

A Study on Dental Implants: Success Rate and Associated Complications

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ABSTRACT

Background: Background: Most of the people opt of substitution of the lost tooth in order that mastication and esthetics are not compromised. Choices in prosthodontics for replacement of a lost single tooth include the use of removable partial denture, and full bridge and fiber reinforced bridges. The present study was aimed at throwing light on the complication rate of the dental implants.

Materials and methods: The present retrospective observational study was conducted in the Department of Prosthodontics for a period of 1 year. Drilling for implant placement was done under copious irrigation so that trauma to bone is minimized. The demographics of all the subjects were noted with information on the habits and the knowledge about oral hygiene practices. All the subjects were closely followed at 7 days, 1 month and 3-month interval. All the data was arranged in a tabulated form and analyzed using SPSS software. Data was expressed as percentage.

Results: The present study enrolled 50 subjects between the age group of 30-50 years. The mean age of the subjects was 32.78+/-3.65 years. Six implants were placed in 40% (n=20) subjects. Seven implants were placed in 4% (n=2) subjects. There were 6%(n=3) cases of ulcer. There were 2% (n=1) cases of prosthetic base fracture.

Conclusion: Implants are widely used for the replacement of missing teeth, but the use of implants has its own pros and cons. The most commonly associated complication in our study was mucositis.

Keywords: Implant, Mucositis, Periimplantitis.

INTRODUCTION

Basic knowledge about the pattern of loss of teeth amongst the subjects is crucial to determine the quality of dental treatment that can be provided and it is seen to vary geographically and according to the age. It also varies socially worldwide. ¹ Studies have indicated that dental caries and periodontal diseases are most common cause behind tooth extraction. Most of the people opt of substitution of the lost tooth in order that mastication and

esthetics are not compromised. ^{2,3} If the tooth is not replaced and the alveolar bone is not preserved, it starts resorbing and resorption of the bone that occurs after extraction can hinder the placement of implant at various sites especially in the anterior region of mandible. ⁴ This is seen typically in those cases where there has been an edentulous period for a long duration of time and bone was lost due to trauma. Therefore, in order to place dental implants in such patients, bone grafting procedures are

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required for optimum osseointegration. Choices in prosthodontics for replacement of a lost single tooth include the use of removable partial denture, and full bridge, and tar reinforced bridges.^{5,6} Surgical changes can be done to provide an area for elective support and retention for the dental implants in a region where their placement is critical. The present study was aimed at throwing light on the complication rate of the dental implants.

MATERIALS AND METHODS

The present retrospective observational study was conducted in the Department of Prosthodontics for a period of 1 year. The study enrolled subjects between 30- 50 years of age who were healthy belonging to ASA grade I or II category. The subjects with any contraindication to surgery or any bone disorder like osteoporosis were excluded from the study. Patients with ASA grade III or IV class were also not included. Ethical committee clearance was obtained from the institutional ethical board and the subjects were informed about the study and a written consent was obtained from all in their vernacular language. The placement of implant was done by single experienced dentist so that error or discrepancy at the operator end could be avoided. The implants were placed under local anesthesia. Drilling for implant placement was done under copious irrigation so that trauma to bone is minimized. The demographics of all the subjects were noted with information on the habits and the knowledge about oral hygiene practices. Regular follow up was done at an interval of 1 week, 1 month and 3 months. Patients were made to inform about any complaint that they faced after the placement of implant. All the subjects were closely followed at 7 days, 1 month and 3 month interval. All the data was arranged in a tabulated form and analyzed using SPSS software. Data was expressed as percentage.

RESULTS

The present study enrolled 50 subjects between the age group of 30-50 years. The mean age of the subjects was 32.78+/-3.65 years. There were majority of males in the study group.

Table 1 shows the frequency of implants placed. Four implants were placed in 34% (n=17) subjects. Five implants were placed in 18% (n=9) subjects.

