

PREVALENCE OF ORAL ULCERATION AMONG JORDANIAN PEOPLE

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ABSTRACT

The aim of the study was to determine the prevalence of oral ulcerations among Jordanian patients attending the outpatient's dental clinics at King Hussein Medical Centre during the year 2010.

Patients who attended King Hussein Medical Centre out patients dental clinics were interviewed and examined in relation to the presence, size, shape and duration of the oral ulcers. Past history and other related questions were asked and included in the study.

Out Of the 2945 patients interviewed, 1210 had oral ulcers also at the time of examination or had suffered sometime in the past. This gave prevalence of oral ulceration of 41.08%.

It was concluded that oral ulceration is a common mucosal disorder among Jordanian people.

Key Words: oral ulcers, prevalence, Jordanian people.

INTRODUCTION

Oral ulceration is a common mucosal disorder in which most lesions are idiopathic (aphthous). It may be caused by physical or chemical trauma, viral, fungal, or bacterial infections; allergy, malignancy or be a manifestation of systemic diseases.

The process of oral ulceration causes a breach in the oral epithelium, which typically exposes nerve endings in the underlying lamina propria, resulting in pain or soreness, especially when eating spicy foods or citrus fruits.¹

It is important to know the prevalence of oral ulcerations in the general population as it has a significant negative effect on the oral health, irrespective of the etiology, which will effect the quality of life.

As the majority of the ulcers require treatment of the underlying cause, proper diagnosis will lead to successful treatment and prevention of the lesions.

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To the best of our knowledge few studies have tried to find out the prevalence of oral ulcerations among Jordanian population.

METHODOLOGY

A prospective study was conducted from July 2009 to March 2011 at King Hussein Medical Centre outpatient dental clinics. A total of 2945 patients were included in the study. 1210 patients (41.08%) reported that they now have or had oral ulceration in the past.

The Patients were examined by a maxillofacial surgeon and a periodontist.

The examination included two major parts:

- Interview of patient and filling a questionnaire.
- A clinical examination.

The questionnaire comprised personal history; which included age, sex, occupation, education level, marital status and smoking. Medical history included any systemic disease, association of oral ulceration with menstrual cycle, spicy or sour food stuff, any medication, any association with ulceration involving other organs like skin, vagina, eye or joints and family medical history.

The clinical examination included a thorough intraoral examination of the mucosa of the oral cavity under good light with two dental mirrors to help having good exposure and visualization of all areas of oral cavity.

After Van Der Wall ² the oral cavity was divided into seven regions, examined thoroughly to avoid missing any lesion (the lips, cheek mucosa, floor of mouth, teeth and gums, hard palate, tongue and the retro molar region).

Assessment whether the ulcerative lesion is localized or part of widespread ulceration and whether the surrounding areas are inflamed were recorded. The shape and number of the ulcers and any fixation of mobile tissues such as the tongue was recorded. Examination of the dental prosthesis, orthodontic appliances sharp teeth or dental restoration in relation to the ulcer was done. Then to end our examination, extra oral examination to look for swelling or lymphadenopathy in the head and neck region was also performed.

Lesions involving sites other than the oral cavity were inspected, recorded and consultations with relevant specialist were done.

Each patient was asked about any attempt made to treat the condition or relieve the symptoms by taking any medication that might have affected the appearance of the lesion.

For all patients with history of recurrent oral ulceration hematological tests were performed and it included FBC, ESR, Rheumatoid factor, serum folate, vitamin B12 and ferritin levels.

Symptomatic drug therapy was prescribed until investigations were completed. If any deficiency state was suspected referral to the internist for possible supplement therapy was made. The item traumatic included ulcer caused by sharp tooth, denture flange, orthodontic appliances or deliberate self harm. In this condition the cause was relieved and the patient was reviewed after two weeks.

Infective included the bacterial, fungal and viral diseases; such as primary herpetic gingivostomatitis, herpes zoster, herpangina, infectious mononucleosis, acute necrotizing ulcerative gingivitis, tuberculosis,

syphilis, actinomycosis and HIV infection.

