

PREVALENCE OF SOCKET PRESERVATION CLOSURE TECHNIQUES DONE AMONG THE IMPLANT PLACED - INSTITUTION BASED ASSESSMENT

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Abstract

Introduction

Socket preservation is necessary to prevent resorption of bone. Alveolar bone remodelling is not an intermittent process it is a continuous process in pathology and physiology but alveolar bone plays an important role in the retention of teeth in particular position.

Aim: To assess Prevalence of socket preservation closure techniques done among the implants placed an institution based assessment.

Materials and method: This study is an institution based assessment where 40 patients' case history details who underwent socket preservation prior implant treatment were collected and socket preservation closure techniques were identified and diagnosis was tabulated along with their age and gender in excel sheet. Data tabulated in excel sheet was transferred to SPSS software for software analysis. Based on analysis results were tabulated

Result: Based on statistical analysis results were analysed and tabulated.57.5% of the patients were aged between 25-50 years .Most of the patients who underwent socket preservation were males (55%) when compared to females (45%) .Most prevalent method of socket preservation closure technique is conventional suturing where around 38 (95%) patients had conventional suturing

Conclusion: Socket preservation procedures used widely to manage the tissue dimensional alterations after tooth extraction. These techniques are considered as predictable procedures to reduce the need for extensive bone augmentation operations in implant dentistry. There are different socket/ridge preservation techniques with different outcomes. Socket preservation closure technique also, plays an important role in success of socket preservation.

Key words: implant, socket preservation, prosthesis, closuretechnique, innovation

Introduction

Socket preservation is necessary to prevent resorption of bone. Alveolar bone remodelling is not an intermittent process it is a continuous process in pathology and physiology but alveolar bone plays an important role in the retention of teeth in particular position. Extraction of teeth leads to a missing space which is also called as edentulous space and loss of alveolar bone, function, and aesthetics [1],[2]. In order to have success in prosthetic replacement Socket preservation attempts are therefore made to maintain bone to enable patients to have sided type of prosthesis like implant supported dental prosthesis to omit the requirement of additional surgical procedures for augmentation in future [3].

Socket preservation has been performed using different materials with varying success rates [4,5]. Materials used for grafting include autogenous bone, allograft, xenograft, and alloplasts, among others. Various membranes have been used for wound closure, including polytetrafluoroethylene and bovine and porcine collagen matrices. Graft materials enhance bone formation by promoting osteoconduction, osteoinduction, and osteogenesis [6]-[7]

However, no graft material to date is considered ideal but closure of graft material into the extracted socket plays an important role in the success of socket preservation. Therefore the aim of our study is to assess the prevalence of socket preservation closure technique done among implants placed in an institution. Our team has extensive knowledge and research experience that has translated into high quality publications [8–37], [38–52]

Materials and Methods

This retrospective cross sectional study was done in between the months of November 2020 and February 2021. For this study we got approval from the Institutional Ethical Review Board and our study was carried out in a university hospital setting in a major city of Tamil Nadu, South India. For This study a random sample of around 40 patients case history details who underwent socket preservation prior implant treatment were collected. Even photographs, radiographs in the image gallery of the patient online case sheet records were verified. In order to reduce, minimise and avoid the occurrence errors, verified case sheets were once again cross verified by another examiner. Based on their case history details socket preservation closure techniques were found. Verified data were tabulated in excel under columns of age, gender, closure technique. Closure techniques were categorised into 3 different categories like suture, FGG (fibrinogen gamma chain) and others. Data tabulated in excel sheets were transferred to SPSS software for statistical analysis. Descriptive statistics and chi square tests were conducted to evaluate differences between groups with significance level at 95% confidence interval ($P < 0.05$).

Result

Based on analysis results were obtained and tabulated Most of the patients who underwent socket preservation were aged between 25-50 years (23), 10 patients were aged less than 25 years and 7 patients aged above 50 years (figure 1). Figure 2 shows frequency distribution of gender of patient in the study population. Where 38 patients who underwent socket preservation had conventional suturing followed by 1 patient with FGG and 1 patient with other technique. Figure 3 shows frequency distribution of gender of patient in the study population. Where 22 patients who underwent socket preservation were males and 18 patients were females.

