

Clinical Evaluation of Qat Chewing on the Buccal Mucosa among Secondary Schools Students in Sana'a City, Yemen

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Abstract

Objective: This study was designed to evaluate qat chewing clinically on the buccal mucosa among secondary schools students in Sana'a city, Yemen.

Methods: This study was conducted on (600) of secondary schools students, (300) male students and (300) female students with an age ranged from 16 -20 years. The sample was collected from five private and five public schools at Sana'a city, Yemen. Students were examined at schools, under natural day light with a disposable mouth mirrors, using gloves and gauze pads.

Results: Normal buccal mucosa (88.8%) was the most prevalent clinical feature, followed by linea alba was (8%), and the least prevalent clinical feature was whitish area (3.2%).

Conclusion: Normal buccal mucosa was the commonest clinical feature and it was more common in female students than male students, while the least clinical feature was whitish area and it was more common in male students than female students.

Keywords: Clinical Evaluation, Qat Chewing, Secondary School Students, Sana'a City, Yemen.

1. INTRODUCTION

Qat is an evergreen plant grown in the regions around the horn of Africa and the Southern Arabian Peninsula such as Yemen, where it up to 90% of adult males and more than half of adult females are estimated to chew qat for several hours.⁽¹⁾

In Yemen, qat is commonly used for social recreation. Occupational groups such as motor vehicle drivers and truck drivers chew qat during long distance driving to keep them awake; those in cutting of rock stone and building establishment, also use it under a variety of other conditions. A significant number of students chew qat to be alert especially during examination periods.⁽²⁾

Habitual chewing of qat leaves by Yemeni women over decades caused mucosal white lesions recorded on the chewing side irrespective of additional noxae as tobacco and water-pipe smoking.⁽³⁾

During qat chewing sessions, large amounts of qat leaves, shoots, and barks are placed in the oral cavity and chewed while being kept in the

vestibule in close contact with the buccal mucosa.⁽⁴⁾ Qat bolus is chewed gradually and continuously for 2 to 10 hours. On average, 100–500 g of qat is chewed by chronic users per day.⁽⁵⁾ Over 90 percent of the alkaloid content of qat is extracted into saliva during chewing and most of it is absorbed through the oral mucosa.⁽⁶⁾ Therefore, the oral mucosa are exposed to high doses of qat constituents during qat chewing rendering them susceptible to its potentially toxic effects.⁽⁷⁾

Qat chewing may result in a number of changes in the oral mucosa and the dentition. The mechanical and chemical irritation may result in the development of mucosal white lesions and dark pigmentation. Qat chewing may reduce aspects related to risk of gingival and periodontal inflammation, but it appears to be associated with attachment loss at the site of chewing.⁽⁸⁾

2. MATERIALS AND METHODS

2.1. The sample

This study was conducted on (600) of secondary schools students, (300) male students and (300)

female students with an age ranged from 16 to 20 years. It was conducted at secondary schools students (five private and five public schools according to a recent geographical map) at Sana'a city in Republic of Yemen through the period from February to May 2017.

2.2. Examination of Students

Before the examination started, The examiner gave information for the students about habitual qat chewing and its risk effects. Students were examined at the schools during class hours at their desks in the classroom, in a predetermined timetable, as arranged with the schools principals. Each student was examined to diagnose the buccal mucosa in the natural light with a disposable mouth mirrors, using gloves and gauze pads. A data collecting chart was designed for recording the necessary information's for each student including personal data as name, age, gender and birth date.

3. RESULTS

This study was conducted to evaluate qat chewing clinically on the buccal mucosa among secondary schools students in Sana'a city, with

age ranged from 16-20 years. The sample size included 600 students randomly selected through cluster sampling, 300 male students (50%) and 300 female students (50%) respectively.

Distribution of qat chewing students in secondary schools according to age & gender is summarized in table (1), which shows the following results:

In both males & females, students who chewed qat were less in number at age of 16 year (n= 35) and more in number at age of 20 year (n=259).

