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Original Research

Prosthetic Complications in Dental Implants- A Clinical Study

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ABSTRACT:

Background: Complications and failures in dental practice are possible. The mere knowledge of the technique of implant treatment is not sufficient to eliminate all problems. The present study was conducted to assess prosthetic complications of dental implants. **Materials & Methods:** The present retrospective study was conducted on 110 patients who received dental implants of both genders. Type of complications was recorded. **Results:** Out of 110 patients, males were 60 and females were 55. Prosthetic complications associated with dental implants were abutment loosening in 5 cases, abutment fracture in 4 cases, prosthesis screw loosening in 8 cases, prosthesis debonding in 2 cases and ceramic veneer fracture in 9 cases. The difference was significant ($P < 0.05$). **Conclusion:** Authors found that common complication were abutment loosening, abutment fracture, prosthesis screw loosening, prosthesis debonding and ceramic veneer fracture.

Key words: Ceramic veneer fracture, Dental implant, Prosthesis debonding.

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INTRODUCTION

Complications and failures in dental practice are possible. The mere knowledge of the technique of implant treatment is not sufficient to eliminate all problems. The clinical effectiveness of the osseointegration concept introduced by Brånemark and colleagues in the 1960s has revolutionized the clinical practice of dentistry.¹ Dental implants are now the preferred line of treatment for the replacement of missing teeth. Additionally, implant-supported full-mouth prosthesis are a good treatment option for patients who are completely edentulous, achieving a comprehensive and 2 functional oral rehabilitation.²

The failure of dental implants is due not only to biological factors, such as unsuccessful osseointegration or the presence of peri-implantitis, but they also result from technical complications that involve implant body/fixture fracture, abutment screw fracture, abutment fracture, fractured prosthesis, etc.³

The failure of an implant as a single entity, irrespective of its components, may be classified as early or late. Early failures occur shortly after surgery and are characterized by the lack of osseointegration.⁴ In contrast, late failures correspond to those implants that have been regarded as successful for some time, and they occur after prosthetic restoration has been made. There are two main causes for late implant fracture.

Mechanical problems, including fractures— Metal fatigue, due to biomechanical overloading, appears to be the most frequent cause. Loss of supporting tissue secondary to infection or peri-implantitis— The prevalence of peri-implantitis is estimated to be 4-15% among the surviving implant population.⁵ The present study was conducted to assess prosthetic complications of dental implants.

MATERIALS & METHODS

The present retrospective study was conducted in the Department of Prosthodontics, Crown & Bridge including implantology, Sibar Institute of Dental

Sciences, Guntur, Andhra Pradesh, India. It comprised of 110 patients who received dental implants of both genders. Ethical approval from institutional ethical committee was obtained. All were informed regarding the study and written consent was obtained.

Data such as name, age, gender etc. was recorded. A through clinical examination was done in each case on regular recall basis. Type of complications was recorded. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 110		
Gender	Males	Females
Number	60	55

Table I, graph I shows that out of 110 patients, males were 60 and females were 55.

Graph I Distribution of patients

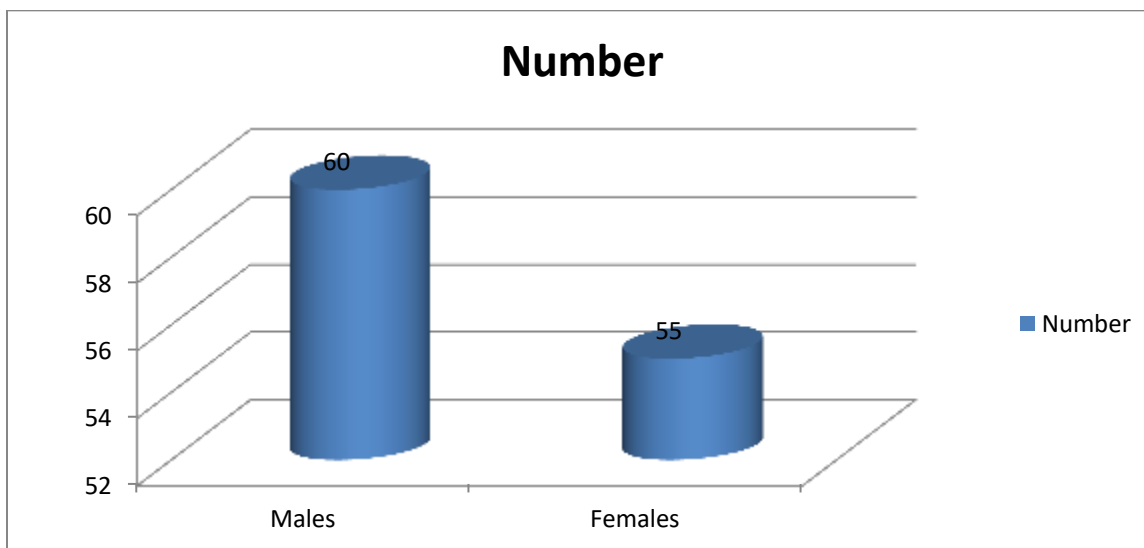
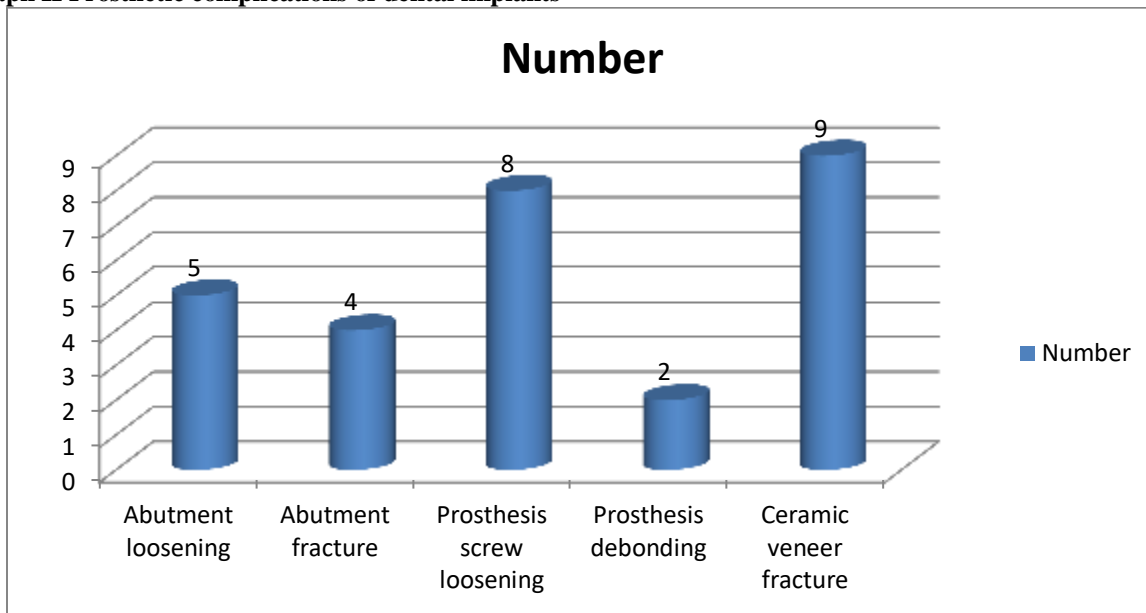


