



SURVEY ON EMBEDDED ROOT STUMPS NEEDED TO BE PRESERVED OR REMOVED IN REMOVABLE OR FIXED PARTIAL DENTURES

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ABSTRACT

OBJECTIVE : Residual ridge resorption occurs due to extraction and to prevent this resorption,over denture concept has been introduced. undergraduate dental students differ in their opinion whether to retain or extract the root fragments while preparing prosthesis and proper treatment plan.

EXPERIMENTAL APPROACH: Self administered questions were prepared and distributed among 100 undergraduate dental students.the samples were collected and sent to a statistician for statistical analysis.

FINDINGS: More than 65% of the undergraduate dental students think there is need to preserve the root stumps where as 35% think ,root stumps has to be extracted.

DISCUSSION: Basically, the root stump retention and over denture concept has lots of advantages compared to the conventional denture prosthesis. the dentist and also previous study on this say it can prevent the pace of residual ridge resorption, have better proprioception, support and stability if the oral hygiene is maintained properly.

CONCLUSION: The study concludes that not all the root stumps have to be extracted but only those which are necessary need to be extracted. by preserving the root stumps,the residual ridge resorption can be reduced.

KEYWORDS : overdenture, custom ball attachments, proprioception, retained tooth

INTRODUCTION:

Root fragments can be retained both in dentulous and edentulous patient as a preventive measure to preserve the alveolar ridge resorption. Usually undergraduate dental students differ in their opinion on whether these root stump should be removed or retained as their presence can be challenge to clinicians during treatment plan based on patient's needs^[1-3]. As the treatment option over denture was developed in order to preserve the remaining alveolar bone by retaining vital or non-vital roots fragments. In over denture treatment, over a period of time the teeth selected as abutments are more prone to caries and periodontal disease, hence the vital or non-vital root submergence concept evolved. After a thorough radiographic and clinical examination, few teeth without dental pathosis are retained that are surgically submerged in the alveolar ridge. After healing, the over denture with remaining vital or non-vital teeth preserve the integrity of the bone, making the treatment an effective and successful preventive prosthodontic treatment^[4].

On the prevalence of retained roots several studies have been conducted and results have shown that the majority of retained root fragments cause no harm to patients and are found in radiographic findings and histological studies reveals that the healing of extraction sockets in the presence of fractured root fragments^[5-6]. Under certain circumstances, the study reveals that root fragments could successfully remain in situ with normal healing taking place together with the formation of a cementum layer on the dentine^[7,8]. Overdenture treatment uses a removable denture that lies over the retained teeth or root fragment or dental implants^[9]. This treatment concept is not a new and practitioners have employed successfully existing tooth structures or retained roots to assist with partial or complete denture treatment for more years^[10]. The diseased periodontal ligament or its absence can cause inevitable time-dependent reduction in residual ridge dimensions, whereas the maintenance of healthy periodontal ligament can maintain alveolar ridge morphology.

In order to avoid this, coronally modified or restored retained teeth abutments are used frequently which is endodontically prepared and used as abutments for an overdenture. The objective of this is to distribute stress concentration between retained abutments and

denture-supporting soft tissues^[11-12]. Retained root abutment can provide better retention, stability and support to an overdenture and also provide proprioception which would be lost with conventional denture treatment.

The present study survey is about what the dental practitioners think about preserving root fragments for the prosthodontic treatment such as removable partial denture or fixed partial denture and its advantages and disadvantages which revolves around it.

MATERIALS AND METHODS:

The subject was selected for the study about 100 undergraduate dental students who are studying in private dental institute who have the knowledge about preventive prosthodontic treatment, root stump and over denture.

The questionnaire containing 14 questions was prepared for survey and answers were in yes or no format.

1. Do you think retaining root stumps in removable denture treatment can be useful?

(a) Yes (b) No

2. do the retained root stumps can preserve alveolar ridge resorption?

(a) Yes (b) No

3. Do you think embedded non-vital root stump may cause periapical pathology?

(a) Yes (b) No

4. Do you think stress distribution is even between retained root abutment and denture supporting soft tissue?

(a) Yes (b) No

5. can preserving tooth root preserves the periodontal ligament?

(a) Yes (b) No

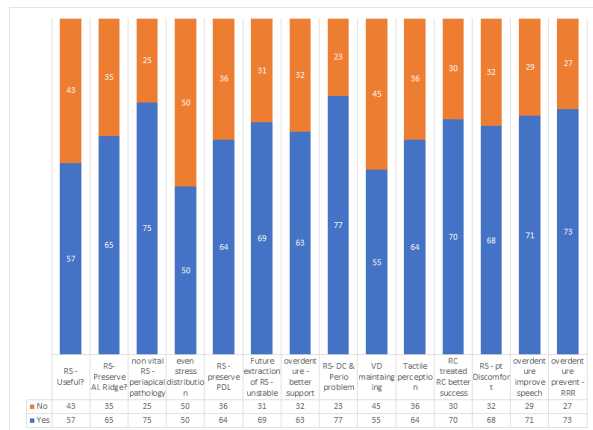
6. Can future extraction of submerged root may cause instability to the denture?