Male students who chewed qat were less in number at Hail Saeed school (n=56), whereas they were more in number at Alkebsi school (n=68).

Female students who chewed qat were less in number at Shuhda Alsabeen school (n=50), whereas they were more in number at Alkhansa school (n=66).

In this study, female students who chewed qat were less in number at Shuhda Alsabeen school (n =50), whereas male students were more in number at Alkhansa school (n= 68).

Table1. Distribution of qat chewing students in secondary schools according to age & gender

No.	Name of Secondary School	Gender	Number of Students By Age					Total	Total By Gender
			16 Y.	17 Y.	18 Y.	19 Y.	20 Y.		
1-	Alkebsi	Males	4	12	14	17	21	68	300
2-	Alkuwait		3	7	9	15	23	57	
3-	Omar Ibn Abdul Aziz		5	8	10	16	22	61	
4-	Hail Saeed		5	7	11	14	19	56	
5-	Alshaab		3	8	9	18	20	58	
6-	Alramah	Females	4	9	12	15	24	64	300
7-	Shuhda Alsabeen		2	7	10	13	18	50	
8-	Shuhda Aljaweeh		3	10	13	15	21	62	
9-	Balqees		3	8	11	17	19	58	
10-	Alkhansa		3	9	14	18	22	66	
Total By Age			35	85	113	158	209	600	

Distribution of qat chewing students in secondary schools according to clinical features

of buccal mucosa is summarized in table (2), which shows the following results:

Table2. Distribution of qat chewing students in secondary schools according to clinical features of buccal mucosa

No.	Name of Secondary School	Gender	Clinical Features of Buccal Mucosa			Total
			Normal	Linea alba	Whitish area	
1-	Alkebsi	Males	57	7	4	68
2-	Alkuwait		46	8	3	57
3-	Omar Ibn Abdul Aziz		49	9	3	61
4-	Hail Saeed		48	6	2	56
5-	Alshaab		51	5	2	58
Total & Percentage By Males			251 (41.8%)	35 (5.8%)	14 (2.3%)	300
6-	Alramah	Females	59	3	2	64
7-	Shuhda Alsabeen		48	2	0	50
8-	Shuhda Aljaweeh		57	4	1	62

9-	Balqees		57	1	0	58
10-	Alkhansa		61	3	2	66
Total & Percentage By Females			282 (47%)	13 (2.2%)	5 (0.9%)	300
Total & Percentage By Gender			533 (88.8%)	48 (8%)	19 (3.2%)	600

Normal buccal mucosa was seen in 533 students (88.8%).The number of normal buccal mucosa in male students was 251 (41.8%) and 282 (47%) in female students. It was common in female students than in male students, **figures (1,2).**

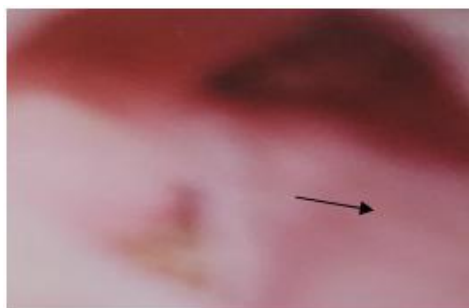


Fig1. Photograph showing normal buccal mucosa in female student



Fig2. Photograph showing normal buccal mucosa in male student

Linea alba was seen in 48 students (8 %).The number of linea alba in male students was 35 (5.8%) and 13 (2.2%) in female students. It was common in male students than in female students, **figure (3).**

Whitish area was seen in 19 students (3.2 %).The number of whitish area in male students was 14 (2.3%) and 5 (0.9%) in female students. It was common in male students than in female students, **figure (4).**

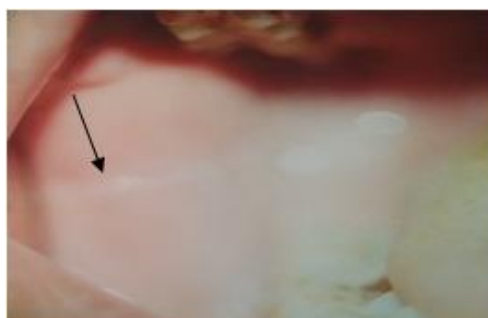


Fig3. Photograph showing linea alba in male student



Fig4. Photograph showing whitish area in male student

4. DISCUSSION

Although there have been several studies reporting the oral effects of qat chewing on adult & old age Yemeni population, no reported study has been conducted on Yemeni secondary school students. So this study was done.