The allergic causes included all ulcers resulting from reaction to allergens like food stuff, drugs, dental amalgam fillings and smoking cessation.

The aphthous included the minor, major and herpetic types, which are characterized by recurrence and could not be included in any other category. Ulcer associated with gastrointestinal diseases; ulcerative colitis, Crohn's disease and celiac disease were put together.

The immune-mediated diseases with oral ulceration like Behcet's disease, systemic lupus erythematosus were considered.

The dermatological diseases with ulceration affecting the oral cavity; oral lichen planus, erythema multiforme, pemphigus vulgaris and benign mucous membrane pemphigoid were put in one group. The last category was associated with tumours. At the end of examination each patient was assigned in one of these groups.

TYPE OF ULCER

1. Traumatic
2. Infective
3. Recurrent aphthous stomatitis
4. Allergic
5. Associated with Gastrointestinal disease
6. Associated with auto immune disease
7. Associated with dermatological disease
8. Associated with tumour

RESULTS

Out of the 2945 patients, 1210 had oral ulcer at the time of examination or had it sometime in the past. This gives a prevalence of oral ulceration of 41.08%. The number of patients who had recurrent aphthous ulceration was 675 (55.78%), 561 were males and 649 females.

DISCUSSION

Oral ulceration is encountered frequently in our daily practice; it causes a lot of suffering and agony for the patients throughout their life. It has an estimated point prevalence of 4% in the US.³

TABLE 1: DISTRIBUTION OF PATIENTS ACCORDING TO TYPE OF ORAL ULCERATION

Type of ulcer	No. of patients	%
Traumatic	134	11.07
Infective	207	17.10
Aphthous	675	55.78
Allergic	41	3.39
Ass. with GIT diseases	108	8.93
Ass. with autoimmune dis	23	1.92
Ass. with dermatological dis.	18	1.48
Tumours	4	0.33
Total	1210	100%

TABLE 2: DISTRIBUTION OF ULCERS ACCORDING TO AGE

Age (years)	No. of patients	Percentage
1-10	168	13.88
11-20	182	15.04
21-30	236	19.50
31-40	291	24.04
41-50	108	8.92
51-60	91	7.52
61-70	117	9.66
Over 70	17	1.40
Total	1210	100%

TABLE 3: AGE DISTRIBUTION

Age (years)	No. of patients	Percentage
1-10	28	4.14
11-20	83	12.29
21-30	228	33.77
31-40	206	30.51
41-50	85	12.59
51-60	30	4.44
61-70	12	1.77
Over 70	3	0.44
Total	675	100%

TABLE 4: DISTRIBUTION ACCORDING TO GENDER

Gender	No. of patients	Percentage
Males	561	46.36
Females	649	53.63
Total	1210	100%

TABLE 5: DISTRIBUTION ACCORDING TO MARITAL STATUS

Marital status	No. of patients	Percentage
Married	618	51.07
Single/divorced /widowed	592	48.76
Total	1210	100%

TABLE 6: DISTRIBUTION ACCORDING TO MARITAL STATUS

Marital status	No. of patients	Percentage
Married	317	46.96
Single	358	53.03
Total	675	100%

Most ulcers are benign and resolve spontaneously but a small proportion of them are malignant⁴. Majority of the ulcers are due to local causes like trauma and burns⁵, some are caused by aphthae or malignant neoplasia or appear as part of systemic disease.⁶

In this paper effort has been made to shed more light on this topic, in order to have better understanding and more efficient treatment for the patients. We were also interested in this topic, because it had been – to the best of our knowledge rarely discussed in Jordan.

In this centre we treat all types of patients, originating from different parts of Jordan, which guarantee a better sampling and representation of all the Jordanian population.

2945 patients were examined by the two examiners involved in the study, out of which 1210 patients (41.08%) were having ulceration at the time of the interview, or had ulceration earlier in their life.

This prevalence was for all types of ulceration in the oral cavity. Reviewing the literature we did not find studies which had discussed the prevalence of all types of ulceration in the oral cavity. Most of the studies discussed the prevalence of recurrent (aphthous) ulcerations.

