

A Clinical Study on Denture Stomatitis in a Group of Denture Wearers in Sulaimani Governorate.



*Jwan F.A.Karim and **Saeed A.Latteef A.Kareem

College of Dentistry, University of Sulaimani, Kurdistan Region / Iraq

Abstract

Denture stomatitis is the most common condition which affects the palatal mucosa in 50% of wearers of complete or partial removable dentures. The etiology of denture stomatitis is multicausal, a wide range of both local and systemic predisposing conditions maybe involved in its pathogenesis. The present study involved a clinical survey on the most predisposing local factors among 40 patients (18 male, 22 female) in the development of denture stomatitis within denture wearers attended Prosthodontics clinic of the College in Sulaimani Governorate Their age ranged from 45- 75 years. The study showed that denture stomatitis of pinpoint hyperplasia occurred in 30% of the cases, diffuse erythema found in 55% and inflammatory papillary hyperplasia in 15%. We observed that most of these cases were caused by chronic infection by candida albicans associated with mechanical injury due to wearing dentures day and night constantly among (74.2%) of cases and (25.7%) in those wearing their dentures during the day only. It is concluded that in order to prevent or minimize the extent of these lesions, denture wearers are advised to clean their mouth and dentures regularly, to wear their dentures during day time only and should be recalled for examination of the oral cavity and their dentures.

Key words: Candida, Denture, Stomatitis.

Introduction

Denture stomatitis (denture sore mouth) is a term used to describe inflammatory changes in the oral mucosa of the denture bearing tissues. These changes are characterized by erythema and are found under complete and partial dentures in both jaws, but more frequently in the Maxilla [1].

The lesion can be graded clinically into three types:

Type I shows localized inflammation or pin point hyperemia.

Type II shows more diffuse erythema.

Type III is an inflammatory papillary hyperplasia with inflammation of varying degree [2]. The institutionalized elderly patient demonstrates increased susceptibility to this oral condition because of (1) the prevalent use of ill fitting dentures; (2) predisposition to nutritional and immunological

deficiencies; (3) frequent courses of broad spectrum antibiotics or corticosteroids; (4) high prevalence of xerostomia; (5) often neglected oral hygiene and (6) general debilitation[3,4].

Tissue response to such infection is related to the presence of candida associated with denture base. Systemic and local predisposing factors for oral candidiasis have been reported. It appears that candida infection can arise either because conditions are favorable for the growth of the fungus e.g. antibiotics, hyperglycemia or because of depressed defense mechanism e.g. immunosuppression, corticosteroid therapy and radiation therapy [5,6]. Other studies demonstrated a relationship between bacterial infection and denture Stomatitis[7,8]. Denture stomatitis is frequently associated with angular

cheilitis and glossitis and the patient may complain of a burning sensation in the palate. However most of the patients are not bothered by or even aware of their oral condition [1, 9].

Current conservative treatment for denture stomatitis includes: (1) prescribing of an antifungal agent to control yeast and other micro organisms; (2) refitting or remaking the denture and refining the occlusion to minimize trauma, and (3) providing a sanitary denture [10-12]

The purpose of this study is to investigate the most predisposing local factors on the development of denture stomatitis in a group of complete denture wearers in Sulaimani governorate.

Patients and Method

The study was based on a clinical survey of forty patients who wear complete dentures and have denture stomatitis, who attended Sulaimani College of Dentistry, Prosthodontics clinic. Their chief complains was ill-fitting and very old dentures. The patients were selected on the basis that they should be free from any systemic or debilitating diseases such as diabetes mellitus that may affect the balance of oral microbial flora. The case sheet for each patient includes the following:

1. History: name, age and sex

A. Medical history, allergies and current medication.

B. Edentulousness history- present and past history, methods of cleaning, frequency of cleaning and hours dentures worn (Day or day and night). Oral examination.

- Appearance of the oral mucosa.
- Alveolar ridge related to the stability and retention of the denture.
- Presence of angular cheilitis or other oral lesions associated with denture stomatitis.

2. Denture examination.

- Retention and stability of denture.
- Tooth contacts in centric relation.
- Eccentric excursions.
- Vertical dimension.

3. Microbiological examination.

Swab samples were collected from the infected area of the palate and from the tissue surface of the dentures. The smear swap samples were prepared and stained with gram stain for the identification of gram positive and gram negative bacteria. Candida swaps were inoculated at 38 °C for 3 days in closed container and yeasts colonies were examined. Yeast isolated from each positive culture was subcultured on sabouraud's dextrose agar for identification [10].

Chi-square test was used for statistic analysis of the results [13].

Result

The studied samples included 18 male (%45) and 22 female (%55) with age range of (45-75) years, Table (1). It is clear that there was no significant age difference in relation to sex. Regarding the average age of the denture, it seems that it lasts about (14.2-14.3) years for male and female respectively. No sex difference in relation to the age of the denture was detected, Table (2).