Table II Prosthetic complications of dental implants

Complications	Number	P value
Abutment loosening	5	0.02
Abutment fracture	4	
Prosthesis screw loosening	8	
Prosthesis debonding	2	
Ceramic veneer fracture	9	

Table II, graph II shows that prosthetic complications associated with dental implants were abutment loosening in 5 cases, abutment fracture in 4 cases, prosthesis screw loosening in 8 cases, prosthesis debonding in 2 cases and ceramic veneer fracture in 9 cases. The difference was significant (P< 0.05).

Graph II Prosthetic complications of dental implants



DISCUSSION

Dental implants are now the preferred line of treatment for the replacement of missing teeth. Additionally, implant-supported full-mouth prosthesis are a good treatment option for patients who are completely edentulous, achieving a comprehensive and functional oral rehabilitation. Implant failures are categorized as primary, when the body is unable to establish osseointegration, or secondary, when the body is unable to maintain the achieved osseointegration and a breakdown process results. The process of osseointegration between the host's bone tissue and the implant is the key to the success of the implant.⁶ The present study was conducted to assess prosthetic complications of dental implants.

In present study, out of 110 patients, males were 60 and females were 55. Sharma et al⁷ classified complications into inflammatory, prosthetic, operative, and major or minor categories. Cox proportional hazards regression models were developed to identify risk factors for complications. The sample was composed of 80 patients. The overall frequency of implant complications was (inflammatory, operative and 3.75% prosthetic), of which were major. The multivariate Cox model revealed that smoking, use of 1-stage implants, reconstructive procedures & placement of dental implant in maxilla were statistically associated with an increased risk for overall complications.

We found that prosthetic complications associated with dental implants were abutment loosening in 5 cases, abutment fracture in 4 cases, prosthesis screw loosening in 8 cases, prosthesis debonding in 2 cases and ceramic veneer fracture in 9 cases. Nancy E. McDermott et al⁸ received Bicon implants (Bicon, Boston, MA) between

1992 and 2000. The overall frequency of implant complications was 13.9% (10.2% inflammatory, 2.7% prosthetic, 1.0% operative).The present study showed the overall frequency of implant complications occurring after placement of Dental implants was 35% (22.5% inflammatory, 8.75% operative, 3.75% prosthetic). In inflammatory complications, maximum complications were peri-implantitis (10%), followed by impaired wound healing (6.25%), mobility (5%) and pain (1.25%).

Bhagat et al⁹ in their study included a total of 40 subjects. The dental implants were placed by single experienced surgeon so that the surgeon's effect on the rate of complications is minimised. The mean age of the study was 28.34+/- 4.33 years. The study involved 27 males and 13 females. There were 32.5% (n=13) patients in whom 4 implants were placed. In 20% subjects 5 implants were placed. Mucositis were seen in 20% (n=12) subjects. Peri implantitis was seen in 22.5% (n=9) subjects. There were 20% subjects with poor oral hygiene. Crown fracture was seen in 20% (n=8) subjects.

Gallucci GO et al¹⁰ conducted a multicentre prospective study to evaluate the 5 year survival rate and success associated with the use of mandibular implant supported prosthesis. The parameters that were evaluated were Sulcus bleeding index (SBI) at four sites per implant, width of facial and lingual keratinized gingival (mm), peri-implant mucosal level, modified plaque index, mobility and peri-implant radiolucency.

CONCLUSION

Authors found that common complication were abutment loosening, abutment fracture, prosthesis screw

loosening, prosthesis debonding and ceramic veneer fracture.

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