CASE STUDY

Cystic oral lesions of salivary gland origin in children

Case series – An Observational study

S.Karthiga Kannan.MDS[1]; J. Eugenia Sherubin.MDS[2]; M.S. Priya MDS[3], Mouetaz Kheirallah Ph. D, OMFS[4], Salama M.H[5].

1. Professor, Oral Medicine & Radiology,
Department of Maxillofacial surgery and Diagnostic Sciences,
Majmaah University, Saudi Arabia.
2. Reader,Department of Oral Medicine and Radiology,
Sree Mookambika Institute of Dental Sciences, Tamilnadu state, India.
3. Consultant Prosthodontist, Sanker Ganesh Dental Hospital
Puthukkadai, KK District. Tamilnadu. India.
4. Associate Professor, Head of Department.
Department of Maxillofacial surgery and Diagnostic Sciences,
Majmaah University, Saudi Arabia.
5. Assistant professor, College of Dentistry, Majmaah University, KSA.
Associate professor, College of Dentistry, Al-Azhar University, Egypt

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Corresponding Author:
Dr.S.Karthiga Kannan.MDS
Professor, Oral Medicine & Radiology,
Department of Maxillofacial surgery and Diagnostic Sciences,
College of Dental Science,
Majmaah University,
Kingdom of Saudi Arabia.
Mobile - 00966538503869
Email- k.pillai@mu.edu.sa

Abstract

Mucoceles are common benign cystic lesions of salivary gland mainly of traumatic origin. Mucoceles are known to occur most commonly on the lower lip, followed by the floor of mouth and buccal mucosa. Mucoceles are not uncommon in children.

Objective: To analyze the clinical characteristics of 7 mucoceles in pediatric patients who reported to us and to compare the details with the literature.

.Materials & Method: The clinical data were retrieved from the records of 7 pediatric patients who were surgically treated for cystic lesions of minor salivary gland origin during the period of 2012 to 2015. The clinical characteristics such as gender, age, location,

الملخص

تعتبر الكيْسات الفموية المخاطية أوراماً كيْسِيه حميدة، غالباً ما تنشأ من الغدد اللعابية الفموية نتيجة للرضوض. تَقع الكيْسات الفموية المخاطية غالباً في الغشاء المخاطي للشفة السفلية أو في قاع الفم أو الخد، والجدير بالذكر أنها نادرة الحدوث لدى الأطفال. تَهدف هذه الدراسة إلى تقييم الخصائص السريرية لسبعة كيْسات مخاطية لدى مجموعة من الأطفال الذين أصيبوا بها، ثم مقارنة نتائجنا مع الدراسات العلمية السابقة. لقد تمت مراجعة السجلات الطبية واستُعرضت الخصائص السريرية لسبعة كيسات نشأت من الغدد اللعابية الصغيرة وعولجت جراحياً في قسم جراحة الفم والفكين لكلية طب الأسنان بجامعة المجمعة في الأعوام ٢٠١٢-٢٠١٥ م. لقد تم تمحيص الخصائص السريرية المختلفة لتلك الحالات مثل عمر المريض، نوع وحجم ومكان

size, color, investigations and the treatment performed were evaluated and analyzed.
Results: This retrospective study comprised of 7 pediatric patients with mucoceles. The age ranged from 8 to 14 years. 5 were boys and 2 were girls. Four Mucoceles were located in the lower labial mucosa, two in the floor of the mouth and one in buccal mucosa. Three mucoceles measured 1.5 cms and the remaining lesions measured 1, 3, 4 and 5 cms respectively. We observed bluish hue in 3 lesions, white surface in 2, normal pink in 1 and erythematous surface in 1. On investigation 5 mucoceles showed brilliant transillumination. All mucoceles were treated with conventional surgical excision. We observed no recurrences.
Conclusion:The observations of this study are:
1. Among the pediatric population mucoceles are commonly seen in males
2. Often detected in second decade of life.
3. The predominant site was lower labial mucosa followed by floor of the mouth.
4. The surface keratosis and internal hemorrhage can alter the characteristic bluish color.
5. Simple excision along with dissection of the affected and adjacent minor salivary gland prevents recurrence.
Key Words – Children, Mucocele, Ranula, Transillumination and Excision

