ORIGINAL ARTICLE

Clinico-Pathological Profile of Oral Mucocele in a Tertiary Care Centre – A Comparative Study

Nehal Ahmad[1], Mohammad Jaseem Hassan[2], Sabina Khan[1], Rubeena Naz Mohroo[1], Sujata Jetley[1]

Abstract

Background: Oral mucocele are common non neoplastic lesions of the oral cavity that develop either as a result of damage to the duct or obstruction to the duct of minor salivary gland. Histopathologically oral mucoceles are divided into two categories: Extravasation mucoceles often seen in young individuals, the lower lip being the classic location. The second category includes retention mucoceles, which occurs most often in older patients usually located in the floor of the mouth and the inside the cheek.

Objectives: This study aims to describe the demographic and histological characteristics of Oral mucocele along with comparative study between Extravasation mucocele and Retention Mucocele.

Method: A total of 32 cases of mucocele diagnosed in the Department of the Pathology, between 2012 and 2019 were reviewed. The clinical data were recorded and histopathologic diagnosis was made. The study variables included were age, gender, type, site, color, etiology, symptoms and dimension of the lesion.

Results: A total of 32 cases of oral mucocele cases were studied corresponding to a M:Fratio of 1.13:1. Peak incidence occurred in third decade followed by equally in the first and second decades of life. Extravasation Mucocele was the clinical diagnosis in 59.4% and Retention Mucocele in 40.6%. Most lesions were located in the lower lip (59.3%).

Conclusion: This study provides an important insight into demographic and histological profile of oral mucocele lesion. It was concluded that oral mucocele predominantly presented in two histological forms, Extravasation Mucocele which was more common than other lesser common form Retention Mucocele. Although these lesion are easily diagnosed on the basis of clinical presentation but sometimes these swelling can mimic other benign mucosal lesion of these region, hence histopathological examination must be done in order to rule out these lesion and also to note any variation from its normal morphological findings.

Key words: Extravasation, lip, mucocele, retention,

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Introduction

Oral mucocele are non-neoplastic lesions of the oral cavity that are centred on minor salivary gland of the oral cavity. These lesion develop either as a result of damage of the duct or obstruction of the duct of these minor salivary gland. Oral mucocele are most common in people of 10-40 years of age, however these cysts can occur in people of all ages. They also happen equally in both females and males.[1,2] Lower lip is the most common site of occurrence.[3] However, other sites, including the upper lip and the buccal mucosa, floor of mouth, ventral surface of tongue, palate can also be affected. Most common etiology associated with it are Lip biting (most common cause), tear in the salivary gland, cheek biting, piercings, accidental rupture of a salivary gland, adjacent teeth causing chronic damage. Mucoceles typically present as single, recurrent, painless, soft, round, dome shaped, pink and blue to translucent and white nodules. Most Mucoceles range in size from 2 to 10 mm in diameter.[4] The classic clinical presentation of soft, fluctuant swelling accompanied by history of evolution of the lesion does not pose much difficulty in diagnosis. Sometimes lesions such as vesiculobullous lesions, hemangioma, and neoplastic diseases such as mucoepidermoid carcinoma closely mimic mucocele and this fact warrants histopathological examination of all the excised mucocele.[5,6] Histopathologically oral mucocele

[1]Department of Pathology, Hamdard Institute of Medical Sciences and Research, Jamia Hamdard, New Delhi 110062, India; [2]Department of Pathology, Jawaharlal Nehru Medical College, A.M.U, Aligarh, Uttar Pradesh 202002, India.

Corresponding author: Mohammad Jaseem Hassan, Department of Pathology, Jawaharlal Nehru Medical College, Aligarh, Uttar Pradesh - 202002, India Email id: jaseemamu@gmail.com

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are divided into two categories. One category being more common is extravasation mucoceles which is often seen in young individuals, the lower lip being the classic location, The second category includes retention mucoceles, which occurs most often in older patients and in other locations in the oral cavity, such as the floor of the mouth and the inside the cheek. An anatomic variant of either extravasation or retention mucocele is known as ranula when it occurs as a blue-domed cyst in a sublingual location, and as plunging ranula when it extends into the neck above the hyoid bone.[2,3,7,8]

Material and Method

This retrospective study was conducted at our hospital by assessing the clinical records available in the archives of the department of Pathology. All the specimens of oral cavity lesions histopathologically diagnosed as cases of Oral Mucocele were included in the study. Any repeat biopsy for residual lesion after therapy was excluded from the study. The descriptive data of these patients were evaluated and compared with previously documented data in the literature. The study variables included were age, gender, type, site, color, etiology, symptoms and dimension of the lesion. The collected data was analyzed using different statistical methods. The results were considered statically significant at 95% CI and the P-value was less than 0.05. All the analysis was done by using Statistical Package for the Social Sciences (SPSS) version 26.0.

