

MOST COMMON SITE OF ALVEOLOPLASTY AMONG THE OUTPATIENT POPULATION

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ABSTRACT:

AIM:The main aim of this study is to analyse the most common site of alveoloplasty among the patients visiting Saveetha dental college.

INTRODUCTION:An alveoloplasty is a surgical procedure used to smooth and reshape a patient's jawbone in areas where teeth have been extracted or otherwise lost. After tooth extraction, the residual crest irregularities, undercuts or bone spicules should be removed, because they may result in an obstruction in placing a prosthetic restorative appliance. In this procedure, the bony edges of the alveolar ridge and its surrounding structures are made smooth, redesigned or recontoured.

MATERIALS AND METHODS:A retrospective cohort study was conducted among patients visiting dental college with the help of dental records from saveetha dental hospital. The required data were collected and statistically analysed using SPSS software. Chi square test was done to find the p value.

RESULTS AND DISCUSSION:The results of this study revealed that Alveoloplasty procedures have been performed more in males (57.28%) when compared to females (42.72%). It is shown that the most common site of alveoloplasty among the outpatient population is quadrant 2 (31.40%) whereas least number of alveoloplasty procedures has been performed in quadrant 3 (26.68%).

CONCLUSION:Analysis of the most common site of alveoloplasty among the outpatient population and Proper diagnosis of the condition of edentulous ridges is important to have a more closer view in that particular site to avoid discrepancies in future.

KEY WORDS: Alveolar Ridge, Bony Spicules, Alveoloplasty, Dental Prosthesis

INTRODUCTION:

An alveoloplasty is a surgical procedure used to smooth and reshape a patient's jawbone in areas where teeth have been extracted or otherwise lost. After tooth extraction, the residual crest irregularities, undercuts or bone spicules should be removed, because they may result in an obstruction in placing a prosthetic restorative appliance. In this procedure, the bony edges of the alveolar ridge and its surrounding structures are made smooth, redesigned or recontoured. When performed in association with tooth extractions, it also establishes a jawbone shape that helps to facilitate the healing process(1). Alveoloplasty is more likely to comprise a substantial portion of a patient's extraction process when multiple consecutive teeth have been removed or lost due to gum disease or dental trauma. That's because with these longer expanses, it's easier to identify ridge irregularities. (2)

The main essence of prosthetic rehabilitation in regard to alveoloplasty is maintaining the width and height of alveolar ridge so that it will provide stability and retention for prosthesis such as denture and even dental implants as the forces acting from the prostheses will be distributed evenly on the alveolar mucosa and alveolar ridge(3). In another point of view, alveoloplasty serves as debulking procedures for some pathologic conditions of the jaw bone as well. The procedure is most often performed either after a tooth extraction or as a stand-alone procedure intended to prepare a patient for a denture or dental implant to allow for a more secure and firm fit of dentures. Irregularities with the jawbone ridge that may ultimately end up interfering with partial or complete denture insertion(4). Also, jawbone ridge irregularities may result in ongoing discomfort and denture stability issues for a patient. Dentures may irritate the patient's underlying gum if the jawbone is uneven or not smooth. In short, if there is a portion of the alveolar ridge that has protrusions, dentures will irritate. Alveoloplasty solves this problem in a highly effective way. It's used to optimize the shape of the patient's jawbone (ridge) so as to avoid complications with appliance insertion, comfort, stability and retention(5).

Alveoloplasty is contraindicated in situations whereby vital structures such as nerve bundle, blood vessel and/or vital tooth will be harmed during removal of bone structure. Nerve injury is unfavourable as there will be a risk of complications such as paraesthesia, neuropathic pain, allodynia and others(6). Some other important contraindications of alveoloplasty consist of individuals who have undergone head and neck radiation therapy or individuals with medical

conditions which will result in certain medical complications such as uncontrolled or excessive bleeding, poor healing response or immunocompromised. Patients who have underlying bleeding disorder or individuals who are currently on anticoagulant medications have a risk of uncontrolled bleeding; whilst individuals with uncontrolled diabetes or infection have poor healing response after procedure(7).

