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RESEARCH ARTICLE

COMPARISION OF BASAL AND CRESTAL IMPLANTS AND THEIR MODUS OF APPLICATION

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ABSTRACT

Aim: To evaluate the success rate of BCS implants and conventional implants in maxilla and mandible after extraction. **Patients and Methods:** A clinical study was conducted on the patients who wanted replacement of missing teeth with implants from the year 2015 to 2017. 20 patients are selected and distributed into Group A (10 pateints with Basal implants (BCS) and Group B (10 patients with conventional crestal implants). **Results:** bone level was good in basal implant group when compared to the conventional group. Also there was no need of bone augmentation procedures in basal implant group and stime taken for giving prosthesis is less in basal implant group. **Conclusion:** The technique of basal implantology solves all problems associated with conventional (crestal) implantology. It is a patient oriented therapy, which meets the demands of the patients ideally.

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INTRODUCTION

Modern dentistry aims at restoring tooth loss of the patient to normal contour, function, esthetics, speech, and health (Branemark, 1983). When extractions are performed, no heed has been given to alveolar ridge maintenance. These missing teeth are traditionally replaced by dentures or bridges. This tradition has been replaced by introducing implants which revolutionised dentistry by replacing partially and completely edentulous patients to function and esthetic appearance comparable to dentate state (Comparison of Basal and Crestal Implantsand Their Modus of Application, 2009). Crestal and basal implants are endosseous aids to create osseointegrated points of retention or fixed or removable dentures. These two types of implants are not only differentiated by the way they are inserted and by the way forces are transmitted. crestal implants enjoy a high degree of success, their success is reduced in cases where bone augmentation procedures become part of the treatment. These augmentation procedures not only increase the overall costs of dental implant treatment but also the number of necessary operations (Yadav, 2015).

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Basal implants on the other hand , were developed additionally and primarily or immediate use as well as for use in the atrophied jawbone. They can also be applied wherever little vertical bone is present, while the supply of horizontal bone is still sufficient, even if these quantities are not contiguous such as in the sinus region (Yadav, 2015). Restoration of moderate to severely atrophic jaws with conventional implants requires extensive surgical procedures that is expensive, involves a great deal of post-operative discomfort, and does not assure success of the procedure done and the rehabilitation intended. In such scenarios that require such procedures, basal implants come to the rescue. Basal implants are specifically designed to allow fixed rehabilitation in severely atrophic jaws and several designs of these implants exist today that have made basal implantology flexible enough to accommodate any situation. Conventional implants pose many problems when exposure of threads is seen in cervical third, resulting in high failure rates. To evaluate this in our study we have compared the success rate of conventional and BCS implants. Crestal implants are inserted vertically from the crest of the alveolar ridge also called axial implants. Basal implants are inserted laterally. These basal implants are synonymously called lateral implants or disk implants (Amol Beldar, 2013).

Patients and Methods: A clinical study was conducted in the Department of Oral and Maxillofacial Surgery, Meghna Institute of Dental Sciences, Nizamabad , Telangana during 2015 to 2017.

Inclusion criteria

- Moderately to severely atrophic jaw
- Patients who needs immediate loading
- Vertically and horizontally fractured teeth
- Teeth lost due to non restorable caries
- Periodontal disease
- Endodontic failure

Exclusion criteria

- Following patients will be excluded from the study
- Presence of any local / systemic fracture that will inhibit wound healing, acute infection and major chronic pathologies such as cysts and tumors
- Patients below 18 yrs age and above 70yrs age
- Thin width of alveolar bone
- Patients on medication (e.g: patients on bisphosphanates).

Fig. 1. Basal implant kit

Study sample: 20 patients are slected according to inclusion criteria and distributed into Group A (10 pateints with Basal implants (BCS) and Group B (10 patients with conventional crestal implants)

Surgical procedure: The surgical procedure was done under local anesthesia using 2% Lignocaine hydrochloride with adrenaline (1: 80,000) under asceptic conditions.

A preoperative chlorhexidine mouth wash was recommended. After administration of local anesthesia crevicular incision was given to expose the surgical site. Releasing incisions were made based upon the accessibility required so that it can be either a triangular or trapezoidal flap. After flap was raised , the tooth was extracted atraumatically using periotomes . After tooth requiring immediate replacement was extracted using sequential drills the socket was enlarged adequate enough for placement of implant in place of that particular missing tooth. Patients were reviewed after one month, three months, six months for evaluation.

- Pain
- Peri-implantitis/ Gingival inflammation
- Mobility of the implant/ implant stability
- Peri-implant radiolucency/ bone loss
- Time of prosthesis given
- Patient compliance.

Basal implant group:

Preoperative intraoral picture

Extraction Socket

Implant placed

Final crown placement

RESULTS

A prospective study on twenty patients who were suitable for implant placement were randomly selected between the age 18- 70 yrs and grouped into 2 groups as group A (Basal implants) and group B (conventional crestal impants). Among the 20 patients, in group A; 20% were females, 80% were males. In group B; 50% were females, 50% were males.

