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## A clinical study to evaluate denture related ulcerations in complete denture patients

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### **Abstract**

**Background:** The most common treatment modality the edentulous patients receive is the removable complete denture. The most common problem the patients complain of is the traumatic ulcers the dentures induce.

**Purpose:** This study was conducted to determine the frequency and the location of the denture related ulcerations during the initial post insertion period.

**Materials and Methods:** The patients were recalled on 1<sup>st</sup>, 3<sup>rd</sup> and 7<sup>th</sup> days after denture insertion in 40 edentulous patients with age range of 40-70 years for evaluation of any discomfort and any sort of mucosal injuries and then after every 4-5 days until all the mucosal injuries subsided and patient discomfort was alleviated. Chi-squared test was used to evaluate the correlation between mucosal injuries and postinsertion day and the relationship between lesions, patient age, and patient gender.

**Results:** The results showed that patients complained of the discomfort and mucosal ulcers more frequently in the mandibular denture than in the maxillary denture during post insertion period.

**Conclusion:** within the limitations of the study it can be concluded that complete denture treatment is not adequate and complete till the patients are cared for proper postinsertion problems. This signifies that the postinsertion period is most critical to assess the success and failure of complete denture service.

**Keywords:** Mucosal ulcerations, retromolar pad, border molding

### **Introduction**

One of the most common treatment modality the edentulous patients receive is the removable complete denture. The patients face many problems after wearing the denture. The most common problem the patients complain of is the traumatic ulcers the dentures induce.

Because of the discomfort traumatic ulcers, the patients doubt the ability of the clinician to formulate the proper treatment plan. The factors that induce the traumatic mucosal injuries are clinical and lab errors. The most common factors are the denture irregularities, overextended denture flange, denture porosity, tissue undercuts, deflective occlusal contacts, increased occlusal vertical dimension etc.

The clinician is responsible for the success of complete denture therapy. Patient cooperation during the adjustment period is also quite essential for the success of complete denture treatment. The clinician should not only educate the patient about the denture hygiene and care but also about the postinsertion problems the patient may face.

The denture inserted in the oral cavity injures the thin and fragile mucosa adjacent the denture borders in the initial stages of the insertion. The post insertion discomfort and visits can be minimized by proper treatment planning, clinical and lab steps and patient education. By locating the most common denture related ulceration areas, dentist can assess his denture fabrication technique which can help in minimizing same problems in future.

**Aims and objectives:** This study was conducted to determine the frequency and the location of the denture related ulcerations during the initial post insertion period.

**Materials and methods:** The sample consisted of 40 edentulous patients with age range of 40-70 years who visited the postgraduate department of prosthodontics government dental college Srinagar for complete denture therapy for the first time form 2013-2016. Medical and dental histories were reviewed for patients and oral mucosa examined prior to denture insertion.

**Table 1:** Number of patients in each age group

	Patient age group		
	40-50yrs	50-60yrs	60-70yrs
No. of males	4	8	12
No. of females	3	4	9

**Inclusion criteria**

- i. Completely edentate Patients requiring removable maxillary and mandibular complete dentures
- ii. Systemically healthy patients.
- iii. Age of 40-70 years

**Exclusion criteria**

- i. Patients with TMD with deviation
- ii. Patients with history of diabetes, immunologic diseases, neurologic diseases, mental disorder
- iii. Candida infections
- iv. Patients using any form of tobacco
- v. Allergic to acrylic resin
- vi. Unhealed extraction sockets
- vii. Patients above 70 years of age.

All the steps of the denture fabrication were controlled and guided by head of the department. The patients were recalled on 1<sup>st</sup>, 3<sup>rd</sup> and 7<sup>th</sup> days after denture insertion for evaluation of any discomfort and any sort of mucosal injuries and then after every 4–5 days until all the mucosal injuries subsided and patient discomfort was alleviated. All patients were prescribed a topical anesthetic gel (Dologel CT, Dr. Reddy's), for topical application on ulcers, for patients comfort.

All the details of each visit (area of ulceration) and number of visits were recorded. Chi-squared test was used to evaluate the correlation between mucosal injuries and postinsertion day and the relationship between lesions, patient age, and patient gender.

**Results**

The results showed that patients complained of the discomfort and mucosal ulcers more frequently in the mandibular denture than in the maxillary denture during post insertion period. Hence, mandibular denture requires more adjustments.

In maxillary arch, the ulcerations were seen in (a) labial frenum (32.2%), (b) posterior palatal seal area (15.8%), (c) maxillary labial vestibule (14.3%), (d) maxillary buccal vestibule (10.7%), (e) maxillary tuberosity (7.3%) most frequently.

In mandibular arch, the ulcerations were seen in (a) posterior third alveolingual sulcus (27.4%), (b) middle third alveolingual sulcus (22.7%), (c) mandibular labial frenum (14.8.7%), (d) anterior third of alveolingual sulcus (9.8%) and (e) retromylohyoid curtain (6.2%) (f) mandibular tori (5.4%) most frequently.

In maxillary ulcerations, the least common sites were (a) slope of ridge anteriorly (0.32%), (b) posterior lateral aspect of hard palate (0.67%), (c) slopes of ridge posterior (1.12%), and (d) maxillary crest of ridge anteriorly (1.42%).

In mandibular arch, the least common sites for ulcerations were (a) mandibular slope of the ridge posteriorly (0.9%), (b) mandibular slope of the ridge anteriorly (1%), (c) retromolar pad (1.1%).

The mandibular dentures needed adjustments for the mucosal ulcerations during the first visit. The adjustments

lead to subsidence of mucosal injuries in the subsequent appointments. More adjustments visits were required for mandibular dentures comparative to maxillary dentures.

The differences between the age and denture adjustments were statistically significant with  $p < 0.001$ . No statistically significant difference was seen between gender and denture related ulcerations with  $p = 0.677$ .

Discussion: In the present study, the maxillary denture adjustment was needed in approximately 67% of patients first 24 h after denture insertion. Then, the adjustment percentage reduced to 59%, 46%, 34%, 24%, and 14% in the 2nd, 3rd, 4th, 5th, and 6th visits, respectively.

The mandibular denture adjustment was required in approximately 87% of patients first 24 h after denture insertion. Then, the adjustment percentage reduced to 78%, 67%, 51%, 32%, and 12% in the 2nd, 3rd, 4th, 5th, and 6th visits, respectively.

In the present study, the mandibular ulcerations were found more frequently in alveolingual sulcus region; this can be due to (1) overextended denture flanges (2) the alveolingual sulcus depth recording depends on patient's ability to perform proper tongue movement (3) thin non keratinized fragile mucosa.

In the present study, the maxillary ulcerations were found more frequently in

- i. Labial frenum; this can be due to in adequately relieved labial notch of maxillary denture.
- ii. The posterior palatal seal area showed 2<sup>nd</sup> most common ulceration site which can be attribute to over postdamming to gain retention.

Kivovics *et al.* conducted a study that showed males have higher frequency of denture related ulcerations comparative to females. In the present study, there was no significant difference between males and females in terms of denture related ulcerations.

The denture related injuries were seen in the limiting areas of the maxilla and mandible that can be attributed to improper border molding and impression technique. The proper chair side custom tray adjustment along with good border molding with its preservation through beading and boxing and proper impression technique are recommended to minimize the limiting area issues during post insertion.

**Conclusion**

Within the limitations of the study it can be concluded that complete denture treatment is not adequate and complete till the patients are cared for proper postinsertion problems. This signifies that the postinsertion period is most critical to assess the success and failure of complete denture service.

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