Figure 4 shows association between gender and frequency distribution of type of socket preservation closure technique. Where 20 male patients and 18 female patients had conventional suturing, 1 male patient had FGG and another male patient had another method of closure while socket preservation . Figure 5 represents the association between gender and frequency distribution of type of socket preservation closure technique . Where 10 patient aged <25 years, 21 patient aged between 25-50 years and 7 patients aged more than 50 years had conventional suturing, 1 patient aged between 25- 50 years had FGG and another patient aged between 25- 50 years had other method of closure while socket preservation

Discussion

Several studies have concerned the morphological alterations occurring in the alveolar process as a consequence of tooth extraction, both vertically and in the width of the residual bone [1][2]. The resorption rate is a factor of the time since extraction [53]^[54]. The contour loss occurs at a more significant rate during the early post-extraction period, especially within the first six months. changes in the buccal alveolar bone plate result in a collapse of the alveolar process, especially in the maxillary bone [55]^[36]. The subsequent ridge deformity poses a challenge to the prosthetic rehabilitation process due to the significant functional and esthetic problems especially in the anterior maxillary region[56].

Conservative atraumatic extraction and socket preservation techniques with different materials have been evolved and clinically implemented [57]. Recent preservation approaches tend mostly towards the regenerated bone quality as a prerequisite for gaining a proper implant site and less towards the topographic status of the edentulous ridge. Various techniques have been discussed to achieve proper soft tissue closure at immediate implant sites. Conventional suturing of sockets is the most widely practiced closure technique. This goes in hand with our study Where 38 patients who underwent socket preservation had conventional suturing followed by 1 patient with FGG and 1 patient with other technique .

Esthetic results, restorative manipulation, soft tissue maturation, plaque control, protection from bacterial aggression and regular maintenance are enhanced when keratinized tissue surrounds the implant-supported prosthesis [58][37]. So, soft tissue rehabilitation should be considered as necessary as hard tissue reconstruction during or after tooth extraction. This study focused on the prevalence of socket preservation closure technique among implants placed in an institution. Hence in future this study can be done in a larger population.

Conclusion:

Socket preservation procedures used widely to manage the tissue dimensional alterations after tooth extraction. These techniques are considered as predictable procedures to reduce the need for extensive bone augmentation operations in implant dentistry. There are different socket/ridge preservation techniques with different outcomes. Socket preservation closure technique Also, plays an important role in success of socket preservation. There is no evidence to support the superiority of one specific technique over another. Thus in future this study can be done in large sample populations.

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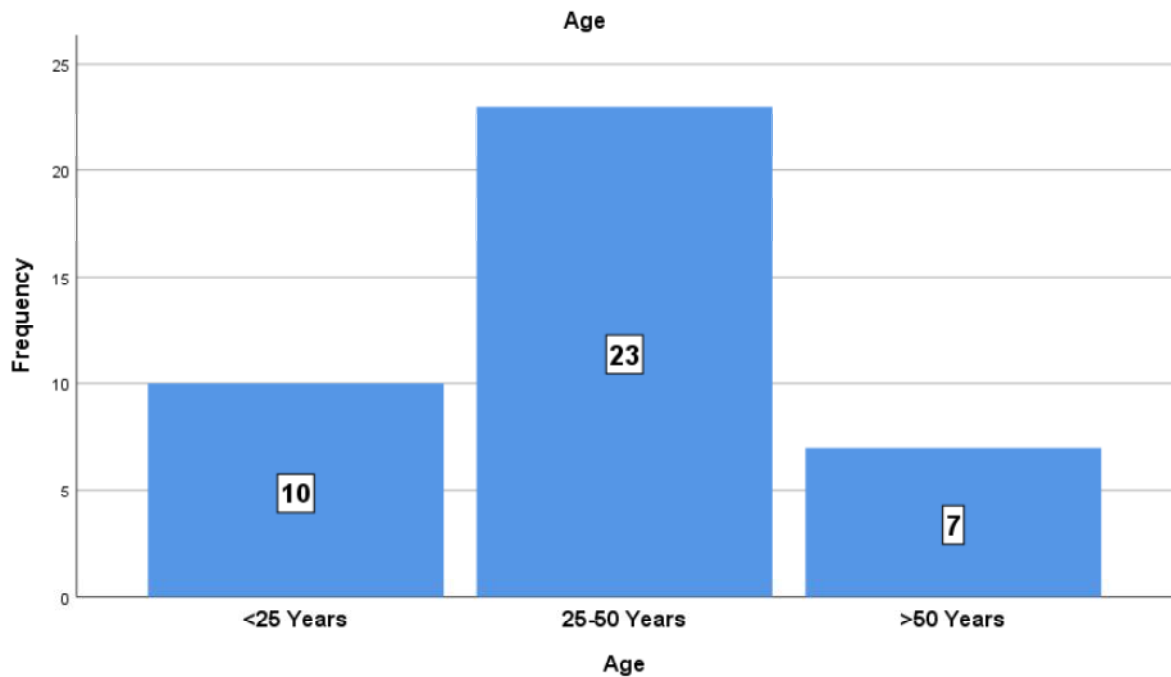