	Group A	Group B	p value
pain	3.6	4	0.0317
Gingival inflammation	1	0	0.025
mobility	1	0	0.025
Peri-implant radiolucency	1	0	0.025
Bone level on mesial aspect	0.59± 0.29	0.85± 0.6	0
Bone level on distal aspect	0.55±0.27	0.77±0.51	0

Time of prosthesis given: Temporary or permanent prosthesis is given compared in both the groups at immediate post-op (within one week), or 1 month, 3rd month, 6 months were evaluated and compared.

Time of prosthesis given	Group –A	Group –B
Immediate post operative	Within 1 week	-
1 month	-	-
3 months	-	-
6 months	-	At 6 months

Patient compliance: Patient compliance was evaluated in 4 point Likert scale at immediate postoperative, 1 month, 3 months, 6 months and compared in both groups.

	Immediate postoperative (mean)	1 month (mean)	3 months (mean)	6 months (mean)
Group A	1.5	1.2	1.5	1.4
Group B	2.2	2.2	2.2	2.4

DISCUSSION

Implant dentistry if to be considered as a main treatment objective have to satisfy functional and esthetic demands. Various methods are available to evaluate the primary stability of implants which include non invasive clinical torque methods like insertion torque, vibration methods, and invasive research torque methods like removal torque. In our study insertion torque method has been adopted for evaluating primary stability of implants. The correlation between initial torque and primary stability has been endorsed by various studies in literature. Several subjects have shown that no statistically important difference exists between insertion torque and radio frequency analysis. At present insertion torque is widely adopted by various researchers for primary stability. Ottoni *et al* in his study has proved that a minimum of 20Ncm is required for the primary stability of implant (Amol Beldar, 2013). In our work with conventional system of implants an average torque of 31.2 ± 2.09 Ncm was achieved whose value was confirmed by several researchers in their experimentations. All the same in case of BCS system this value is on higher side whose value is 32.2 ± 2.4 cm which suggests that higher values are easily achievable in the case of single piece implants when compared to conventional two piece implants leading to greater initial stability. This further cut down the complications like implant mobility and failure during the conversion phase of primary stability to secondary stability. In case of BCS implants which has threads at the apical half of root of implant, higher amount of primary stability is achieved which is contrary to that of conventional systems where threads are present over entire implant, but still lesser values are achieved which suggest that the number of threads play at least significant role in achieving primary stability. Implant mobility is another sign of implant failure, which can be assessed clinically. A healthy implant may elicit less than 75µm of mobility. The initial bone loss takes place in the cervical third of the implant followed by progression in apical third. Mobility can be elicited only after loss of osseointegration at the apical third (Stephen *et al*., 2014). Schnitman and schullman in 1979 proposed that successful osseointegration of implant can be determined when mobility of less than 1 mm is present in any direction. In our study one implant in conventional system had a mobility of greater than 1 mm after 1month of placement which eventually led to implant failure. Infection followed by loss of secondary stability is considered to be the basic cause for this mobility of the implant. Still, in case of implants in BCS group none of the events are reported leading to 100% success rates in these implants.

In our field where we used conventional implants (group A) certain drawbacks are seen when compared to BCS implants (group B). On comparing the success rate of these two groups, group A has yielded inferior results compared to group B. Multiple components in group A has resulted in spread of infection around the implant resulting in peri implant radiolucency and ultimately loss of implant leading to 90% success rate. Withal, in group B as single component is present no such problems arise yielding 100% success rate. These values are somewhat higher than the survey done by Collaert *et al* who attained results of 95.1% and 87.8% using one slice and two piece implants in partially edentulous ridges. The reason for the failures has been attributed to the presence of heavy smokers, leading to poor initial stability and also due to bruxism. The amount of marginal bone loss in group A is less when compared to that of group B. However, no significant dispute is understood between the two groups at the end of 1 year. This reflection is similar to study conducted by Marco *et al* where they have attained similar results. Nevertheless, our baseline levels of bone also show no important difference when compared to study of Marco *et al* where they have achieved significant difference at baseline levels. Considering others factors also like the number of surgeries carried out for each implant as well as complexity in the number of components of the implants, one stage procedure occupies superior position to two stage procedures especially in the maxillary anterior region. This survey was conducted on a limited sample size. Hence studies on a larger sample size for long periods of follow up time have to be promoted to produce more authentic outcomes

REFERENCES

Amol Beldar, Manohar L. Bhongade. Early Loading of Single-Piece Implant for Partially Edentulous Posterior Arch: A Prospective One-Year Case Report Hindawi Publishing Corporation Case Reports in Dentistry Volume 2013.

Branemark. 1983. Osseointegration and its experimental background September Volume 50, Issue 3, Pages 399–410.

Comparison of Basal and Crestal Implantsand Their Modus of Application., Stephen Ihde., smile line dental journal, volume 4, Issue 1-2009

Geman and European Standard: DIN EN 31902-1

Stephen T. Chen, Daniel Buser. 2014. Esthetic Outcomes Following Immediate and Early Implant Placement in the Anterior Maxilla—A Systematic Review The International Journal of Oral and Maxillofacial Implants, Volume 29, Supplement.

Yadav RS. 2015. An Alternative to Conventional Dental Implants: Basal Implants. *Rama Univ J Dent Sci.,* June;2(2):22-28.

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