

THE EFFECT OF AGE AND GENDER ON THE PREVALENCE OF DENTURE FISSURATUM AMONG COMPLETE DENTURE WEARERS IN THE NORTHERN JORDANIAN POPULATION – A PROSPECTIVE STUDY

¹AYESH T DWEIRI, BDS, MSc

²ALAWNEH AHMAD, BDS, JDB

ABSTRACT

The aims of this study were to determine the prevalence of denture fissuratum in complete denture wearers in a sample of northern Jordanian population, and to investigate the correlation between denture fissuratum and age, gender, and the location of denture fissuratum in the mouth. A prospective study was carried out at Prince Rashid Military Hospital in the Northern part of Jordan between April 2007 and February 2008. A total of 356 complete denture wearers, with an age range of 36-93 years. Patients were interviewed and examined by the prosthodontist for the presence and location of denture fissuratum lesions based on the clinical picture of the lesion. The data collected were categorized, tabulated, and analyzed using the SPSS® software version 12 package. Results: prevalence of denture fissuratum was 20.2 % among denture wearers. No statistical significant correlation existed between denture fissuratum and gender, age, and the location of denture fissuratum. The prevalence of denture fissuratum is found to be higher in females than males. While denture fissuratum was more commonly seen in the age group 60-75 years, and in the lower labial sulcus than other areas in the mouth. Conclusions: Denture fissuratum is a common manifestation of complete denture wearing in northern Jordan. Even though there was no statistical correlation between denture fissuratum and participant's related factors such as age, gender, and location of denture fissuratum. Moreover females, age group (55-65), and mandible had higher prevalence than their counterparts.

INTRODUCTION

The term denture fissuratum (DF), also called denture hyperplasia, fibrous inflammatory hyperplasia, denture-induced fibrous hyperplasia, is a mucosal hyperplastic lesion resulting from chronic low-grade trauma induced by an ill-fitting denture flange. It presents as a raised lesion, commonly sessile, with a smooth surface and coloration similar to that of the normal mucosa. The size of the lesion is directly related to the extent of the surface involved by trauma.¹

The lesion occurs around the borders or flanges of ill-fitting complete or removable partial dentures, and results from the constant trauma and inflammation caused by the pressure from overextended denture

borders and tipping forces resulting from imbalanced occlusion.^{2,3}

There are few studies regarding the prevalence of denture fissuratum in Jordan more specifically in the northern part.⁴ Additionally there is no recent data concerning the frequency of denture fissuratum in a defined risk group, such as denture wearers. The purpose of this study is to conduct a prospective study to evaluate and investigate participant's related factors such as age, gender, and the location on DF occurrence.

METHODOLOGY

A prospective study was carried out at Prince Rashid Military Hospital in the northern part of Jordan

¹Prosthodontic Department, King Hussein Medical Center (KHMC), Royal Medical Services, Jordan

²Prosthodontic Department, Prince Rashed Ben Al-Hassan Military Hospital, Royal Medical Services, Jordan
Correspondences should be addressed to Dr Dweiri, A, PO Box 541350, zip code 11937 Amman, Jubaihah, Jordan.
E-mail: drdweiri@yahoo.com. Tel: + 962 -777409735

from April 2007 to February 2008, to evaluate the prevalence of DF in complete denture wearers and to investigate participant's related factors such as age, gender, and DF location on its occurrence. A total of 356 patients wearing complete dentures with an age range of 36-93 years participated in this study. Patients were interviewed and examined by the prosthodontist for the presence and location of denture fissuratum lesion based on the clinical picture of the lesion. The oral surgeon was consulted and biopsies were taken for histopathological study when necessary to confirm the diagnosis. The data collected were categorized, tabulated, and analyzed using the SPSS® software version 12 package. Frequency distribution tables, cross-tabulation, and Pearson's Correlation Coefficient $|r|$ test were used to interpret the statistical significance and the relationship between the study variables and denture fissuratum. Conclusion and recommendation were drawn based on the study results.

RESULTS

The participants in this study were 365 complete denture wearers. All of them were examined by the prosthodontist in the prosthodontic

clinic at Prince Rashed Ben Al-Hassan military hospital.

Study variables were categorized as follows:

- Age: patient were divided into 12 groups based on their ages. (Table 1).
- location of DF: were divided into 5 groups based on its location. (Table 2).

From the participants 226 (63.5%) were males and 130 (36.5%) were females. The prevalence of denture fissuratum was 20.2% (72 patients). Even though the prevalence of DF in females (23.07%) was higher than in males (18.58%) among complete denture wearers, it was not statistically significant.