Figure 1: Bar graph representing frequency distribution of age of patient in the study population. X-axis represents age and Y-axis represents the number of patients. Most of the patient who underwent socket preservation were aged between 25-50 years (23), 10 patient were aged less than 25 years and 7 patients aged above 50 years

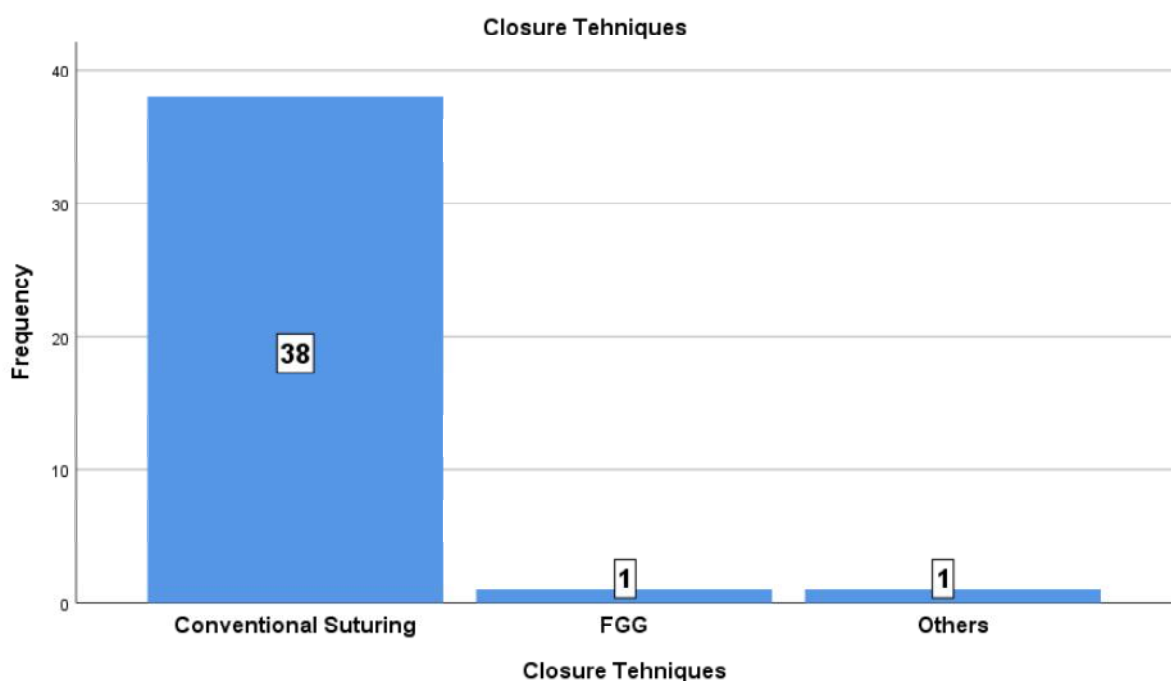


Figure 2: Bar graph representing frequency distribution of gender of patient in the study population. X-axis represents closure technique and Y-axis represents the number of patients . Most of the patient who underwent socket preservation were had conventional suturing (38) followed by FGG (1) and other technique (1)