The simplest form of alveoplasty can be in the form of a digital compression on the lateral walls of bone after simple tooth extraction, provided that there are no gross bone irregularities. When more irregularities exist, other techniques can be adopted, such as the conservative technique, interseptal (Dean's) alveoplasty. In cases where there are severe undercuts, radical alveoplasty is required. This involves the removal of the whole buccal or labial plate after extraction. In addition, secondary alveoplasty sometimes occurs after the initial procedure to eliminate any gross bone irregularities (8).

A full thickness flap is usually elevated to a point apical to the desired area to be contoured, and according to the amount of bone needed to be removed, a bone file, or a bone rongeur, or a burr under copious irrigation can be used to provide the desired contour. Taking in consideration that lack of irrigation can lead to bone necrosis(9). So after the procedure, the flap is repositioned and sutured. The alveolar mucosa covering bone should have uniform thickness, density and compressibility to evenly distribute the masticatory forces to the underlying bone.

If prosthetic rehabilitation is in the treatment plan, proper tissue healing should be achieved before construction of removable prosthesis. In cases whereby immediate denture is indicated, clinicians could consider the option of relining the immediate denture to allow appropriate soft tissue healing(10).

Our team has extensive knowledge and research experience that has translate into high quality publications ,(11),(12),(13),(14–23)(24),(25–27),(28,29). Innovative techniques of alveoplasty are also under study.

The main aim of this study is to analyse the most common site of alveoplasty among the patients visiting Saveetha dental college.

MATERIALS AND METHODS:

The retrospective cohort study was an institution based study conducted in Saveetha dental College and Hospitals, Chennai. Data for the study was taken from the online database of Saveetha dental college (Dental Information Archiving Software DIAS). Ethical approval was obtained by the Institutional ethical board at Saveetha University prior to the start of the study.

Data was collected from the records of the patients aged from 30-85 years of age. Data collected from the records of the 750 patients who have undergone alveoplasty, were included in the study. Patient demographics (age/gender/annual family income), contact, address (rural/urban), chief complaint, treatment plan, consent, treatment performed, high definition pre/post-operative photographs are fed into the software to allow smooth inter-departmental coordination and have a single source of information portal to avoid delays and ambiguity.

This collected data was statistically analysed using SPSS software version 23. Chi square test was done to obtain the p value to find the significant differences. P value(level of significance) was checked for 3 correlations graphs, i.e P value between gender and number of patients undergone alveoplasty, P value between gender and most common site of alveoplasty followed by P value between gender and age of patients underwent alveoplasty. P value was set as 0.05 as a level of significance.

RESULTS:

The results of this study revealed that Alveoplasty procedures have been performed more in males (61.02%) when compared to females (38.98%) (figure 1). It is shown that the most common site of alveoplasty among the outpatient population is quadrant 2 (males - 18.73%, females - 12.67%) whereas least number of alveoplasty procedures has been performed in quadrant 3 (males - 10.92%, females - 8.22%) (figure 2).

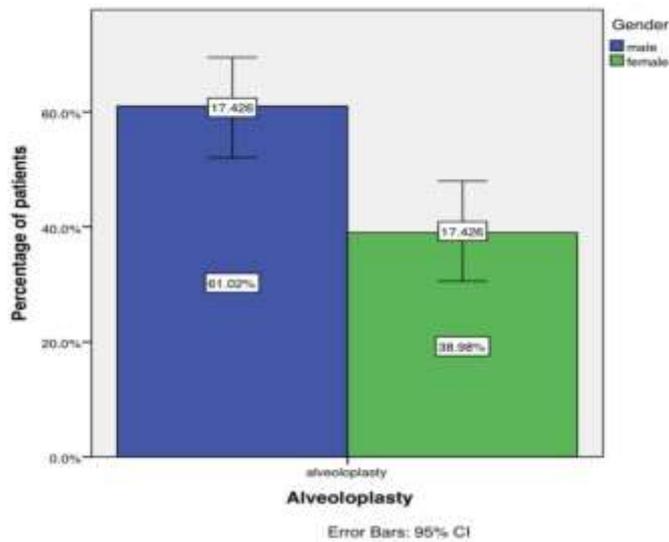


Figure 1: X-axis represents the alveoplasty procedure and Y axis represents the gender of the patients. The graph shows that 61.02% males and 38.98% of females have undergone alveoplasty.

