

PATTERN OF ACQUIRED POSTSURGICAL UNILATERAL MAXILLARY DEFECTS FOR PROSTHODONTICS REHABILITATION IN PATIENTS AT AFID

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ABSTRACT

To determine the pattern of acquired postsurgical unilateral maxillary defects (Aramany Class I) for Prosthodontics rehabilitation in patients at AFID.

A descriptive study was conducted in the Department of Prosthodontics, Armed Forces Institute of Dentistry from August 2014 to March 2015. A total of 65 acquired unilateral postsurgical maxillary defect patients referred from Oral & Maxillofacial surgery department, with an age ranging between 25-70 years. Only Aramany Class I post-surgical defect patients were included in this study.

Out of 65 patients 34 were male and 31 were female. The mean age of patients was 41+6.921 SD. Almost all of the patients 98.46% (n=64) belonged to a poor socioeconomic status. 81.5% (n=53) of the unilateral maxillary defect were on the left side where as 18.5% (n=12) were on the right side. Chi square test used to determine the association of gender with pattern of maxillectomy was not significant (p=0.859). Logistic regressions wald test used to determine the association of age with maxillary defect was significant (p=0.000).

Within the limitations of this study, the pattern of Aramany Class I post-surgical defect was more prevalent on the left side as compared to the right side and most of the patients belonged to poor socioeconomic status irrespective of the age of patients.

Key Words: *Acquired unilateral maxillary defects, Aramany classification.*

INTRODUCTION

Functionally, the mouth is an important organ for speech, swallowing, chewing, taste and salivation. These functions become compromised due to surgical ablation of the tumour.¹ Though the incidence of oral cancer in the world is less than 5% but in this region it is significantly high. Oral cancers in this region have considerable high mortality rate as 50% of patients with oral cancer reported at advanced stage.² The most important aspects of treatment after resection of the maxilla are to reconstruct the maxillary defects and restore oronasal functions and facial contours. In general, obturator prostheses comply with these requirements but patients' difficulties in handling the obturator prosthesis or impaired

obturator functioning may lead to deficits in speech, mastication, swallowing or facial disfigurement, and as a consequence, patient dissatisfaction.^{3,4,5} To accomplish this for partially edentulous patients, and the clinicians must provide comprehensive treatment planning and sound physiological design principles for a removable partial denture (RPD). Before provision of prosthesis certain factors like volume of the defect, positioning of remaining hard and soft tissues to be used for retention, stabilization, and support. Presence of teeth, selection of abutment, and type of clasps should be considered during fabrication of obturator. Design principles must also consider the size and retentive qualities of the defect, and change of tissues and oral condition as a result of adjunctive radiation therapy.⁶

Other factors that may affect the overall treatment plan include the age of the patient, other medical conditions, tumor prognosis, individual functional and esthetic demands, manual dexterity, and motivation of the patient. Clinical conditions also dictate that the definitive treatment plan and RPD design be practical, affordable, and capable of meeting the functional needs and demands of the patient.⁷

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In 1978 the late Dr Mohammed Aramany presented the first published system of classification of postsurgical maxillary defects. He divided all defects into 6 categories based on the relationship of the defect to the remaining teeth and the frequency of occurrence of the defect in a relatively small patient population that he observed over a 6-year period at the Regional Center for Maxillofacial Rehabilitation in the Pittsburgh Eye and Ear Hospital.⁸

In a study conducted by Azad et al. in 2011 Aramany Class I defect (maxillary resection defect where the hard palate, alveolar, ridge, and dentition are removed to the midline) was most commonly reported with a percentage of 44.73%.⁹ The aim of this study is to determine the pattern of Aramany Class I defects in patients reporting for prosthodontic rehabilitation to Armed Forces Institute of Dentistry.

METHODOLOGY

Ethical approval was obtained from Armed Forces Institute of Dentistry (AFID). A cross-sectional study was conducted in Prosthodontic department of Armed Forces Institute of Dentistry (AFID), Rawalpindi over a period of 8 months, that is, from August 2014 to March 2015. The patients were treated at oral and maxillofacial surgery department or any patient who had been treated in the past and had reported to Prosthodontics department for rehabilitation during the period of study. A total of 65 patients with postsurgical maxillary defects were included in the study. Patients with complete maxillectomy were excluded from the study. Inclusion criteria for this study was both males and females of age 25-70 years of any socioeconomic status with postsurgical unilateral maxillary defect (Aramany Class I) undergoing prosthodontic rehabilitation. Patients with maxillary defect other than unilateral were excluded from this study.

A non-probability consecutive sampling technique was employed. The data obtained from patient was recorded in the performa, that is, the side on which the maxillary defect was present. The data was entered and analyzed in Statistical Package for Social Sciences (SPSS) 20.0 database. Descriptive statistics were used to describe data. Mean and S.D were calculated for age. Frequency was presented for gender and factors examined.