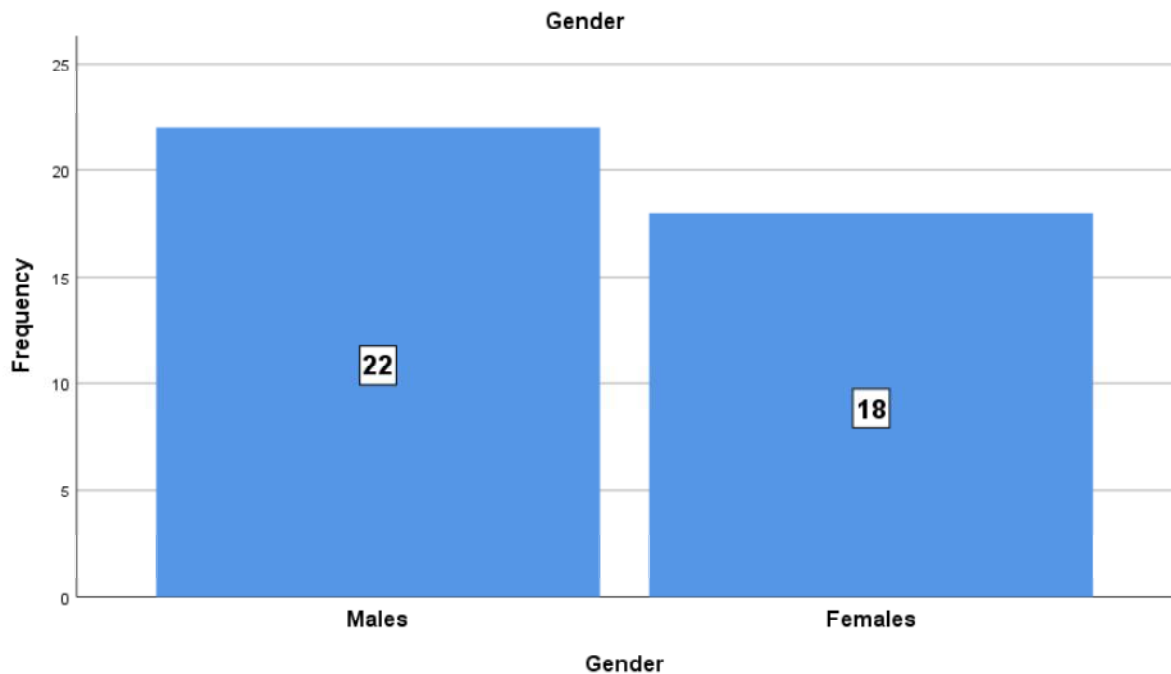


Figure 3: Bar graph representing frequency distribution of gender of patient in the study population. X-axis represents gender and Y-axis represents the number of patients . Most of the patient who underwent socket preservation were males (22) compared to females (18).