As shown in table 1 denture fissuratum had been seen most frequently (30 cases) in the age group (65-69). Most DF cases 91.7% seen in the age group (60-79).

Furthermore when examining the location of DF we found that, the highest prevalence of DF was in the lower labial sulcus area (38.89%), followed by lower lingual sulcus (22.22%), upper labial sulcus (16.67%), upper buccal sulcus (8.33%), and the lower buccal

TABLE 1: AGE GROUPS AND GENDER DISTRIBUTION

Age group	Gender				Total
	Male w/ DF	Male w/o DF	Female w/ DF	Female w/o DF	
35 – 39 years	0	1	0	1	2
40 – 44 years	0	3	0	1	4
45 – 49 years	0	2	0	2	4
50 – 54 years	2	8	2	2	14
55 – 59 years	1	33	1	5	40
60 – 64 years	9	29	7	17	62
65 – 69 years	14	36	14	26	90
70 – 74 years	6	41	2	19	68
75 – 79 years	8	22	4	22	56
80 – 84 years	0	5	0	3	8
85 – 89 years	2	1	0	1	4
90 – 94 years	0	3	0	01	4
Total N	42	184	30	100	356
Total (%)	11.8%	51.7%	8.4%	28.1%	100%
	Male 226 63.5%		Female 130 36.5%		100%

DF = denture fissuratum

TABLE 2: FREQUENCY AND RELATIVE FREQUENCY CROSS-TABULATION RESULTS OF DENTURE FISSURATUM

DF	Gender	Males:	42 / 226 = 18.6%
		Females:	30 / 130 = 23.1%
	Patient age	63.9% of cases in patients 55-65 years old	
	DF location	Upper labial sulcus:	16.67%
		Upper buccal sulcus:	8.33%
		Lower labial sulcus:	38.89%
		Lower buccal sulcus:	13.89%
		Lower lingual sulcus:	22.22%

TABLE 3: PEARSON CORRELATION R TEST TABLE

		DF	Gender	Patient age
DF	Pearson Correlation	1	-.054	-.049
	Sig. (2-tailed)	—	.475	.516
	N	356	356	356
Gender	Pearson Correlation	-.054	1	-.128
	Sig. (2-tailed)	.475	—	.087
	N	356	356	356
Patient age	Pearson Correlation	-.049	-.128	1
	Sig. (2-tailed)	.516	.087	—
	N	356	356	356

sulcus (13.89%) respectively. The mandible was more affected by DF (75%) than the maxilla (25%). The anterior areas in the mandible and maxilla specifically shown a higher prevalence (78.78%) than the posterior (21.22%).

From table 4 the P value of the Pearson correlation r test 2-tailed were more than 0.05 indicating that a weak insignificant correlation existed between DF and age, gender, and DF location. which indicate the insignificant correlation.

DISCUSSION

Recently the field of dentistry has witnessed a significant improvement in the replacement of missing teeth in completely edentulous patients. The introduction of implants to dentistry has changed the concept of prosthesis support. For instance from the destructive tissue-supported removable prosthesis to the less destructive implant-supported removable prosthesis or even to the implant-retained full arch fixed prosthesis which lead to a decrease in the prevalence of soft tissue lesions caused by complete dentures.

It is important to mention that in Jordan similar to many other countries, implants are not the first patient's choice of treatment for completely edentulous patients, due to the high cost of implant therapy. DF still commonly seen among complete denture wearers. Therefore, the aim of this study was to determine the prevalence of DF in northern Jordan and study the correlation between DF and age, gender, and DF location.

Williams et al, (1997) reported that DF is the most common lesion in the oral cavity.⁵ Buchner et al (1997) reported that 18% of 302 hyperplastic lesions of the gingiva were denture fissuratum.⁶ Pinto-Coelho and Zucoloto (200) reported In a prospective analysis of the oral histopathological files in a dental school 14.5% of denture-wearers had denture fissuratum.⁷

Several studies contained data on the prevalence of denture fissuratum showed a wide range of prevalence. For instance Nordenram and Iadine (1969) reported an incident of (37.7%).⁸ While Bataineh et al (2005) (6.12%).⁴ The researchers of this study found that the prevalence denture fissuratum was 20.2%. The finding of this

study supports Coelho et al (2004) finding (16.7%), Zarei et al (2006) finding, and Pinto-Coelho and Zucoloto (1999) finding (14.5%) respectively.^{9,10,3} However our finding were in higher than Shulman et al (2004) finding (1.14%) and Mumcu et al (2005) finding (0.5%).^{11,1} Ironically that the differences in this study finding and previous studies finding (Coelho et al (2004), Zarei et al (2006), Pinto-Coelho and Zucoloto (1999), Shulman et al (2004) and Mumcu et al (2005)^{9,10,3,11,1} were based on the difference of each study design. Since some studies based on the biopsied localized soft tissues, while other based on reports among denture wearers.