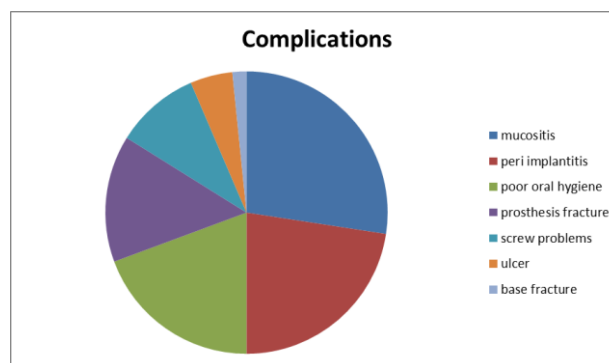
Six implants were placed in 40% (n=20) subjects. Seven implants were placed in 4% (n=2) subjects. Eight implants were placed in 4% (n=2) subjects.

Table 1: Frequency of implants placed

Number of implants	Frequency of cases	Percentage
Four	17	34%
Five	9	18%
Six	20	40%
Seven	2	4%
Eight	2	4%
Total	50	100%

Table 2: Frequency of complications

Complications	Frequency	Percentage
Mucositis	17	34%
Peri-implantitis	14	28%
Difficulty in maintaining oral hygiene	12	24%
Fracture of prosthesis	9	18%
Screw problems	6	12%
Ulcer	3	6%
Prosthetic base fracture	1	2%



Graph 1: Frequency of complications.

Table 2 shows the frequency of complications associated with implant placement. There were 34% (n=17) cases of mucositis. There were 28% (n=14) cases of periimplantitis. There were 6%(n=3) cases of ulcer. There were 2% (n=1) cases of prosthetic base fracture. There were 12% (n=6) cases of screw problems. There were 18% (n=9) cases of prosthesis fracture.

DISCUSSION

There are various methods and terminologies in literature for the accidents and complications;

therefore a descriptive criterion should be described that could be used universally irrespective of the different single studies. A variety of studies have been conducted focussing on the success and complications of implant supported fixed partial dentures. Survival rates of 10 years have been seen for single unit and multiple unit implant fixed partial dentures.^{7,8} With a large evidence available, implant supported dentures are characterised as a firm treatment with equifocal follow up period but this doesn't make them free of adverse reactions.^{9,10} In today's era dental implants are widely becoming a choice of treatment for replacing missing teeth, but the problems associated with them are continuously increasing.¹⁰ In our study, there were 34% (n=17) cases of mucositis. There were 28% (n=14) cases of periimplantitis. There were 6% (n=3) cases of ulcer. There were 2% (n=1) cases of prosthetic base fracture. There were 12% (n=6) cases of screw problems. There were 18% (n=9) cases of prosthesis fracture. Commonly seen complications with dental implant placement are fracture, infection risk, lack of osseointegration etc that can lead to implant failure. Infections occurring during the first few postoperative days are characterized by edema, fluid accumulation and pain. The infection incidence occurs due to bacterial contamination that can occur either directly or due to accidental contact of implant with hands. Adopting proper aseptic environment can reduce the incidence of infection.^{11,12} A retrospective study by Scharf and Tarnow¹³ comparing 273 implants that were placed under "aseptic" conditions and 113 implants that were placed under "clean" conditions. The results showed no significant differences in the success rate between the two groups. Another complication that can cause implant failure is lack of osseointegration. It is generally diagnosed during phase II of surgery when the implant is at loaded. The main causes for lack of osseointegration are decreased healing capacity of bone, early loading, and technical faults while performing surgery like accidental contact of implants leading to contamination¹⁴⁻¹⁶, and overheating of bone during drilling for implant site preparation. The drawbacks associated with our study included small sample size and short duration of follow up.

CONCLUSION

The main aim towards replacing missing teeth is establishing the esthetics and masticatory function. The establishment of form of occlusion is necessary. Implants are widely used for the replacement of missing teeth, but the use of implants has its own pros and cons. The most commonly associated complication in our study was mucositis.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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