RESULTS

In the present study, out of 65 patients 34 (52.3%) were male and 31 (47.7%) were female. The mean age of patients was 41±6.921 SD with a minimum of age of 28 years and maximum age of 60 years. Fig 1 Almost all of the patients 98.46% (n=64) belonged to a poor socioeconomic status and only 1 patient belonged to a good socioeconomic background. 81.5% (n=53) of the unilateral maxillary defect were on the left side where

as 18.5% (n=12) were on the right side. Chi square test used to determine the association of gender with pattern of maxillectomy was not significant (p=0.859). Logistic regressions wald test used to determine the association of age with maxillary defect was significant (p=0.000).

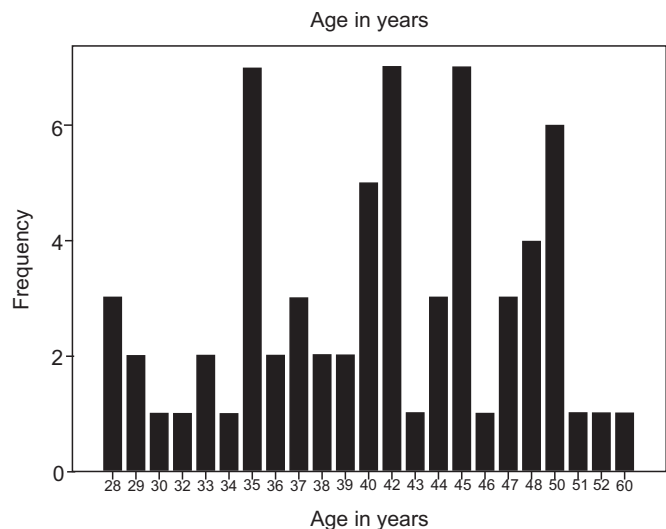


Fig 1: Age Distribution of Unilateral Maxillary Defect

DISCUSSION

Cancer surgery, malformation or trauma may lead to extensive facial defects that may not be covered by patients because of their exposed site. Such defects lead to functional deficits and enormous psychological strain and require rehabilitation at all ages.^{10,11,12} Several therapeutic approaches have been published, including prosthetic obturators, nonvascularised grafts, local flaps, regional flaps and free tissue transfer.^{13,14} Reconstruction of maxillary defects by either reconstructive surgery or an obturator prosthesis depends on patient characteristics, such as age, medical history and defect size.^{12,15}

The mean age of patients with defect in our study was 41 years which is similar to the age groups with defects in other studies.^{9,16-18} Although in our study the 40% of the patients were of age less than 40 years which shows that younger population is also being affected nearly equally but further studies are required with a larger sample size determine the prevalence of defects among younger population. In our study more males were affected as compared to females which is in accordance with other studies.^{9,14-18} In this study almost all of the patients who reported, belonged to a poor socioeconomic status which similar to the results in other studies and shows strong correlation of socioeconomic status with maxillary defects.¹⁹⁻²¹

In aramany class I defect, the dentition and the alveolar bone are removed along midline. Preservation of bone adjacent to the teeth and the defect has been recommended. The prognosis improves with increase in the number of teeth and satisfactory retention,

stability and support can be expected with minimized prosthesis movement.⁹ Various studies have reported Aramany Class I defect as the most frequent post-surgical maxillary defect and consider this as a classical hemi-maxillectomy defect.^{9,16-18} Nida et al reported a prevalence of 73.6% whereas Azad et al reported a prevalence of 44.73%.^{9,16} None of the studies reported whether the hemi maxillectomy was on left side or right side. Therefore this study focused on purely the pattern of Class I hemi maxillectomy only and most of the cases, that is, 81.5% were on the left side. The reason for this pattern of maxillary defect has not researched in our study. Whether it is due the habit of patient keeping cigarette on the left side or any other reason, it is unknown and a further study may needed to determine the cause of this pattern.

Defects because of tumor resection result in high level of morbidity with significant psychological and functional implications for patients, including difficulty to masticate, swallow and speak.²² In contrast, fabrication of obturator prosthesis shortens the procedure time and offers the possibility of immediate and adequate dental rehabilitation. The surgical site can be easily examined after removing the obturator prosthesis, and tumor recurrence may be detected in a timely manner. Obturators can be used for provisional or definitive rehabilitation.^{14,23,24}

CONCLUSION

Within the limitations of this study, the pattern of Aramany Class I post-surgical defect was more prevalent on the left side as compared to the right side and most of the patients belonged to poor socioeconomic status irrespective of the age of patients.

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CONTRIBUTION BY AUTHORS

- 1 Shoaib Rahim:** Data collection (during rotational training), statistical analysis, results and discussion.
- 2 Mubashir Sharif:** Data collection, results and discussion writing.
- 3 Azad Ali Azad:** Research title, research proposal (including study design, methodology, available of materials specifically for research, ethical approval), data collection, discussing writing.