

# IS DENTURE STOMATITIS RELATED WITH DENTURE HYGIENE?\*

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## ÖZET

### Protez Stomatiti Dental Hijyene Bağlı mıdır?

Protez stomatiti, iğne ucu şeklinde hiperemik alanlar, diffüz eritem veya nodüler hiperemik alanlar şeklinde klinik görünüm veren bir patolojidir. Bu çalışmanın amacı çeşitli faktörlerle protez stomatiti arasındaki ilişkinin incelenmesidir. 27 protez stomatiti olan hasta ve 23 klinik olarak protez stomatiti görülmeyen hasta klinik ve mikolojik olarak muayene edildi. Hastanın yaşı, protez tipi, protez yaşı, protez hijyeni ve protezini gece çıkarıp çıkarmadığı değerlendirildi. Protez stomatitleri Newton'a göre sınıflandırıldı. Hastaların palatal mukozalarından lam ile kazınarak smear alındı. Kandida hifi arandı. Protez hastalarının % 23'ünde kandida hifi tespit edildi. Protez stomatiti ile protez hijyeni arasında önemli bir ilişki bulundu. Protez stomatiti ile yaş, protez tipi, protez yaşı, kandida ve protezi gece çıkarma arasında önemli bir ilişki bulunmadı. Mikolojik olarak Candida incelemesi yapılmadan antifungal ilaç verilmemesi ve hastaların protez hijyeni konusunda daha iyi motive edilmesi gerektiği sonucuna varıldı.

**Anahtar Kelimeler:** Protez Stomatiti, Kandida, Protez Hijyeni.

## SUMMARY

Denture stomatitis is characterized by pin-point hyperemia, diffuse erythema or granular inflammation of the denture-bearing areas. The aim of this study was to investigate the relationship of denture stomatitis with various factors. 27 patients with denture stomatitis and 23 denture wearing patients without clinical signs of denture stomatitis were examined clinically and mycologically. Patient's age, gender, denture age and hygiene, and overnight

denture wearing was evaluated. Denture stomatitis was classified according to Newton.(1) Scrapings of the palatal mucosa were obtained, the materials were smeared on glass slides, and immediately examined for candida hyphae. Candida hyphae were detected in %23 of the patients with denture stomatitis. A significant relationship was found between denture hygiene and denture stomatitis.

The relationship of denture stomatitis with age, gender, candida, overnight denture wearing, and denture age was not statistically significant. We conclude that antifungal drugs should not be prescribed without mycologic examination and particular attention should be paid to denture hygiene.

**Key Words:** Denture Stomatitis, Candida, Denture Hygiene.

## INTRODUCTION

Denture stomatitis, clinically manifests itself by pin-point hyperemia, diffuse erythema or nodular hyperemic areas. Trauma, infection and rarely, allergy are the factors responsible for denture stomatitis. The most frequently encountered infection agent is Candida Albicans (2,3).

Diagnosis of c. albicans can be made with microscopic examination of the smear, isolation and identification with culturing, saliva count, biopsy and immunological investigations (3,4,5).

Treatment of denture stomatitis involves maintaining denture hygiene, correction of denture faults and medical therapy (3).

Dentists should know the etiology, pathogenesis and treatment of denture stomatitis to prevent neglected cases. In this study, the relationship between denture stomatitis and sex, denture hygiene, overnight denture wear, duration of denture wear, presence of Candida species were investigated.

## MATERIALS AND METHODS

27 patients (8 male and 19 female) with denture stomatitis and 23 patients (14 male and 9 female) without clinical signs of denture stomatitis were included in the study. The patients were informed about the aim of the study and consent was obtained from all.

Denture age was classified as less than 5 years, between 5-10 years, between 10-15 years and more than 15 years.

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Smears were obtained from the maxillary crest, hard palate, and from the lesion, if present.

The specimens were examined microscopically for the presence of candidal hyphae in Süleyman Demirel Univ. Medical Faculty, Dept. of Dermatology. The cleanliness of the dentures were classified by visual judgement.

The investigated parameters were sex, overnight denture wear, denture age, frequency of denture cleaning, storing conditions, presence of candidal hyphae.

Statistical analyses were performed using SPSS 10.0 (SPSS Inc, Chicago, USA) for Windows.  $\chi^2$  (khi square) test was performed for statistical analysis. Goodness of fit tests were applied using  $\phi$  (phi) or Cramer's V values.