Table (3) demonstrates that patients who worn denture day and night continuously had a significant higher frequency for denture stomatitis than those who worn it at day only.

In all patients, denture stomatitis were seen in the palatal area and in 12 (30%) of the patients were seen associated with angular cheilitis.

High percentage (55%), 22 of denture stomatitis patients showed type II stomatitis, Table (4). Fig. (1), Fig. (2) and

Fig.(3) showed pictures of patients with different types of stomatitis.

The number of 26 denture stomatitis patients (65%) used only tap water and brush for cleaning their dentures, 8 of them (20%) used soap and water other used salt and water or tooth paste and brush.

Denture examination revealed that 28 patients(70%) had ill fitted dentures with over extension, and 6 patients (15%) revealed severe decrease in occlusal vertical dimension, the other 6 patients showed very old dentures with cracks and multiple repairing sites.

The microbiological results show that 35 out of 40 patients had positive candidal infection, while 2 patients only had positive bacterial growth and the other 3 patients showed negative oral flora. In most of the positive samples of candida albicans, both hyphae and blastospores were seen, while in positive bacterial samples, the predominant organisms isolated were gram positive cocci.

Results showed also that females were more infected by Candida than males (21

female, 14 male). The lesion was also common in patient's worn denture day and night, Table (5).

Table (1): Sex and age distribution of 40 patients with denture stomatitis.

Sex	No. of patients	Percentage	Age years	Mean+Sd
Female	22	55%	45-70	53.6±8.74
Male	18	45%	55-75	65.4±6.25
Total	40	100%	45-75	

Table (2): Age of denture and years of completely edentulous in denture stomatitis patients

Patients with D.S.		Age of dentures(years)
Sex	No	
Female	22(55%)	14.39±6.46
Male	18(45%)	14.2±7.11

Table (3): Frequency of denture stomatitis in relation to time of wearing the dentures.

	Worn at day and night*	percentage	Worn at day only	percentage
Sex	No	%	No.	%
Female	14	63.6%	8	36.4
Male	12	66.7%	6	33.3

*significant difference (P<0.005).

Table (4): Frequency distribution of denture stomatitis types in 40 patients wearing denture.

Types	No.	percentage
Type I	12	30%
Type II	22	55%
Type III	6	15%
Total	40	100%

Table (5): Frequency of Candida albicans detection in relation to sex and time of wearing dentures.

	No	Worn at day and night	Percentage	worn at day only	Percentage
Female	21	18	85.7%	3	14.2%
Male	14	8	57.1%	6	42.8%
Total	35	26	74.2%	9	25.7%



Fig.(1): Type I Denture stomatitis pin point hyperemia



(Fig.2): Type II Denture Stomatitis Erythematous Candidiasis



(Fig.3): Type III Denture stomatitis inflammatory papillary hyperplasia

Discussion

The results of this study revealed that females of denture wearers were more commonly affected by denture stomatitis than males. This finding is in accordance with that of Budts Jorgensen in 1978. Also it was clear that patient who worn their dentures at night as well as during the day had denture stomatitis more frequently than those who worn their dentures at day only; it is likely that wearing the dentures constantly will predispose for both infection and mechanical irritation of the oral tissue.

High percentage of patient had ill fitted dentures with overextension, the results are supported by many investigators whom believed that trauma is one of the important etiological factors for denture

stomatitis and healing of denture stomatitis has been reported subsequent to prosthetic correction[2,14,15].

Most of the patients with denture stomatitis in this study used only the current denture cleaning routine like brush and water, salt and water or water alone. This indicate that denture hygiene is a neglected aspect in treatment of denture stomatitis. Patients are either unable or not motivated to clean their dentures adequately, therefore a simple effective denture cleaning methods such as sodium hypochloride and chlorhexidene that remove and / or kill microorganisms on acrylic resin dentures should be desirable [2, 11,16,17]

The microbiological examination of this study indicated that *Candida albicans* is the most common species isolated in denture stomatitis. It seems possible that *Candida* harbored on the denture surface displays part of its pathogenic effects by the production of such hydrolytic enzymes which may cause breakdown of the epithelial surface [12,18,19]

It is concluded that in order to prevent or minimize the extent of these lesions, denture wearers are advised to clean their mouth and dentures regularly, to wear their dentures during day time only and should be recalled for examination of the oral cavity and their dentures.

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تویژینه وهیهکی کلینیکی دهریارهی دهمه سۆی تاقمی ددان له نیوان کۆمهلیک له تاقم له دهمه کانی پاریزگای سلیمانی.