Results

In the present study, a total of 32 cases of oral mucocele cases were studied, out of which 17(53%) were in males and 15(47%) were in females, corresponding to M:F ratio of 1.13:1. (TABLE-1).Patient age ranged from 9 months to 56 years. Mean age of the patients was 22.9 with standard deviation of 13.03. Peak incidence occurred in third decade followed by equally in the first and second decades of life, accounting for more than 31% of all cases. While male were dominant in third decade (7/17), female (5/15) were dominant in fourth decade. (TABLE- 2)Examining the monthly distribution within the year, no seasonal difference was observed. Extravasation Mucocele was the clinical diagnosis in 19 cases (59.4%) and Retention Mucocele in 13 (40.6%) cases.(TABLE- 1) Most lesions were located in the lower lip (59.3%), followed by the buccal mucosa (9%) and ventral tongue, palate, floor of mouth, upper lip and sublingual region each with 6.25%.(TABLE- 3) In this study, We could establish causative factors in only 13(40.6%) cases which was trauma including lip biting while in 19(59.4%) cases we could not establish in any cause. On calculated Chi-square test, we found value of 14.98 with a p value <0.05 which is highly significant at 95% CI. In our study 22(68.7%) lesions were superficial while 10(31.3%) lesions were deep in location. On calculated Chi-square test, we found value of 21.25 with a p value <0.05 which is highly significant at 95% CI. We observed that the color of overlying mucosa was bluish in 16 (50%), light pink in 6(18.7%) and translucent white in 10(31.7%) of the patients. On calculated Chi-square test, we found value of chi-square is 25.78 with a p value <0.05 which is highly significant at 95% CI.

Table 1: Type of Lesion along with Sex wise distribution in Oral Mucocele

Type of Lesion	Male	Female	Total	Ratio
Extravasation Mucocele	11	8	19	1.37: 1
Retention Mucocele	6	7	13	0.8: 1
	17(53.1%)	15(46.9%)	32(100%)	1.13: 1

Table 2: Age and Sex wise distribution of Oral Mucocele Lesion (EM-Extravasation Mucocele, RM – Retention Mucocele)

	EM		RM		TOTAL(%)
Age Group	Male	Female	Male	Female	
0-10	04	02	-	01	07(21.8)
11-20	03	-	01	03	07(21.8)
21-30	03	03	04	-	10(31.3)
31-40	01	02		03	06(18.8)
41-50	-	-	-	-	-
51-60	-	01	01	-	02(6.25)
	11	08	06	07	32

Mean age of the patients is 22.9 and standard deviation is 13.03

Table 3: Site wise distribution of Oral Mucocele (EM-Extravasation Mucocele, RM – Retention Mucocele)

Site	EM	RM	Total(%)
Lower lip	13	6	19(59.4)
Buccal mucosa	2	1	3(9.4)
Ventral tongue	1	1	2(6.3)
Palate	0	2	2(6.3)
Floor of mouth	1	1	2(6.3)
Upper lip	1	1	2(6.3)
Sublingual	1	1	2(6.3)
	19	13	32(100)

Table 4: Etiology and clinical presentation of Oral Mucocele Lesion (EM-Extravasation Mucocele, RM – Retention Mucocele)

		EM	RM	TOTAL(%)
Etiology	Trauma	13	0	13(40.6)
	Unknown	06	13	19(59.4)
Location	Superficial	19	03	22(68.8)
	Deep	0	10	10(31.3)
Colour	Bluish	16	0	16(50)
	Light Pink	03	03	06(18.8)
	Translucent white	0	10	10(31.3)
Symptoms	Discomfort	08	10	18(56.3)
	Asymptomatic	07	03	10(31.3)
	Mild Pain	04	0	04(12.5)

With regards to symptoms, 18(56.25%) patients had discomfort, 10(31.25%) patients were asymptomatic and 04 (12.5%) patients experienced mild pain. (TABLE 4) The size of the lesion ranged from 0.4 to 2.4 cm. All cases underwent surgical excision of the lesion along with lobules of adjacent minor salivary glands.