**RESULTS**

The only statistically significant finding was the relationship between denture stomatitis and the frequency of denture cleaning (Cramer's V=0.543; p=0.043) (Table 1).

The relationship between denture stomatitis and denture age was not statistically significant (Cramer's V=0.283; p=0.091) (Table 1).

The relationship between denture stomatitis and overnight denture wearing was not statistically significant (Cramer's V=0.425; p=0.114) (Table 1).

The relationship between denture stomatitis and sex, candidal hyphae and storing conditions was not significant (Cramer's V=0.324; p=0.072, Cramer's V=0.144; p=0.598, Cramer's V=0.246; p=0.219) (Table 1).

The relationship between the presence of candidal hyphae and the frequency of denture cleaning was not significant (Cramer's V=0.370; p=0.186).

**DISCUSSION**

Denture stomatitis is a common oral disease in denture wearers. Multiple aetiological and predisposing factors are believed to be responsible for its initiation and progression (3). These include local factors such as existing of candida albicans, continuous denture wear, trauma from dentures and poor denture hygiene. Systemic factors, use of various pharmacological agents and smoking have also been implicated.(6)

**Poor denture hygiene**

In our study, the relationship between the frequency of denture cleaning and denture stomatitis was statistically significant. This result is in accordance with the results of other authors who demonstrated a higher frequency of denture stomatitis in patients not cleaning their dentures properly.

In their study Kulak et al(7), found a statistically significant relationship between denture stomatitis, yeasts' presence and denture cleanliness.

Jeganathan et al(5), studied Asian edentulous population and observed a significant relationship between denture hygiene habits, denture cleanliness and the presence of denture stomatitis.

Sadomari et al (8) investigated 643 denture wearer patients and found out that soaking dentures in denture cleanser reduced the degree of denture stomatitis and denture plaque.

**Candida**

Poor oral hygiene increases the frequency of positive cultures for Candida from the dentures. (9, 10). Current studies indicate that denture stomatitis lesions are associated with the detection of candida species. (2, 6, 11, 12, 13, 14). Although, conflicting results have been obtained in the studies, these results may be attributed to the differences in sample size, methods of obtaining and investigating candida samples.

**TABLO-I**  
**Statistical Relationship Between Denture Stomatitis and Various Aetiologic Factors**

	Denture cleaning frequency		Denture age		Overnight denture wearing		Sex		Candidal hyphae		Storing condition	
	V	p	V	p	V	p	V	p	V	p	V	p
Denture stomatitis	0,543	0,043*	0,283	0,091	0,425	0,114	0,324	0,072	0,144	0,598	0,246	0219

Microscopic investigation of smear is a preferred method for the diagnosis of oral *C. albicans* (2, 3, 9, 15). We also used smear method because it is simple and it gives rapid results. The method is also acceptable by the patients as it is not a painful procedure and it does not cause bleeding.

In our study, candidal hyphae was detected only in 23% of the patients with denture stomatitis and we failed to determine a significant relationship between denture stomatitis and existence of candida species. According to us, candidiasis is only one of the etiologic factors of denture stomatitis.

#### **Wear time**

Sadamari et al(8) stated that, edentulous patients wearing dentures during sleep showed much more occurrence of denture stomatitis than those who had not that habit.

In their study, Fenlon et al(6), found that night wear of complete dentures was significantly associated with the prevalence of denture related stomatitis. However, Kulak and Arıkan(16) could not find any statistically significant relationship between denture stomatitis and duration of denture usage. In our study, we also could not find any significant relationship between denture usage time and stomatitis.

#### **Denture age**

Hoad-Reddick et al(17), investigated attitudes toward denture cleaning of 233 elderly people of whom 89.9% were edentulous. One quarter of the dentures examined were over 30 years old. They tended to be dirtier than the newer ones and related to a higher incidence of denture stomatitis.

In their study, Sadamari et al(8), investigated 643 denture wearer patients. They find a significant relationship between denture stomatitis and increasing age of the denture.

#### **Gender**

In our study, we could not find any significant relationship between gender and denture stomatitis. Our results are in agreements with Kulak and Arıkan's(16).

### **CONCLUSIONS**

1. Denture stomatitis is more frequent in patients with poor denture hygiene. Therefore, the patients should be instructed carefully on denture hygiene and denture cleaning habits.

2. Denture stomatitis is generally asymptomatic, therefore patients wearing removable dentures should be examined periodically.

3. *Candida albicans* may not be present in all denture stomatitis cases. Therefore, antifungal drugs should not be prescribed without mycological investigation.

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