ولون الآفة وطريقة العلاج، ثم تمت عملية التقييم والتحليل لها.
أظهرت نتائج الدراسة والتحليل بأن متوسط عمر المرضى كان ٨ إلى ١٤ عاماً فيهم خمسة ذكور وأنثيين. كان موضع الإصابة في أربعة حالات في الغشاء المخاطي للشفة السفلية، وفي حالتين في قاع الفم، وفي حالة واحدة فقط كان موقع الإصابة في الغشاء المخاطي للخد. كما تبين بأن أحجام تلك الكيسات قد تراوح بين ١-٥ سم، أما ألوانها فقد تراوحت بين الأزرق والأبيض والوردي والأحمر. عولجت جميع تلك الحالات جراحياً ولم تتعرض أي منها للنكس.
ويمكن اختصار نتائج الدراسة فيما يلي:
١- تنتشر الكيسات المخاطية الفموية لدى الأطفال الذكور أكثر من الاناث.
٢- تصيب الكيسات المخاطية الفموية مرضى العقد الثاني من العمر.
٣- تقع الأكياس المخاطية الفموية غالباً في الشفة السفلية يليها قاع الفم.
٤- يتغير لون الأكياس المخاطية الفموية عن اللون الأزرق الذي يميزها نتيجة النَزف والتَقْران السطحي.
٥- الاستئصال الجراحي للكيسة مع الغدة اللعابية الصغيرة يحول دون نكس الكيسة.
الكلمات المفتاح: الأطفال، الكيسة المخاطية الفموية، الضفدعية، الاستئصال.

Introduction

Mucocele is a soft tissue cyst of minor salivary gland origin commonly seen in the oral cavity resulting from the accumulation of saliva within the mucosa. These lesions are believed to be traumatic in origin [1]. Mucoceles can occur at any age; however some studies have reported the second decade with the highest incidence and having equal sex predilection [2]. Mucoceles are predominantly seen in lower labial mucosa followed by buccal mucosa, ventral surface of tongue, floor of mouth and palate. The term ''ranula'' is positional and designates mucocele located on the floor of the mouth [3]. A rapidly progressing ranula may warrant immediate surgical attention as it may displace the tongue and threatens airway [4]. Clinically mucoceles in the labial mucosa are asymptomatic, dome shaped; smooth surfaced, soft and fluctuant. However mucoceles in the palate are superficial and resembles a vesicle or a bulla hence called as ***'superficial mucocele'***. The color of the mucoceles may vary. When

situated deep in submucosa, it may exhibit normal pink color. Superficial lesions may exhibit characteristic bluish tint due to Tyndall effect (the diffraction of light by colloidal particles in the thick viscid mucous). As the content of the lesion is clear saliva, it allows the light to pass through and shows brilliant transillumination. Aspirations of mucocele may yield thick viscid clear mucus. Most adopted conventional treatment for mucocele is excision by scalpel or electrosurgery, which includes overlying mucosa and glandular tissue down to the muscle layer. Vaporization by carbon dioxide (CO2) laser and cryosurgery can also be done [5].



Fig. 1a: Right buccal mucosa showing a mucocele of 5cm size with bluish color.



Fig. 1b: Excised surgical specimen under general anesthesia.



Fig. 2a: Mucocele of 1.5 cm in size, in midline of lower lip. Aspiration showed thick mucus.



Fig. 2b: Excised surgical specimen under local anesthesia with associated minor salivary gland.



Fig. 3: Lesion of 3 cm size, in left side of lower lip with mixed pink and white color.



Fig. 4: Ranula of 4 cm size, in the right side of floor of mouth with bluish color.

Mucoceles are not uncommon in children but reviews of mucoceles in pediatric patients are extremely rare [6]. As oral health is an integral part of a child's overall health, the aim of our study is to present our data and clinical experience in the treatment of mucoceles to increase the awareness and to remind the medical fraternity to devote much attention to lesions of the oral cavity in children.

Materials and Method

This retrospective study included 7 pediatric patients (5 males and two females) in the age group of 8 to 14 years who were examined, diagnosed and surgically treated for cystic lesions of minor salivary gland origin in our department of oral maxillofacial surgery and diagnostic dental sciences during the period of 2012 to 2015. The Patient's clinical data on the basis of their medical records were retrieved and retrospectively investigated. The Clinical characteristics such as gender, age, location, size, color, investigations and the treatment performed were evaluated and analyzed (Table-1).

