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COMPARISION BETWEEN SCREW RETAINED AND CEMENT RETAINED IMPLANT PROSTHESIS IN A CASE- A CASE REPORT

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ABSTRACT
Dental implants were initiated in 1922 by Branemark, who and associates described the relationship between titanium implant and bone which termed osseointegration, defined as the direct structural and functional connection between living bone and the surface of an implant[1]. The choice of a screw-retained versus a cement-retained crown is a complex and Comprehensive decision involving many points of consideration.This clinical report is to evaluate of the effectiveness of cement retained and screw retained prosthesis.

KEYWORDS: Dental implants, screw retained, cement retained, prosthesis, stability, retention.

CASE REPORT
A 45 yr old female patient reported to the department of oral and maxillofacial surgery, Sree Balaji Dental College and hospital with a chief complaint of partial edentulous area in relation to 21-17 for past eight months. History reveals that patient is using removal partial denture for the past 2 months. Existing dentures were fabricated 3 months back but patient is uncomfortable with those dentures as it causes discomfort during mastication and speech. Patient was advised OPG **(fig 1)** dental impressions were taken, radio graphical analysis was done. The ridge exhibited crestal bone resorption in anterior part of maxilla **(fig 2).** Tooth number 37 was missing but patient doesn't want to restore it. Augmentation of the edentulous maxillary region with hydroxyapatite bone graft particles and placement of dental implants was decided as a treatment plan. On examination, patient did not have any systemic disorders; pts blood pressure was 130/90mmhg. Informed consent was obtained. Routine blood investigations were done.

Due to localized periodontitis12 was extracted under local anesthesia and dental implants were placed in relation to 12, 21, 24 and 27 region. Hydroxyapatite bone grafts **(fig 3**) were used in relation to the anterior region. Primary stability was achieved, cover screw was placed. OPG taken post operatively to reveal the placement of the implants in relation to 12,21,24 and 27 region (**fig 4**). OPG was repeated once in four weeks. Patient had regular follow ups post six months (**fig 5**). A healing period of six months was allowed before restorative procedures were started, prosthesis was planned. Gingival contour was obtained by placing healing abutment (**fig6)**. As patient was not satisfied with cement retained prosthesis in relation to 33 which was endodontically treated 6 yrs back, screw retained prosthesis was planned and implant abutment was placed, Plastic non-hexed castable cylinders were incorporated into the wax pattern for the multi-unit porcelain-fused-to-metal framework (**fig 7**).

The framework was cast and its passive fit was confirmed in the mouth using the single screw test done at this stage the anterior prosthesis exhibited the screw slot which patient was uncomfortable esthetically for which cement retained was advised in the anterior region and screw retained was advised in the posterior region. Thus screw retained prosthesis and cement retained prosthesis was given for the patient (**fig 8**).

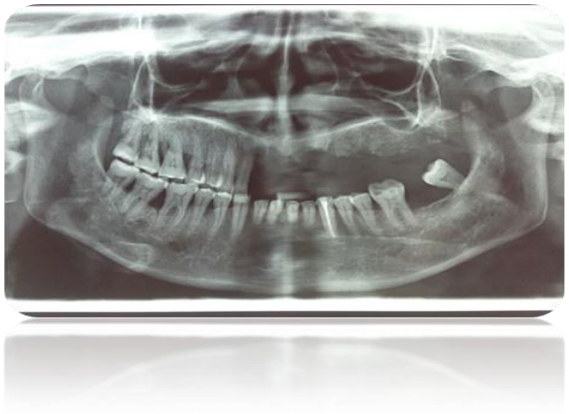

Fig 1: Pre op opg.