In the present study, no premalignant and malignant changes were seen on the buccal mucosa that may be due to the duration and frequency of qat chewing are insufficient to cause any epithelial dysplastic changes. Although It has been speculated that there might be an association between qat chewing and oral malignancies.⁽⁹⁾ Buccal epithelial cells experience genotoxic effects in a dose-related way in qat-chewers; this suggests that oral malignancies can be contributed to by qat .The prevalence of this lesion and its severity increased with frequency and duration of qat use. The importance of qat and oral malignancies have been documented after finding that most of the oral squamous cell carcinomas are located in the buccal mucosa which come into direct contact with qat during chewing .⁽¹⁰⁾

Whitish area was the least clinical feature with percentage (3.2%) and more common in male students (2.3%) than female students (0.9%). Whereas it has been reported that that about 50% of qat chewers develop oral mucosal keratosis.⁽¹¹⁾ This pathologic change is considered a pre-cancerous lesion that may develop into oral cancer.⁽¹²⁾ Keratotic white lesions are present in the mouths of about one-fifth of qat-chewers.⁽¹³⁾

The low prevalence of whitish area in this study does not suggest that qat chewing is a safe habit.

This is in agreement with *Ogada et al.,(2014)* who revealed that carcinogenesis is a process that is dependent on several factors including; time, type and amount of exposure to carcinogen and immune status of the individuals. Time is an important factor in carcinogenesis, where it takes about 10-20 years before precursor lesions develop into cancer. This therefore explains the reason for low prevalence in this generally younger population.⁽¹⁴⁾

Linea alba was recorded in this study (8%) at the buccal mucosa of qat chewing site and more common in male students (5.8%) than female students (2.2%). It may be due to friction mechanism during qat chewing. This finding is in agreement with *Al-Kholani (2010)*, who reported that the hardness of the qat leaves and friction mechanism with mucosal tissues might act as a predisposing factor in the occurrence of ulcers among chewers which usually observed at the qat chewing sites only.⁽²⁾

The clinical features of qat chewing on the buccal mucosa in this study ranged from normal to linea alba to whitish area. These findings are in disagreement with another study indicated that the clinicopathological effects of qat chewing on the oral mucosa included different grades of keratotic white lesions, keratinization of non-keratinized oral mucosa and epithelial dysplasia. It may be due to difference in sample age and size.⁽¹⁵⁾ Other genetic study showed that qat consumption, especially when accompanied by tobacco consumption might be a potential cause of oral malignancy.⁽¹⁰⁾ This finding was supported by another study, which demonstrated that qat chewing as a probable contributing etiological factor of squamous cell carcinoma.⁽¹⁶⁾

Clinical evaluation of qat chewing on the buccal mucosa among secondary schools students is an important to aware the students around the risk effects of qat chewing , and to avoid chewing of qat. This is in agreement with another study revealed that the need for health education and promotion programs to increase the awareness of the problem in the population. Positive long term lifestyle changes, including physical exercise should be established early in life since qat habit tends to start in childhood and progress into adulthood. Health education programs disseminated by the mass media to raise the public awareness should focus on the real impact of the qat chewing habit on students and

the misconception that qat enhanced productivity and achievement.⁽²⁾

5. CONCLUSION

It may be concluded that Normal buccal mucosa was the commonest clinical feature and it was more common in female students than male students, while the least clinical feature was whitish area and it was more common in male students than female students.

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