Discussion

The term mucocele is derived from a Latin word, mucus and cele means cavity,[9] which can appear in the oral cavity, appendix, gallbladder, paranasal sinuses and lacrimal sac.[1,10] The prevalence of mucocele is 2.5 lesions per 1000 population in America, 0.11% in Sweden and 0.08% in Brazil.[11,4] They represent the 17th most common lesion of oral cavity.[11] The lesion can be located directly under the mucosa (superficial mucocele), in the upper submucosa (classic mucocele), or in the deep corium (deep mucocele).[12] Coloration can also vary depending on the size of the lesion, proximity to the surface and upper tissue elasticity. The blue colour is caused by vascular congestion, and tissular cyanosis of the tissue above and the accumulation of fluid below.[1,13,14] Lesion duration is not constant, from a few days to 3 years.[12] Mucoceles rarely cause significant problems. Discomfort, interference with speech, mastication, swallowing and external swelling may occur depending on the size and location of mucoceles[1]. In our study out of 32 patients, 56.25% of patients presented with complain of discomfort, 31.25% were asymptomatic, 12.5% had complain of mild pain during mastication. Bagán et al. provide a study of 25 patients suffering from mucoceles. 48% of the patients became aware of their lesion on seeing it, although there were no symptoms. In another 48 % cases, lesions were found by a specialist by chance. Only 4% patients had some unspecified feeling of discomfort but no real pain.[15] There is no clinical difference between extravasation and retention mucocele, but their etiology is different and they are different histopathologically. Extravasation mucocele arise from ductal damage that causes mucus pooling in the adjacent tissue, becomes walled off, surrounded by inflammatory cells and granulation tissue and causes a cyst-like swelling. Although the term cyst is often used to refer to these extravasation mucocele, mucoceles are not true cysts because there is no epithelial lining. Retention mucoceles result from obstruction of the excretory duct, leading to the retention of secretions and subsequent dilation of the duct. In this case, a unilocular cyst is formed completely lined by cylindric, cuboidal, or flattened epithelial cells.[2,3,7,8] Ranula are considered a variant of mucoceles that arises in the oral floor. The name derives from the typical swelling that resembles the air sacs of the frog[1].

In our study out of total 32 cases of oral mucocele, 19(59.4%) cases were of Extravasation Mucocele and 13(40.6%) cases were of retention Mucocele. Bagán et al. reported 25 cases of oral mucoceles out of which 4(5)% were retention mucoceles whereas the other 24(95)% were extravasation.[15] Tegginamani et al from India reported 50 cases and all of them were Extravasation Mucocele.[8] Jani DR et al from India reported 36 cases, Out of them 30 cases were Extravasation Mucocele while 6 were retention mucoceles.[16] More CB et al reported a total of 58 patients of oral Mucocele, 49 (84.48%) patients had extravasation type, whereas 9 (15.52%) patients had retention type of mucocele.[17] Our study differs from all the above study in that percentage of Retention mucocele, which was comparatively more from other studies.

In our study mucocele was comparatively predominant in males (53.1%) than females (46.9%) but there was not much difference and M:F ratio was 1.13:1. The studies of Menta et al.[18] Yamasoba et al.[12] and Oliveira et al.[19] also reported similar results as of our study. Extravasation Mucocele were more common in male (11vs8) as compared to Retention Mucocele which was slightly more common in female in our study.(7 vs 6).

The cases occurred frequently in 1st to 3rd decade with majority in 3rd decade of life which was also reported by Tegginamani et al from India. [8]Conceição JG et al reported peak incidence occurred equally in the second and third decades of life, accounting for more than 50% of all cases.[20] Other studies have reported a higher frequency among subjects in their 20s or younger.[21] Mucoceles may also be congenital or arise soon after birth, but are rare in children less than 1 year of age.[22] We found a mucocele in a child aged 9 month. The cases of Extravasation Mucocele were more predominant in first decade of life, while Retention Mucocele were more common in third decade of life.