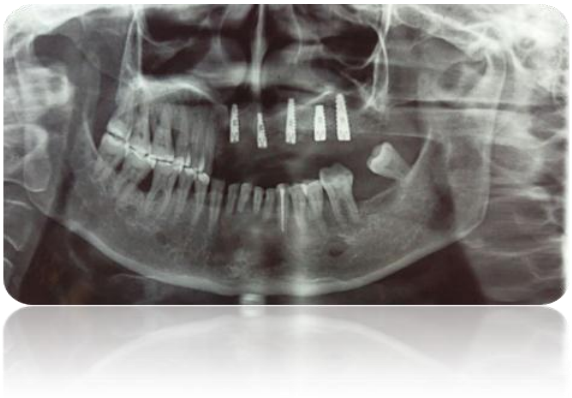

Fig 4: Immediate post operative opg.

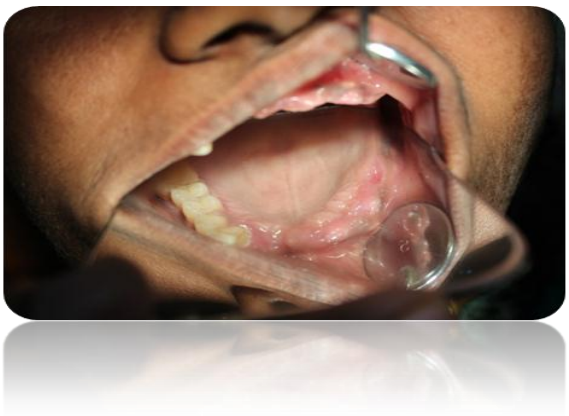

Fig 2: Intra oral pre operative.

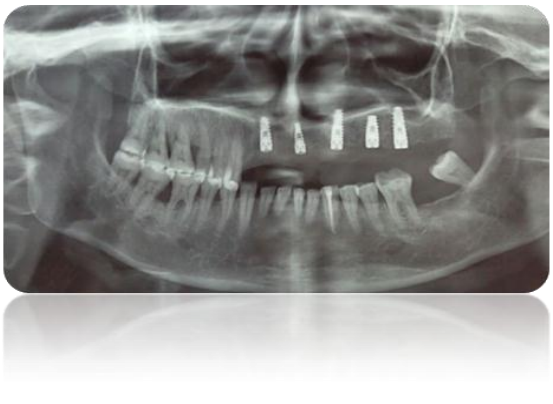

Fig 5: Opg after 6 months.

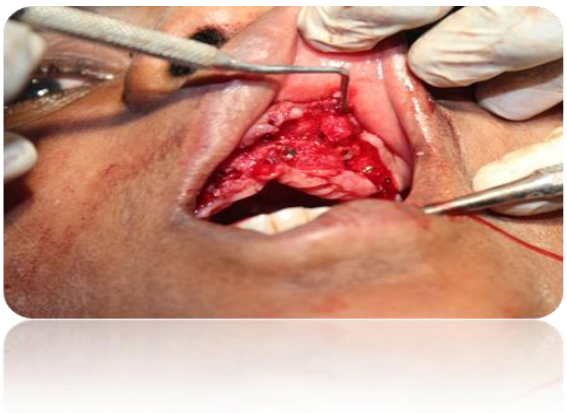

Fig 3: Placement of hydroxyapatite graft.

Fig 6 and Fig 7: satisfactory healing of the gingival collar and metal try in.

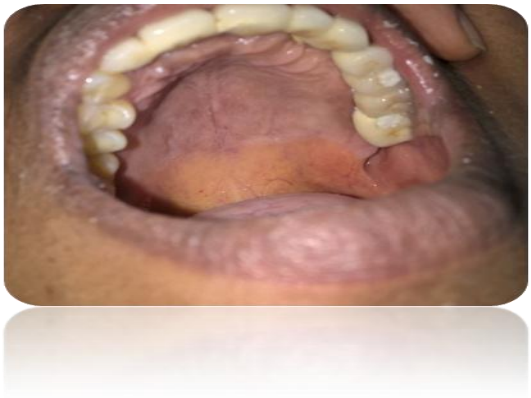

Fig 8: cement retained prosthesis in anterior region and screw retained prosthesis posterior region (occlusal view).