Results

Our study comprised of 7 patients (Table - 2) with mucoceles in the oral cavity. Among the 7 patients 5 (71%) were males and 2 (29%) were females. The age of the patients ranged from 8 to 14 years with the mean age of 11 years. Among 7 patients, 4 (57%) lesions were located in lower labial mucosa, 2 (29%) in the floor of the mouth and 1 (14%) in buccal mucosa. The size of the lesion (Table -3) varied from 1cm to 5cm with an average of 2.5cm, 3 (43%) lesions measured 1.5 cms, and the remaining lesions measured up to 1cm (14%), 2-4cm (29%) and 5cm (14%). The color of the mucoceles varied, 3 (43%) had bluish hue, 2 (29%) were white (keratinized), 1 (14%) had normal pink color and 1 (14%) lesion was red (Table -3). While performing transillumination (Table -1) 5 (71%) lesions showed brilliant transillumination, while the 29 % lesions are white with keratotic surface and red with internal hemorrhage showed negative response. All mucoceles were treated with conventional surgical excision and no recurrences were reported in any of the cases.

Discussion

Mucoceles are benign soft tissue masses resulting from the retention or extravasations of mucus in the surrounding tissues of the lamina propria. Mucus is the product of secretion of minor salivary glands [7]. The two types of mucoceles are extravasation type and retention types [8]. The extravasation type of mucocele arises secondary to trauma to minor salivary gland ducts resulting in the accumulation of extravasated mucous within the connective tissue of the mucosa, whereas the mucous retention type arises due to the ductal blockage either by a mucus

Table1. Data collection of the present study

No	Age	Sex	Site	Size	Side	Color	Investigation	Diagnosis	Treatment	Recurrence
1	8yrs	M	Buccal Mucosa	5cm	R side	Bluish	Transillumination +Ive	Mucocele	Excission	No
2	11yrs	M	Lower Labial Mucosa	1.5cm	Midline	Bluish	Aspiration +Ive, Thick Clear Mucus	Mucocele	Excission	No
3	10	M	Lower Labial Mucosa	1.5cm	Towards L Side	Normal Pink	Transillumination +Ive	Mucocele	Excission	No
4	13yrs	M	Lower Labial Mucosa	1.5cm	Towards L Side	White – Surface Keratosis	Transillumination -Ive	Mucocele	Excission	No
5	14yrs	M	Lower Labial Mucosa	3cm	Towards L Side	White & pink Surface Keratosis	Transillumination +Ive	Mucocele	Excission	No
6	9yrs	F	Floor Of Mouth	4cm	R side	Bluish	Transillumination +Ive	Ranula	Excission	No
7	12yrs	F	Floor Of Mouth	1cm	R side	Red	Transillumination -Ive	Ranula	Excission	No

Table 2. General characteristics of mucocele

Age			Gender		Transillumination		Affected Site		
Groups		Number	Male	Female	Present	Absent	Buccal mucosa	Labial mucosa	Floor of mouth
I	1-5	0	0	0	0	0	0	0	0
II	6-10	3	2	1	3	0	1	1	1
III	11-15	4	3	1	2	2	0	3	1
	Total number	7	5	2	5	2	1	4	2
	Total %	100%	71%	29%	71%	29%	14%	57%	29%

Table 3. Clinical morphological features

Age			Size				Color			
Groups		Number	Upto 1cm	1-2 cm	2-4	5 cm and above	Normal pink	Red	White	Bluish
I	1-5	0	0	0	0	0	0	0	0	
II	6-10	3	0	1	1	1	1	0	0	2
III	11-15	4	1	2	1		0	1	2	1
	Total number	7	1	3	2	1	1	1	2	3
	Total %	100%	14%	43%	29%	14%	14%	14%	29%	43%

plug or by a sialolith, resulting in retention and accumulation of saliva within the duct. Extravasation phenomenon is more common in children as compared to retention phenomenon probably due to trauma. However Ranula can be of either mucous extravasation type or mucous retention type [8].

Mucoceles are common oral lesions in children. In 1998, Dr Chen et al. reported that 28.6% of all biopsies from pediatric patients showed mucoceles [9]. Our observation was in coincidence with a study conducted by Yamasoba et al wherein among 70 patients with mucoceles they observed that 70% were below the age of 20 years [10]. This finding may have some importance in preparing these patients for surgery, as younger patients may require additional measures in terms of anesthesia and sedation.