In this study it was found that traumatic ulcer accounts for about 11.07% of the total. In other studies the prevalence of traumatic ulcer in denture wearers was 7.1% when denture was satisfactory and it was 44.5 when denture was defective⁷. Denture wearers

present traumatic ulceration more frequently, than non users⁸, and so it was more common in older patients, because most of older patients have prosthesis.

This contradicts with results of Crespo et al who found association between the occurrence of traumatic lesion and age with a reduction in their prevalence with increasing age.⁹

The use of removable denture was found to be the second strongest factor as a cause of oral ulceration.³ Its wearers had more than three times the odds of having a lesion than those who did not wear it.³

Garcia-pola reported that traumatic ulcers were the second most commonly diagnosed lesions with a prevalence of 12.17%.¹⁰

The second category in the current study was the prevalence of infective ulceration. This included viral, bacterial and fungal infections. The prevalence was nearly 17.10%. Most of the cases were seen in young age groups i.e. during the childhood. This could probably be due to weaker immune response to causative pathogens and so are more prone to infections.

The diseases most frequently encountered were acute herpetic gingivostomatitis, acute necrotizing ulcerative gingivitis and acute pseudo membranous candidiasis.

The prevalence of herpes infection in North America is 40% while in South America is less than 20%, which could be attributed to geographical, ethnic and social factors.^{11,12}



Fig 2: Herpes labialis



Fig 1: Traumatic ulcer caused by ill-fitting denture



Fig 3: Acute herpetic gingivostomatitis



Fig 4: Herpes zoster of palate along greater palatine nerve

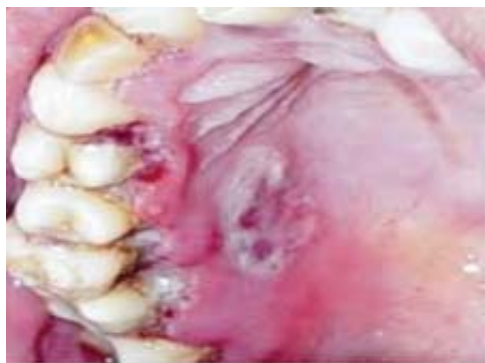


Fig 5: Acute necrotizing ulcerative gingivitis



Fig 9: Pemphigus, skin & intraorally



Fig 6: Post chemotherapy ulcer.



Fig 7: Aspirin burn



Fig 10: Buccal mucosa lichen planus



Fig 8: SLE ulcer



Fig 11: Ulceration of floor of mouth and ventral surface of tongue; squamous cell carcinoma.



Fig 12: Squamous cell carcinoma of right angle of mouth

It has been suggested that the recurrent herpes is more frequent in low social classes.¹³

In western world acute necrotizing ulcerative gingivitis affects patients in the second and third decades of life.¹⁴

Although syphilis and tuberculosis are among the causes of oral ulceration, and despite the resurgence of these diseases and increase in its numbers worldwide¹⁵, we did not encounter any oral ulceration case due to these diseases.

This could be explained because these diseases have been eradicated and the early diagnosis and good management provided if any case is encountered.

In western countries oral ulceration is a known complication of AIDS.¹⁶ In the present study we did not encounter any acquired immune deficiency syndrome patient with oral ulceration. This can be due to the low

number of AIDS patients in Jordan or may be AIDS patients got their medical and dental treatment in special clinics.

The allergic reactions may cause acute multiple ulcers by either systemically administered antigens or by topical antigens (contact stomatitis).

There is a wide variety of substances which may cause contact stomatitis like chrome cobalt denture, gold crowns, dentures soft lining material, chewing gum¹⁷, dental amalgam, acrylic dentures, tooth paste^{18,19} and orthodontic elastics.

There is no convincing evidence linking oral ulceration with food. Some patients claim that they suffer oral ulceration when eating spicy food, chocolate, cheese and tomatoes.²⁰

Oral ulceration could also occur as an adverse effect of certain drugs like nicorandil (K channel locker), captopril²¹, and non steroidal anti-inflammatory drugs.²²

Chemotherapeutic agents²³ and drugs used for rheumatic diseases like penicillamine²⁴ and methotrexate²⁵ cause oral ulceration.