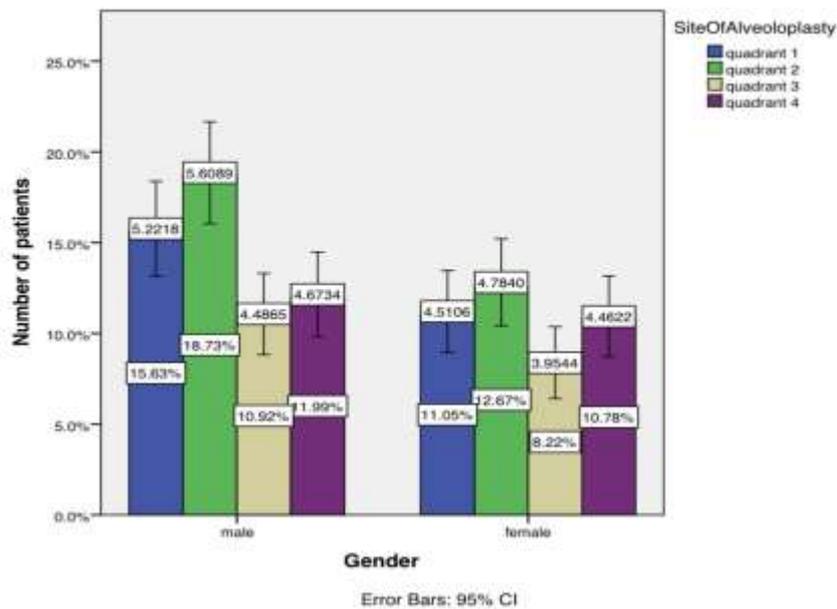


Figure 2: X-axis represents the gender of the patient and Y - axis represents the site of alveoplasty. The graph shows that 15.63% males and 11.05% females have done alveoplasty in quadrant 1, 18.73% males and 12.67% females have done alveoplasty procedure in quadrant 2, 10.92% males and 8.22% females have done alveoplasty procedure in quadrant 3, 11.99% males and 10.78% females have undergone alveoplasty procedure in quadrant 4.

DISCUSSION:

In recent times the term “Alveoplasty” has been adopted to signify recontouring of the alveolar process rather than its removal. It has been found that there is a requirement of alveoplasty in almost every patient who has undergone multiple extractions and may also be needed in those with single extraction (30). The goal for contouring the alveolar ridge is to gain favorable tissue support for the designed prosthesis while conserving as much soft tissue and hard tissue as possible. Complications of secondary alveoplasty can be reduced by proper compression of socket & reducing the bony spicules during extraction. It is proved that alveoplasty is an effective aid for the fabrication of well-fitting and comfortable prosthesis(31).

Previous studies show that males underwent Alveoloplasty more when compared to females which is in correlation with this present study. Other studies also show that Alveoloplasty was performed more in the lower arch when compared to other sites whereas in this study the results show that alveoloplasty procedure is performed more in quadrant 2 when compared to other sites. In this study, we have compared sites of alveoloplasty based on quadrants which is more simplified when compared to other studies(32).

Within the limitation of the study, Males underwent Alveoloplasty more when compared to females. Alveoloplasty was performed predominantly more in quadrant 2 compared to other sites.

CONCLUSION:

Analysis of the most common site of alveoloplasty among the outpatient population and Proper diagnosis of the condition of edentulous ridges is important to have a more closer view in that particular site to avoid discrepancies in future. Discussing problems associated with the same with patients and proper treatment planning are the key determinants for successful treatments, proper fabrication of dental prosthesis and the patient's well being.

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