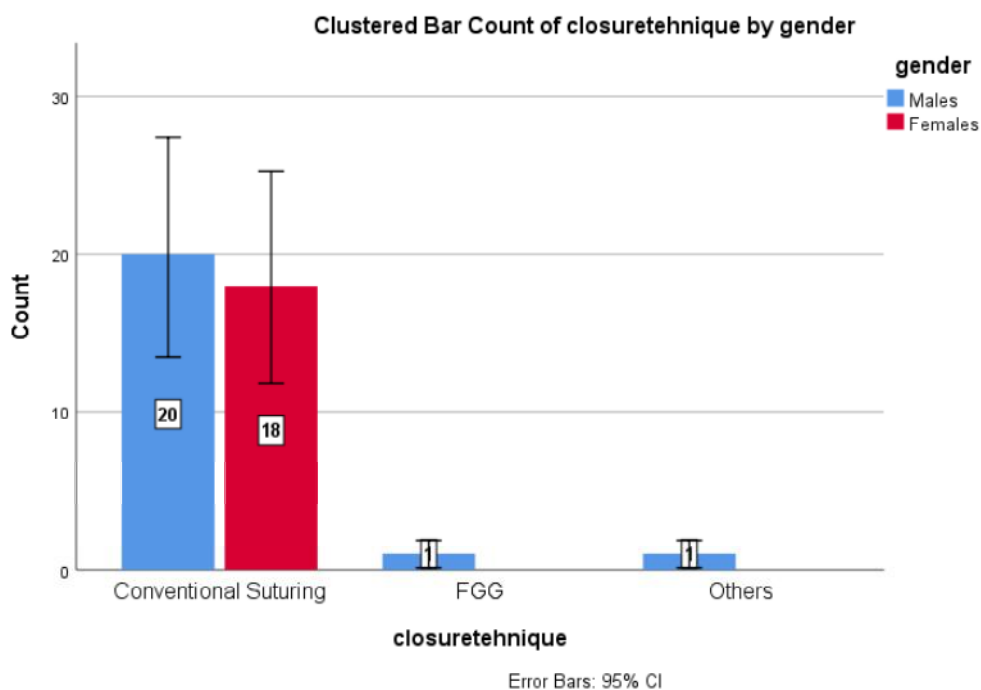


Figure 4: Bar graph representing association between gender and frequency distribution of type of socket preservation closure technique . X-axis: gender wise categorisation of frequency distribution of type of

socket preservation closure technique (blue colour= Male ; red colour= female). Y-axis: No.of Patients. Where 20 males and 18 females had conventional suturing, 1 male patient had FGG and another male patient had other method of closure while socket preservation

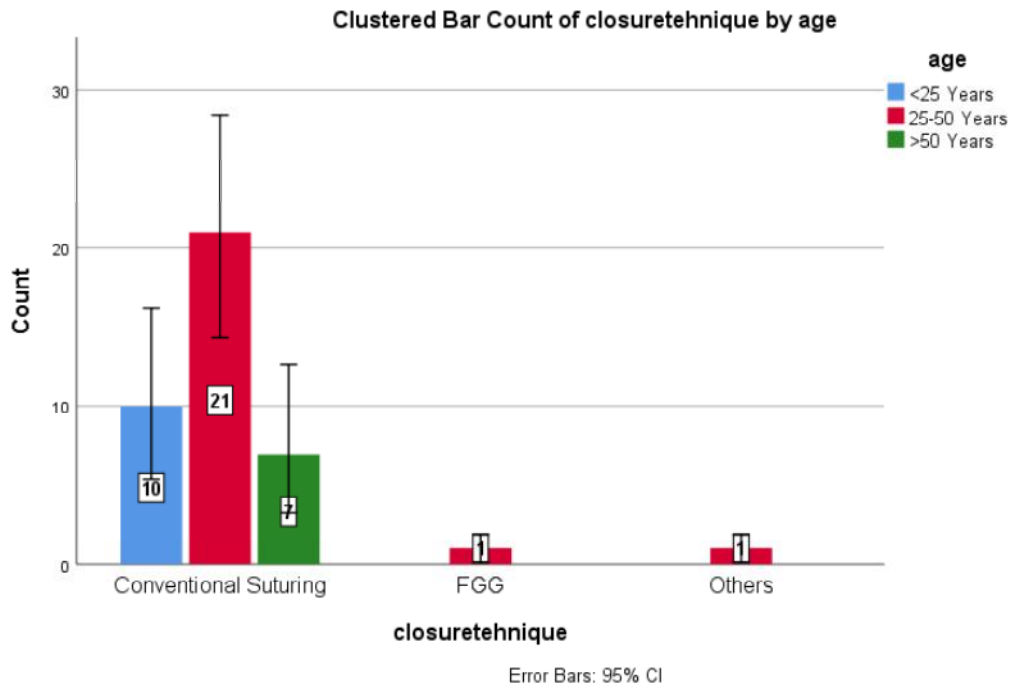


Figure 5: Bar graph representing association between gender and frequency distribution of type of socket preservation closure technique . X-axis: age wise categorisation of frequency distribution of type of socket preservation closure technique (blue colour= <25 years ; red colour= 25-50 years, green= >50 years). Y-axis: No.of Patients. Where 10 patient aged <25 years, 21 patient aged between 25-50 years and 7 patients aged more than 50 years had conventional suturing, 1 patient aged between 25- 50 years had FGG and another patient aged between 25- 50 years had other method of closure while socket preservation