

ORIGINAL ARTICLE

Cases of mucocele treated in the Dental Department of Penang Hospital

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Keywords

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Abstract A mucous cyst is a benign, self limiting mucous containing cyst of the salivary glands commonly occurring in the oral cavity. Mucocele may develop following the obstruction of the salivary flow from secretory apparatus of the salivary gland. Mucoceles commonly occur on the lower lip but may occur in other locations too. The objective of the study was to determine the factors associated with mucocele in patients attending the dental clinic of Penang Hospital from January 2000 to December 2005. This is a retrospective record review analysis of all the total 35 cases treated during this period, comprising of 20 males (57.1%) and 15 females (42.9%) with Malays as the largest group of patients treated and, mainly students had seek treatment. Mucocele was frequently treated in patients aged 21 to 24 year old. The site of the mucocele was the lower lip and all of the cases were treated surgically. The size of the mucocele ranged from 0.5 to 5 centimetres with 1.0 cm as the most common size. Most of the patients gave a history of spontaneous development (71.4%), followed by lip biting (25.7%) and trauma (2.9%). Lip biting was more common among students (55.6%) as compared to others. There were only two recorded cases of recurrence.

Introduction

A mucous cyst is a benign, self-limiting condition (López-Jornet, 2006), mucous containing cystic lesion of the salivary glands and is common within the oral cavity. Most of these are devoid of the epithelial lining (Baurmash, 2003). The lesions can be located directly under the mucous membrane (superficial mucocele) or in the upper sub mucosa (classical mucocele) (Selim and Shea, 2007).

The prevalence of mucocele is 2.5 lesions per 1000 population in the United States of America (Selim and Shea, 2007). Similar study has shown that mucoceles represent the 17th most common oral lesion (Flaitz and Hicks, 2006). In Sweden, children of one year and older had shown the prevalence of mucoceles was 0.11% and in Brazil, the prevalence was 0.08% (Flaitz and Hicks, 2006).

The development of mucous retention type mucocele depends upon the obstruction of the salivary flow from secretory apparatus of the salivary gland (Flaitz and Hicks, 2006). There are two types of mucous cyst, based on the histology of the cyst wall; a mucous extravasation cyst formed by mucous pools surrounded by granulation tissue and mucous retention cyst with an epithelial lining (Bodner and Tal, 1991; Yamasoba *et al.*, 1990). Salivary mucocele are common in the lower lip but may occur in other locations too (Seifert *et al.*, 1986).

The sizes may vary from few millimetres to centimeters, most are less than 1.5 cm in diameter (Flaitz and Hicks, 2006). Mucoceles usually occur singly and only rarely bilaterally (López-Jornet, 2006). The clinical presentation may vary depending on the depth of the lesion. Mucoceles are usually dome shaped enlargement with intact epithelium that lies over it (Flaitz and Hicks, 2006). Patients with superficial mucocele may complain of single or multiple blisters (López-Jornet, 2006). Mucoceles are generally painless and

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asymptomatic and have history of rapid onset (Flaitz and Hicks, 2006).

The objective of the study was to determine the factors associated with mucocoele in patients who had sought treatment in the Dental clinic of Penang Hospital from January 2000 to December 2005.

Materials and Methods

This is a retrospective record review study design. The study subjects included all cases of mucocoele, which were treated in the dental department of Penang Hospital from January 2000 to December 2005. The department is headed by a maxillofacial surgeon and receives referrals from government as well as private clinics from Penang state.

A standardized form was used for data collection by the researchers by going through the patients' case records. All case records of mucocoele cases were reviewed. The variables were sex, race, age, size of the lesion, occupation and factors associated with the

development of mucocoele and treatments and the recurrence of mucocoeles in these patients. Descriptive statistics was used to explore the data. The results were analyzed using SPSS version 13.0. The statistical analysis was done using Chi-Square tests.

The study has received the approval from the Ethical and research committee of the School of Medicine of AIMST University and the National Institutes of Health Malaysia.

Results

There were a total of 15076 new patients treated in dental clinic of Penang Hospital, from January 2000 to December 2005 and a total of 35 mucocoele cases were treated during the six-year period, giving the prevalence of mucocoele as 0.002%. There were more males (57.1%) compared to females (42.9%) who had sought treatment during this period. Malays made up the majority (45.7%) followed by the Indians (25.7%), Chinese (17.1%) and foreign workers (11.4%) as shown in Table 1, respectively.