This study finds that the prevalence of DF among females (23.1%) was only slightly more than among males (18.6%). Despite the fact that there was no statistical significant differences. This finding was in accordance with Bataineh et al (2005)⁴ who reported that the males and females were equally affected. However the finding of this study was in contrary with other studies.^{5,9,13} The higher prevalence in females as has been reported in other studies, may be due to hormonal alterations during menopause.⁷

Although DF can be found in any age group, our study found that DF occurred mainly in the fifth, and sixth decades. These findings were in general agreement with Coelho et al (2004), Buchner et al (1977) and Bataineh et al (2005)^{9,6,4} where they reported that DF occurred in the fourth, fifth, and sixth decade.

This study showed that the mandible (75%) was more affected than the maxilla (25%). Buchner et al, and Bataineh et al^{6,4} studies reported that the maxilla and the mandible were equally affected. Additionally, the most affected site in the present study was the lower labial sulcus. This result also differed with the studies done by Nodenram and Landt (1969)⁸ and Cutright² who reported that the anterior maxilla is more affected than other areas of the mouth. The finding of this study may be attributed to the heavy

anterior occlusal contacts and due to wearing of artificial posterior teeth.

CONCLUSION

This study found that denture fissuratum is a common manifestation of complete denture wearers in northern Jordan. However there was no statistical correlation between denture fissuratum and age, gender, and DF location.

REFERENCES

- 1 Starshak TJ. Vestibuloplasty. In: Starshak TJ, Sanders B, *Preprosthetic Oral and Maxillofacial Surgery*. Saint Louis: Mosby, 1980:165–213.
- 2 Cutright DE. The histopathologic findings in 583 cases of Epulis fissuratum. *Oral Surg*. 1974;37:401.
- 3 Pinto-Coelho CM, Zucoloto S. Proliferative activity of denture-induced fibrous inflammatory hyperplasia analyzed by proliferating cell nuclear antigen labeling index. *Int J Prosthodontics*. 1999;12:73.
- 4 Anwar Bataineh, Ziad Al-Dawairi. A Survey of Localized Lesions of Oral Tissues: A Clinicopathological Study. *J Contemp Dent Pract*. 2005 August; (6) 3:30-39.
- 5 Williams HK, Hey AA, Browne RM. The use by general dental practitioners of an oral pathology diagnostic service over a 20-year period: the Birmingham Dental Hospital experience. *Br Dent J* 1997;182:424-29.
- 6 Buchner A, Calderon S, Ramon Y. Localized hyperplastic lesions of the gingiva: a clinicopathological study of 302 lesions. *J Periodontol*. 1977;48:101.
- 7 Pinto-Coelho CM, Zucoloto S. Denture-induced fibrous inflammatory hyperplasia: a prospective study in a School of Dentistry. *Int J Prosthodont*. 2000;13:1.
- 8 Norderman A, and Landet, Horst. Hyperplasia of the oral tissues in denture cases. *Acta Odontol Scand* 1969; 27:481-91.
- 9 Coelho CMP, Sousa YTCS., and Dare AMZ.. Denture-related oral mucosal lesions in a Brazilian school of dentistry. *Journal of Oral Rehabilitation* 2004 31; 135–39.
- 10 Mohammad Reza Zarei , Goli Chamani, Sarah Amanpoor. Reactive hyperplasia of the oral cavity in Kerman province, Iran: A review of 172 cases, *Br J Oral Maxillofac Surg* 2006, doi:10.1016/j.bjoms.2006.10.001.
- 11 Jay D. Shulman, M. Miles Beach, Francisco Rivera-Hidalgo. The prevalence of oral mucosal lesions in U.S. adults. *JADA*, 2004; Vol. 135 September: 1279-86.
- 12 G Mumcu, H Cimilli2, H Sur, O Hayran, T Atalay. Prevalence and distribution of oral lesions: a cross-sectional study in Turkey. *Oral Diseases* 2005; 11: 81–87.