26 patients having sublingual ranula and surgical therapy was applied to them. Patients were informed about the treatment procedures, and their written informed consent was obtained. These patients had inclusion criteria for study. Depending on anamnesis, patients complaints, time of complaints and previous operations were learnt. Either clinical findings or ultrasound was used for diagnosis. Patients having revision surgery were excluded. Patients having marsupialization with gauze ped, patients with ranula excision and patients having ranula excision with sublingual gland excision were excluded (Figure 1). Patients who refused surgery and had follow up, patients who didn't come to follow up after surgery and patients coming follow up with missing datas were excluded.

Surgical Technic: Patients surgery were applied under general and local anesthesia. After giving useful position, 3-5 ml 1% lidocaine local anesthetic agent containing 1:100000 epinephrine (Jetokain, Adeka, Samsun, Turkey) was injected around cyst area and incision

area for decreasing bleeding and postoperatif short term pain control in both general and local anesthesia procedures. 1.5 cm^2 oval incision was done at süperior wall of lesion for excising cyst wall. Cyst content was poured and marsupialization was applied by suturing cyst epithelium to mouth epithelium with 4.0 vicryl (Pegelak®, Doğsan Ankara, Turkey). A surgicel containing antibiotic pomat (Thiocilline, Abdi Ibrahim, Istanbul, Turkey) was sutured with vicryl for preventing potential space occuring and epithelization of cyst space (Figure 2). Analgesic therapy (dexketoprofen trometamol or paracetamol), antibiotic (amoxicillin-clavulanate) and mouthwash containing chlorhexidine were prescribed to patients for postoperatif 1 week and surgicel residues were excised in 1 week control.

Statistical Analysis

We used SPSS (version 22.0) statistical analysis programme of Windows 10 for analysing of the datas of our study. We used Shapiro Wilk Test for checking normality of data and chose suitable test. Due to normal distribution of age and lesion size datas, Independent Sample T test was used in statistics of these datas with sex and anesthesia type. While evalution of the relations between nominal variables, Ki Square Test was applied. In 2x2 tables, Fisher's Exact Test was used because of inefficient size of expected values. Defining statistics were indicated as mean ± standart deviation. Meaningfulness level was determined as $p<0.05$.

Results

18 patients were female (69.2%) and 8 patients were male (30.8%). Mean age of patients was 16.9±4,45 (distribution 9-23 age) years. According to age and sex relation, meaningful relation was not determined.

10 patients (38.5%) had general anesthesia and 16 patients (61.5%) had local anesthesia. 3 of the patients with general anesthesia was male (30%) and 7 of the patients with general anesthesia was female (70%). 7 of the patients with local anesthesia was male (25%) and 12 of the patients with local anesthesia was female (75%). Depending on the relation between anesthesia type and sex, no significant relation was found ($p=0.562$). Depending on the relation between anesthesia type and age, no significant relation was found ($p=0.145$).

According to sizes of lesions measured in first applications of patients by ultrasound,mean was 16.07±5.86 mm (distribution 8-28 mm). Depending on the relation between anesthesia type and lesion size, no significant relation was found ($p=0.651$).

Depending on the relation between sex and lesion size, no significant relation was found (p=0.144).

26 of patients' (100%) application complaint was painless, fluctuant and soft mass under tongue (Figure 3). Infection sign was not seen in postoperative 1 week examinations (Figure 4). Oral base was healed totally and no relapse was found in 6 months control.

Discussion

Ranula occurance is based on traumatic damage to salivatory ducts in oral base [2,7]. Trauma, stenosis of gland ducts,congenital anomalies and iatrogenic reasons are found in etiology [8,9]. Chidzonga et al. [10] and Zhao et al. [11] showed that ranulas are seen mostly in women [10,12]. We determined that ranulas are mostly seen in women in our study. Ranula can be seen in patients starting from infancy to every age [12]. It is shown in studies that ranula is seen mostly in 3rd decade (between 25-29 ages) [12]. Mean age is determined as 16.9 in our study.