Some patients use foreign materials or drugs as a topical application to relief dental pain, like aspirin tablets, these cause oral ulceration by chemical burn of the oral mucosa.

Regarding the cessation of smoking there is a negative association between smoking and oral ulceration and some patients report the onset of oral ulcer after smoking cessation.²⁶

Multiple studies reported mouth ulceration ranging from 13%-29% of quitters^{26,27,28} and have shown that mouth ulcers are less common in smokers than non smokers, which suggests a protective antibacterial effect of smoking.^{29,30}

The other variety was ulcer associated with systemic diseases which were mainly gastrointestinal diseases such as Crohn's disease, ulcerative colitis and celiac disease.

There are up to 5% out-patients who suffer from oral ulceration have gluten-sensitive enteropathy (GSE).^{31,32,33}

Some studies claim that the celiac disease patient has folate deficiency which may be the cause of oral ulceration and so they refer to the celiac disease as a risk factor or indicator of oral ulceration.³⁴

The deficiency of ferritin, folate or vitamin B12 have been reported to be twice more in oral ulcer patients than normal individuals, but there is no association between zinc deficiency and oral ulceration.³⁵

The category of oral ulceration associated with autoimmune disease include Behcets disease and SLE. Oral ulceration is the most frequent manifestation of Behcet,s disease.³⁶ It is thought to be caused by circulating immune complex that lead to vasculitis of the small and medium sized blood vessels.³⁷

The other category was that associated with dermatological disease like Lichen plannus, Erythema multiforme, Pemphigus and Pemphigoid.

Many disorders occurring in the oral mucosa also affect the skin, so the history and clinical examination should include a thorough inspection of the skin.

Lichen plannus is one of the most common dermatological disorders to manifest itself in the oral cavity. It is an autoimmune skin condition that may have oral and genital involvement.³⁸

Recurrent aphthous stomatitis (RAS) is defined as superficial, rounded, painful mouth ulcers usually occurring in recurrent bouts at intervals of a few days to a few months in otherwise well people³⁵. Aphthus ulcer is a disease of childhood and youth, it is most prevalent between 10 and 30 years of age.⁹

Immunologic disorders, nutritional deficiencies, hormonal abnormalities have all been implicated in cases of RAS.³⁹

A major relationship was found between the socioeconomic conditions (psychological factors) and RAS. Attacks of recurrent aphthous may be precipitated by local trauma, microorganisms, genetic predisposition and vitamins deficiency^{40,41}.

The prevalence of aphthous varies greatly from one population to another and in different age groups^{42,43}, with a range from 5-66% among different nations^{35,44} a 40% prevalence in a sample of children of the united states³, and in a study conducted in Iran the prevalence was 25.2%.⁴⁴

In this study the prevalence was 55.78%³ This is higher than other studies, which could be because Jordanian people might be different from other populations in term of genetic predisposition, level of stress and lifestyle.⁴⁵

It is close to the findings of alsafadi who did a study on patients attending dental clinics at north of Jordan. The prevalence was 78%.⁴⁵

This difference could be explained by geographic difference, because most of the patients at her study were from same geographic area, while in the present study residents of Amman city descend from all areas of Jordan.

Females were affected more than males. This could be due to multiple factors. Females are more prone to stress and emotional situations which can affect their immune response. They seek medical examination more frequently than males. The hormonal changes during pregnancy and menstruation also play a role.⁴⁶

Most oral ulcers are benign and resolve spontaneously but a small proportion of them are malignant. A non healing ulcer that persists for more than three weeks is the most frequent presentation of early stages of squamous cell carcinoma.³⁸

In the present study a small percentage of patients with oral ulceration was diagnosed to have tumours by histopathological examination.

CONCLUSION

This study provides important and missing information about the prevalence and various types of oral ulceration in Jordan.

Careful examination of oral ulcers and determining the underlying causes will be of great help in the management of such lesions.

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