جوان فاتح عبد الکریم ، سعید عبد اللطیف عبد الکریم
کۆلیجی پزشکی ددان، زانکۆی سلیمانی، ههریمی کوردستان/ عێراق
پوخته

ههوی دهم (دهمه سۆی) تاقمی ددان یهکیکه لهو کیشه بلاقه که دوو چاری شانه ناوپوشه کانی لینگسی مه لاشووی دهم ده بیتی بهرێژهی ۵۰٪، له نیوان لهو که سانهی که تاقمی ددانی بجولی ته واو و پارچه تاقم به کار دینن. کۆمهلی هۆکاری جینگهیی و گشتی زۆر هاو به شین له تووشبوون بهم باره نه خو شیه. لهم تویژینه وهیه پشکنینی کلینیکی له خو ده کریت سه بارهت به گرن گترینی لهو هۆکاره جینگه ییانهی ده به هۆی دهمه سۆی تاقمی ددان، له نیوان ۴۰ نه خو ش (۱۸ نیرینه، ۲۲ می ینه) لهو نه خو شانهی سهر دانی کلینیکی دروست کردنی ددان یان کردووه له کۆلیجی پزشکی ددان له پاریزگای سلیمانی، ته مه نیان له نیوان (۴۵ - ۷۵) سان بووه. تویژینه وه که دهر یخستوه که دهمه سۆی تاقمی ددان له جۆری (خوین تیزاوی خالی پنته ده رزی) بهرێژهی ۳۰٪ ی نه خو شه کان بووه، وه جۆری (سۆی سوور بووی بلاو) بهرێژهی ۵۵٪، وه (سۆی گۆیی فره به شانه بوو) بهرێژهی ۱۵٪ ی نه خو شه کان بووه. له وهی ناشکرابوو که زۆری لهو نه خو شانه به هۆی تووشبوونی درێز خایه نی که پرووی سپی (Candida albicans) وه بوو، له نیوان له وانه دا بوو که زهیری میکابیکی بهرده و امیان هه بووه وه تاقمه ددانه کانیان به بهرده و امی شه وانه رۆژانه له ده میاندا بووه بهرێژهی (۷۴، ۲)٪ نه خو شه کان بووه، وه بهرێژهی (۲۵، ۷)٪ ی له وانهی ته نها به رۆژ تاقمه کانیان له ده مه دا بووه. له م تویژینه وهیه دا له وه مان بۆ یهک لایی بۆ ته وه: تا کو رێگرین له دهمه سۆی تاقمی ددان یا خود نه گهری تووشبوونی که متر بکه ینه وه، بیوسته گرنگی بدریت به پاک خاوینی دهم و تاقمی ددانکه و نه خو شه کان هان بدرین که تاقمه کانیان ته نها له رۆژدا له دهم بکه ن و بیوسته به ریک و پیک و ناویه ناو سهر دانی پزشکی که کانیان بکه ن به مه به سستی پشکنینی ناو دهم و تاقمه ددانه کانیان له هه مان کاتدا.

دراسة سريرية حول التهاب الفم المصاحب لطقم الأسنان عند مجموعة من مستخدمي طقم الأسنان في محافظة السليمانية.

جوان فاتح عبد الکریم ، سعید عبد اللطیف عبد الکریم
کلیه طب الأسنان، جامعة السليمانية، اقليم کوردستان / العراق

الخلاصة

التهاب الفم المصاحب لطقم الأسنان واحدة من الحالات الشائعة التي تصيب النسيج المخاطي لسقف الفم بنسبة واسعة ۵۰٪. مستخدمو طقم الأسنان المتحركة الكاملة والجزئية. مجموعة كبيرة من العوامل الموضوعية والشاملة تشارك في التسبب في هذه الحالة المرضية. تضمنت هذه الدراسة مسح سريري على أكثر العوامل الموضوعية تسببت في التهاب الفم المصاحب لطقم الأسنان ضمن ۴۰ مريضاً (۱۸ ذكور و ۲۲ إناث) من مرضى عيادة صناعة الأسنان في كلية طب الأسنان لمحافظة السليمانية، تتراوح أعمارهم بين (۴۵ - ۷۵) عاماً. أظهرت الدراسة بأن التهاب الفم المصاحب لطقم الأسنان من نوع (الاحتقان الدموي المنقط) بنسبة (۳۰٪)، ونوع الاحمرار المنتشر (بنسبة ۵۵٪) و (التهاب التضخم العلمي) بنسبة (۱۵٪) كما وظهرت الدراسة بأن أغلب الحالات سببها العدوى المزمنة لفطر (Candida albicans) بالإضافة الى الاستخدام المستمر لطقم الأسنان نهاراً وليلاً بنسبة (۷۴، ۲)٪ والاستخدام نهاراً فقط بنسبة (۲۵، ۷)٪. ما استنتج من هذه الدراسة هو لكي نمنع أو نقلل من انتشار هذه الحالة المرضية؛ من الضروري الاهتمام بتنظيف الفم و طقم الأسنان بصورة مستمرة و حت المريض على استخدام طقم الأسنان نهاراً فقط و إتباع نظام الفحوص الدورية المنظمة لمستخدمي طقم الأسنان لفرض فحص الفم و طقم الأسنان في ان واحد.