Table 1 Variables associated with mucocoele cases

Variable	Frequency, (n)	Percentage, (%)
<i>Sex</i>		
Male	20	57.1
Female	15	42.9
<i>Patients' race</i>		
Malay	16	45.7
Indian	9	25.7
Chinese	6	17.1
Foreign workers	4	11.4
<i>Age (year)</i>		
< 20	10	28.6
21 – 24	14	40.0
> 25	11	31.4
<i>Sizes of lesion (in cm)</i>		
0.5	12	34.3
1	14	40.0
>1	9	25.7
<i>Patients' occupation</i>		
Skilled workers	12	34.3
Student	21	60.0
Unemployed	2	5.7
<i>History of lesion development</i>		
Lip biting	9	25.7
Spontaneous	25	71.4
Trauma	1	2.9
<i>Duration before seeking treatment</i>		
<1 month	10	28.6
1 – 6 months	15	42.9
> 6 months	10	28.6

Table 2 Sizes of lesion with the history of lesion development

History	Sizes of lesion		
	0.5 cm n (%)	1.0 cm n (%)	>1.0 cm n (%)
Lip biting	3 (33.3%)	3 (33.3%)	3 (33.3%)
Spontaneous development	8 (32.0%)	11 (44.0%)	6 (24.0%)
Trauma	1 (100%)		

Most of the patients were students (60.0%) followed by skilled workers (34.3%) and those unemployed (5.7%). The age group ranged from 16 to 64 years old. Most cases seen were those within the age group of 21 to 24 years old (40.0%) followed by those 25 years and older (31.4%).

The mucocele had occurred on the lower lip for all the 35 cases. The sizes of the mucocele ranged from 0.5 to 5 centimetres, where size of lesion approximately 1.0 cm were mostly recorded (40.0%) followed by 0.5 cm (34.3%) and larger than 1 cm (25.7%). Most of the patients gave a history of spontaneous development (71.4%), followed by lip biting (25.7%) and trauma (2.9%). History of lip biting was more common among students (55.6%) as compared to others, whereas history of trauma was only found among the skilled workers. There was no significant difference between the history of lip biting, trauma and spontaneous development among the males and females. History of spontaneous development of mucocele was the most common causation among all the races.

The size of the lesion was categorized into lesion size approximately 0.5 cm, 1.0 cm and greater than 1.0 cm. History of lip biting was found to be a common cause of the mucocele development in all the three different sizes (33.3%) as shown in Table 2, respectively. Most of the patients who had lesion of approximately 1.0 cm gave history of spontaneous development (44.0%) as compared to lesion size 0.5 (32.0%) cm and lesion size greater than 1.0 cm (24.0%). Only one patient (100%) reported the history of trauma for the lesion size 0.5 cm.

Most of the patients had sought treatment within 1 to 6 months of mucocele development (42.9%) and the others less than 1 month (28.6%) or more than 6 months (28.6%). There was no significant difference for the lesion size and the duration before seeking treatment. Most (41.7%) skilled workers sought treatment within 1 month of lesion development, whereas most students (57.1%) sought treatment within 1 to 6 months of lesion development.

There were only two cases of recurrence, which was recorded; one was after 3 months

and the other after 3 years. All the cases were treated surgically.

Discussion

Generally the incidence of mucocele is the same among the genders (Selim and Shea, 2007), similar to this study. Although mucocele can affect all age groups more than half usually occur in those younger than 30 years old (Flaitz and Hicks, 2006; López-Jornet, 2006; Selim and Shea, 2007). In this study there were more patients (40%) between the age groups 21 to 24.

Salivary mucoceles are more common in the lower lip though they may develop in other areas such as the floor of the mouth, the cheek, the palate, retromolar fossa and the dorsal surface of the tongue (Seifert *et al.*, 1986; Flaitz and Hicks, 2006). In this study, in all the cases the mucoceles developed in the lower lip.

Although trauma is the most common cause of mucocele development (Flaitz and Hicks, 2006; López-Jornet, 2006; Selim and Shea, 2007), spontaneous development was found to be the most common cause of the cases reviewed. We found the most common size was 1 cm (40%) followed by 0.5 cm (34.3%). Reviews of literature have shown that 75% of the lesions are smaller than 1 cm (López-Jornet, 2006). More Malays had sought treatment for mucocele compared to the other races in the hospital although Malays are not the majority race in Penang Island. This could be due to economical reasons rather than due to the higher prevalence of mucoceles among the Malays. In the United States of America mucoceles are more common among the Caucasians (Selim and Shea, 2007).

Surgical excision is the most common treatment for mucocele (Baumash, 2003; López-Jornet and Bermejo-Fenoll, 2004; López-Jornet, 2006; Seifert *et al.*, 1986), though there are other methods of treatment like laser ablation, cryosurgery and electrocautery (Frame, 1985; Ishida and Ramos-e-Silva, 1998; Kopp and St Hilaire, 2004; López-Jornet and Bermejo-Fenoll, 2004; Marcusshamer *et al.*, 1997; McCaul and Lamey, 1994; Neumann and Knobler, 1990; Toida *et al.*, 1993). All cases in this study were treated surgically.

Conclusion

Mucocoele is in most cases a benign self-limiting condition, hence the reason for the small number of cases which were seen in the dental department of Penang Hospital. It is easily diagnosed based on physical examination and removal is easily done by surgery. In this study most cases gave the history of spontaneous development. Further study of this group could help to analyse whether these are truly cases of spontaneous development and if so why it occurs as such. Being a record review study, there are some limitations to this study especially as some information, which could have made the study stronger, were missing.

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