In the present study, 19(59.3%) cases had lesions on the lower labial mucosa which was the commonest site as this side is most

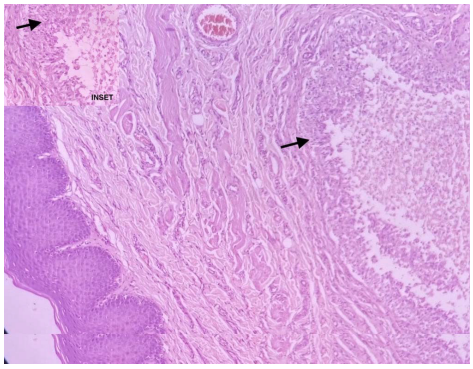

Fig. 1: Dilated cystic space lined by cuboidal epithelium (Arrow mark) and filled with mucoid material (H&E stain,10x). Inset show same image at higher magnification (H&E stain,40x)

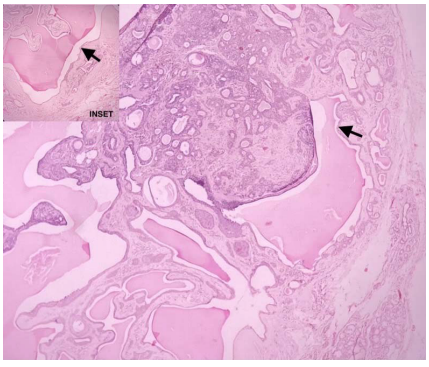

Fig. 2: Cystic space lined by sheets of Histiocytes (arrow) and filled with mucinous material(H&E stain, 10x). Inset show same image at higher magnification (H&E stain,40x)

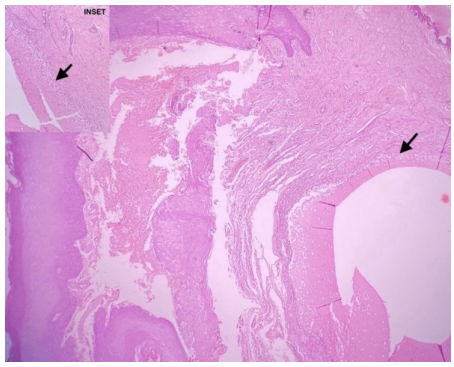

Fig. 3: Cystic space lined by sheets of Histiocytes (arrow) and filled with mucinous material (H&E stain,10x). Inset show same image at higher magnification (H&E stain,40x)

prone to trauma, especially at premolar level, which was also reported by Shear M et al[23], More CB et al[17], Re Cecconi D et al[24] and most other studies.

In this study most of the mucoceles had diameter ranging from 4 to 15 mm except one lesion situated on the palate which measured 24mm in diameter which simulated with the findings of More et al[17] and Sebastian et al.[15] Oral mucoceles of minor salivary glands are rarely larger than 1.5 cm in diameter and are always superficial. Mucoceles found in deeper areas are usually larger.[11]

The role of Trauma has been established in various human as well as animal studies.[24] Trauma including Lip biting (40.6%) was most common etiology in our study but we could not establish cause in other cases.

Usually the duration of lesion in oral mucocele varies from a few days to 3 years as seen in various studies. The clinical presentation also vary depending on the depth of the lesion whether they are superficial or deep in location.[11] In our study 22(68.7%) lesions were superficial, while 10(31.3%) lesions were deep in location similar to a Indian study by Jani DR et al.[16] The appearance of the lesion in our study was raised soft tissue swelling in Superficial lesions which appeared bluish (16 cases, 50%) to light pink (6 cases, 18.7%) in colour, while the deeper lesions were well defined, and having normal mucosal i.e. white translucent color (10 cases, 31.3%)) similar to study by Nico et al.[22]

Conclusion

This study provides an important insight into demographic and histological profile of oral mucocele of the patient came to this tertiary care hospital. It was concluded that oral mucocele predominantly presented in two histological forms: Extravasation Mucocele which was more common than other lesser common form Retention Mucocele. Although these lesion are easily diagnosed on the basis of clinical presentation but sometimes these swelling can mimic vesiculobullous lesions, hemangioma, and some neoplastic diseases of these region. Hence histopathological examination must be done in order to rule out these lesion and also to note any variation from its normal morphological findings. Since sample size in our study was small further studies may be performed with larger number of samples in order to find variations in the presentation of these lesion. Although follow up was not in every cases but recurrence was seen in few cases.

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