According to literature, most series reports an even distribution of mucoceles between the sexes [2]. However we observed a higher incidence of mucoceles in boys than in girls which was not in accordance with the reports of Olivera et al who observed a higher incidence of mucoceles in girls 72.2% girls than 27.8%boys [11].

Mucoceles are known to arise more commonly in labial mucosa [12]. Our observation was in concent with majority of researches, Yamasoba in their study observed 75% of mucoceles in lower lip among the study population of 70 mucoceles [10]. We observed two (29%) mucoceles located in the floor of the mouth. These lesions acquire importance in the pediatric population because they have

to be differentiated from deeper and more serious conditions such as dermoid cyst, hemangioma and cystic hygroma.

The Literature states that clinically the mucoceles of the minor salivary glands are rarely larger than 1.5 cm and are superficial. Only the lesions arising from deeper areas such as the floor of the mouth (Ranula) is considerably larger, creating problems such as discomfort, interference with speech, mastication, and swallowing [13]. However in this study we observed that 3 mucoceles were 1.5 cm in size and also 3 lesions are larger in size with the largest mucocele to be found on the buccal mucosa measuring 5cms (Table-3).

Mucoceles are best treated by excision followed by dissection of affected minor salivary gland. Variations do exist in technique and depends on the size, location and accessibility of the lesion. Cryosurgery, laser are alternative nonsurgical methods [14]. In the present study all lesions had been treated with simple excision followed by dissection of the involved minor salivary gland to prevent recurrence.

Conclusion

Mucoceles are a fairly common oral pathological condition in children, although not associated with significant morbidity; they can be the cause of discomfort, especially in the pediatric population. In this study we observed mucoceles are predominantly seen in boys in their second decade of life with lower labial mucosa as the commonly involved site with the size ranging from 1 to 5cms. The color of the lesion varied from normal pink, red to blue. The surface keratosis and internal hemorrhage altered the characteristic bluish color in some of the lesions and simple excision along with dissection of affected and adjacent minor salivary glands caused no recurrences.

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References

1) Neville BW, Damm DD, Allen CM, Bouquot JE, editors. Oral and Maxillofacial Pathology. 3rd ed. Philadelphia: WB Saunders; 2008. 423-24
2) Jensen JL. Superficial mucoceles of the oral mucosa. Am J Dermatopathol 1990; 12:88–92
3) Quick CA and Lowell SH. Ranula and sublingual salivary glands. Arch Otolaryngol 1977; 103:397-400
4) Zhao Y, Jia Y, Chen X, Zhang W. Clinical review of 580 Ranulas. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2004; 98:281-287.
5) Huang IY, Chen CM, Kao YH, Worthington P. Treatment of mucoceles of the lower lip with carbon dioxide laser.

J Oral Maxillofac Surg 2007; 65:855-8.

6) Nico MM, Park JH, Lourenço SV. Mucocele in pediatric patients: Analysis of 36 children. Pediatr Dermatol 2008; 25(3):308-11.
7) Marcello Menta S. Nico, Jee Hee Park and Silvia Vanessa Lourenc. Mucocele in Pediatric Patients: Analysis of 36 Children. Pediatric Dermatology 2008; 25 (3):308–311.
8) Pratik B.et al. Oral mucocele in pediatric patient: A case report and review of literature. European journal of Dental Therapy and Research 2014 3(3): 234-236
9) Chen YK, Lin LM, Huang HC, Lin CC, Yan YH. A retrospective study of oral and maxillofacial biopsy lesions in a pediatric population from southern Taiwan. Pediatr Dent: 1998; 20:404 -10.
10) Yamasoba T et al. Clinico statistical study of lower lip mucoceles. J Head Neck 1990; 12:316– 320.
11) Oliveira DT, Consolaro A, Freitas FJ: Histopathological spectrum of 112 cases of mucocele. Braz Dent J 1993; 4:29–36.
12) Harrison JD. Salivary mucoceles. J Oral Surg OralMed Oral Pathol 1975; 39:268–278.
13) Piazzetta CM, Torres-Pereira C, Amenábar JM. Micro-marsupialization as an alternative treatment for mucocele in pediatric dentistry. Int J Paediatr Dent 2011; 17:1-5.
14) Baurmash HD. Mucoceles and Ranulas. J Oral MaxillofacSurg: 2003; 61:369-78.