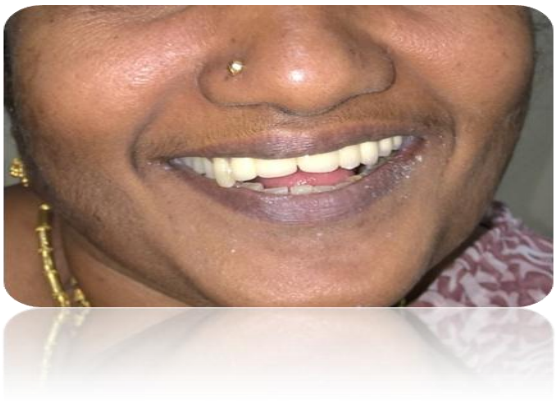

Fig 9: Post implant prosthesis fixation.

DISCUSSION

The screw-retained and cement retained crown has both benefits and liabilities. In the screw retained crown main advantage is retrievability. The crown is not only recoverable, but no damage occurs upon removal of the crown. In case if patient complaints of any pain in proximal teeth which needs to be treated or in the event of loosening or fracture, the crown can easily be removed. Cleaning, screw replacement and assessment of surrounding tissue is also possible. The longer the span, the more important salvaging it becomes. A long restorative span, cantilever or full arch dictates screw-retained crowns or in case of screw loosening, to recover a crown or change a screw for maintenance, the restoration is removed, the cotton pellet is removed, the screw is accessed. Once repairs or alterations are done, the screw is torqued, a new cotton pellet is placed and composite or acrylic is used to seal the opening. In screw retained the parrelling of the implant and abutment should be evaluated or else there are more chances of fracturing the abutment wall due to increased work load and causes screw loosening. Weber et al[2] stated that to overcome the pros and cons of each system, newer implant systems have been developed to include techniques that increase the link between the implant andabutment, use of larger abutment screws and provide a geometric lock.[2,3] thus decreasing incidence of screw loosening.[4]

These screw access holes will also interfere with protrusive and lateral excursions and, therefore, anterior guidance may be compromised.[5] The primary advantage of a screw-retained superstructure is the lower profile retention of the abutment system[6]

In Cement-retained implant-borne restorations offer several advantages, including the elimination of unesthetic screw access holes and greater resistance toporcelain fracture. In this case the cement retained was used in the anterior restoration for eliminating the unesthetic screw holes. Standard crown & bridge procedures can also be used in most situations. However, excess cement left behind inadvertently is a major problem and can result in soft tissue damage, bone loss and/or chronic inflammation.[7]Inscrew-retained implant crowns the soft tissue was found to be healthier than soft tissue surrounding cemented restorations.

A cemented implant crown restoration was used in this case to maximize esthetics, These cemented implant crown costs considerably low because of lower laboratory fees and fewer components, and appointments are needed to restore a cement-retained crown. Whereas screw retained has more components and needs more time and visits for patients, cost effective than cement retained. It has the disadvantage in case of retrievability, which leads to fracture of the crown.

CONCULSION

Many dental professionals would conclude that cement-retained crowns are finer for esthetics and occlusion; similarly, manywould conclude that screw-retained crowns are a necessity for multiple units requiring retrievability.[8,9] Individual philosophy plays a huge role, however, and deciding which crown to use is best done on a case-by-case basis.[10] The success rate of cement- and screw retained implant-supported restorations were evaluated in several studies[11,12–14]

The case studies are representative of the decision-making process when choosing cement- or screw-retained implant prosthesis. The first case could have been restored either way successfully, but the ultimate decision for a cement-retained crown was made due to the patient's desire to have the most esthetic crown possible. It was imperative that the second case be screw-retained for adequate retention and ease of retrievability.

The screw-retained versus a cement-retained crown is a complex decision for patients but in this case we have included both for better treatment, as each of the prosthesis has their own advantages and disadvantages, in this case we have given the best prosthesis for the patient which is very convenient and esthetically acceptable (**fig 9**).

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