Aspiration technic, magnetic resonans imaging (MRI), ultrasound or computerized tomography (CT) can be used in diagnosis of ranula [2,13]. Some authors suggest usage of ultrasound and MRI in order to avoid radiation but nowadays, there is a consensus that diagnosis technic should be choiced based on the size of lesions (13). If lesion size is larger than 2 cms, MRI, CT or ultrasound are used but aspiration technic is used in lesions smaller than 2 mms [2,13]. Ultrasound is used in our study due to cost effectiveness, reliable results and easier access.

Vascular malformations, lymphangiomas, mucoceles in minor salivatory glands and real cysts are found in differential diagnosis of ranulas [14,15]. Clinically, ranula is bluish colored, soft fluctuant mass in oral base [10,15]. Tongue can trend upward or opposite site depending on lesion size [10,15]. We determined clinically painless, soft, fluctuant mass in our study.

Bernhard et al. [16] mentioned that congenital ranula patients must be followed without any therapy for 6 months [2]. Incision and drainage, marsupialization, marsupialization with gauze ped, micro-marsupialization, excision of sublingual gland, sclerotherapy, cryosurgery, carbon dioxide laser and modified suture technic are different surgery methods used in ranula therapy [13]. In spite of no consensus on ranula therapy, it's seen that surgery technic is used commonly [7,13,16,17]. In studies, it's seen that

marsupialization with gauze ped technic in early ranula cases decreses relapse rates [13,18]. This therapy method is suggested when lesion size is smaller than 2 cms [15,18]. In our study, we carried out marsupialization method because lesion sizes were smaller than 3 cms. Marsupialization with excision of sublingual gland method is used in our clinic in ranula cases larger than 3 cms for decreasing relapse rates.

Yang and Hong [7] showed in their study that sublingual gland excision with cyst totally is the most effective therapy method in ranulas. Some authors suggest marsupialization method for initial therapy of ranulas due to avoding from lingual nerve injury during sublingual gland excision, wharton canal injury and general anesthesia requirement [9]. In conventional ranula therapy, wound lips attend to approach to each other because of moving tongue and oral base. As a result, cavity converts to a new cyst meaning to relapse [11]. In literature, failure rates are between 61%-89% in 6-12 months follow up after marsupialization surgery [11]. Because of higher relapse rates of this methods, Baurmash [19] used modified marsupialization technic with gauze ped. In Baurmash study [19], she applied gauze to wound site for 7-10 days in order to exfoliate wound area naturally. She reported that only one of 12 patients needed excision of sublingual gland after using this method. Other authors using this method showed decreased relapse rates similarly [11]. Although this technic is very effective, depending on our experience from previous cases, we see that exchange of gauze ped is very difficult in children, anaerobic infections can be seen because of not changing gauze for a long time and it can lead to sistemic infections. In order to cope with this problems, we used surgicel instead of gauze ped in ranulas and determined that postoperative care was easier and no relapse was seen.

Surgicel is composed of oxidized cellulose and its used in operations due to hemostatic effect. It also penetrates to intravscular area and stops bleeding from origin site. It behaves as a skeleton for platelet adhesion, aggregation and immediate clot formation [20].

Small number of paients is main restriction in this study. Stronger evidences can be find with more patients. Another restriction of the study is its retrospective nature. Prospective studies are controllable and have more levels of evidence than retrospective studies. Relative short follow up time is another restriction of the study. Although 6 months is not a short time, we could get stronger evidences with longer follow up times.

Conclusions

The surgery method we applied can be used under local anestesia. Follow up is easier after surgery. Complication rates are lesser and no relapses are seen. So, we suggest that it's a suiatable surgery method in small and middle ranula cases .

Disclosure statement

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Figure Legends

Figure 1: Marsupialization surgery with gauze ped

Figure 2: Marsupialization surgery with surgicel

Figure 3: A painless, soft, fluctuant mass under tongue in first examination

Figure 4: Postoperative 1 week control