(a) Yes (b) No

- 7. Do root retained overdenture has better support?
(a) Yes (b) No
- 8. Do the abutment roots are more prone to caries or periodontal problem?
(a) Yes (b) No
- 9. Can you agree that vertical dimension of occlusion is maintained in retaining root stumps overdenture method?
(a) Yes (b) No
- 10. Do you agree that tactile perception to load for denture wearer is higher than that of artificial denture after extraction?
(a) Yes (b) No
- 11. Has endodontically treated root retained have better success rate than non-treated root?
(a) Yes (b) No
- 12. Do you feel that patient may experience discomfort on insertion or removal due to undercuts are formed by retaining root?
(a) Yes (b) No
- 13. Can overdentures can improve speech ability and confident of a patient?
(a) Yes (b) No
- 14. Has overdentures can prevent residual ridge resorption?
(a) Yes (b) No

Statistical analysis:

The collected samples were analysed using SPSS (Statistical Package for the Social Sciences) version 21.0 statistics and the results were discussed below



RESULTS:

More than fifty percent of undergraduate dental students think, retained root stumps in removable denture treatment can be useful, more than sixty percent think retained root stumps can prevent alveolar ridge resorption, more than seventy percent think non-vital retained root stumps cause periapical pathology, fifty percent think stress distribution is even between retained root abutment and denture supporting soft tissue, more than sixty percent think retained root stumps can preserve the periodontal ligament and more than sixty percent think that future extraction of sub-merged root may cause instability to the denture. More than sixty percent think root retained over denture has better support. More than seventy percent think abutment roots are more prone to caries or periodontal problem, more than fifty percent think vertical dimension of occlusion is maintained in retaining root stumps overdenture method, more than sixty percent think that tactile perception to load for denture wearer is higher than that of artificial denture after extraction, seventy percent think endodontically treated root retained have better success rate than non-treated root, more than sixty percent feel that their patient may experience discomfort on insertion or removal due to undercuts are

formed by retaining root, more than seventy percent think that overdentures can improve speech ability and confident of a patient. More than seventy percent think that overdentures can prevent residual ridge resorption.

DISCUSSION:

After the loss of teeth residual ridge resorption becomes the most common problem faced by the patient over the period of time, Atwood stated that the "Reduction of residual ridges needs to be recognized for what it is: It is the major unsolved oral disease which leads to physical, psychological, and economic problems for millions of people all over the world" [13]. In our survey 65% of the dentist think that retaining root stumps can prevent the alveolar ridge resorption.

The basic concept of overdenture requires preservation of residual hard and soft tissues. It is believed that overdenture patients had a chewing efficiency which was one-third higher than that of conventional complete denture wearers, the root supported overdenture is the alternative option as a treatment compared to conventional dentures, as the proprioception is maintained and improves stability and retention. Our results say 64% of dentists think that tactile perception to load for denture wearer is higher than that of artificial denture after extraction.

According to, Simpson in 1959, examined a number of retained roots in humans and suggested that root fragments, which were originally unaffected, could be safely left in position [14-15]. Preserving the teeth or the roots preserves the periodontal ligament [16], similarly 64% of dentist in present study thinks that retained root without any pathology can preserve periodontal ligament.

69% of dentists think that future extraction of sub-merged root may cause instability to the denture, while Clinical exposure of the submerged roots is also noticed in few cases; future retained root extraction may cause instability of the denture.

Previous study on the retaining root states that Proper diagnosis and endodontic treatment of submucosally retained roots lead to an excellent tissue acceptance and ridge preservation. Three-month follow-up revealed excellent healing of soft tissues. The oral tissues appeared normal in colour and texture, and the denture remained stable and retentive. The patient reported favourable denture experience, while in this present survey 70% of dentists think endodontically treated root retained have better success rate than non-treated root.

Basically, the root stump retention and over denture concept has lots of advantages compared to the conventional denture prosthesis. The dentist and also previous study on this say it can prevent the pace of residual ridge resorption, have better proprioception, support and stability if the oral hygiene is maintained properly.

CONCLUSION:

The study concludes that residual bone resorption can be reduced by not extracting the root stump rather retaining it for over denture prosthesis. Over denture prosthesis has better support, stability, proprioception, stress distribution is maintained. While as far concerned with vital and non-vital root fragment retention, vital root retention had more problems like periapical pathology of the root and pain sensation by the patient, hence the non-vital tooth retention is better compared to vital root retention. Still endodontically treated tooth have better success rate compared to non-treated one. The patient was satisfied with these kinds of overdentures to improved oral functions and oral health related quality of life. Concluded that success of root supported over denture depends on proper case selection, ideal abutment selection, good periodontal support and endodontic factors, dentist also plays an important role in it.

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