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Original Research

Evaluation of Prosthetic complications of dental implants

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***ABSTRACT*:**
Background: both single crown implants and implant-supported fixed partial dentures (FPDs) are the available options. The present study was conducted to assess prosthetic complications of dental implants. **Materials & Methods:** 144 dental implants in 95 patients of both genders were recorded. The type of dental implant, location, number, complications arising from prosthetic portion of dental implants was recorded. **Results:** 55 males had 80 and 40 females had 64 dental implants. The common complications were loose abutment in 3, fracture abutment in 2, veneer porcelain fracture in 4, screw fracture in 1 and prosthesis framework fracture in 2 cases. The difference was significant (P< 0.05). **Conclusion:** Common complications were loose abutment, fracture abutment, veneer porcelain fracture, screw fracture and prosthesis framework fracture.
Key words: Dental implant, Screw fracture, Prosthetic

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INTRODUCTION

Knowing the outline of tooth loss in a population helps in assessing the quality of dental health care being provided, which varies geographically and culturally between countries. Research showed that dental caries and periodontal diseases are frequent reasons for tooth extraction.[1]

Once a tooth is lost, an person may seek its replacement so that his/her function and esthetics could be restored. Clinical prosthodontics, during the last few years, has significantly enhanced and developed according to the advancements in the science and patient's demands and needs. Conventional options in prosthodontics for replacing a missing single tooth include the removable partial denture, partial and full coverage bridgework, and resin-bonded bridgework.[2]

Nowadays, both single crown implants and implant-supported fixed partial dentures (FPDs) are the available alternatives. The basis for dental implants is osseointegration, where osteoblasts grow and directly integrate with the titanium surface of the implants surgically placed inside the alveolar bone. Dental implants have achieved wide popularity over the years as they are capable of restoring the function to near normal in both partial and completely edentulous arches.[3] Though, osseointegrated implants are routinely used for the rehabilitation of partially or totally edentulous patients, presenting high long-term survival

rates; biological and technical complications may result in implant failure and loss.[4] Implant failures have been reported in frequencies varying from 1% up to 22%. It is found that patient systemic status, age and social habits, implant macro-/microdesign and surface chemical composition, implant position, bone quality, and surgical technique are few factors affecting implant success rate.[5] The present study was conducted to assess prosthetic complications of dental implants.

MATERIALS & METHODS

The present study was conducted among 144 dental implants in 95 patients of both genders. All patients received dental implants in last 7 years. They were informed regarding the study and written consent was obtained. Information regarding name, age, gender etc. was obtained from case history file. The type of dental implant, location, number, complications arising from prosthetic portion of dental implants was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Gender	Number	Implant
Male	55	80
Female	40	64

Table I, graph I shows that 55 males had 80 and 40 females had 64 dental implants.

Graph I Distribution of patients

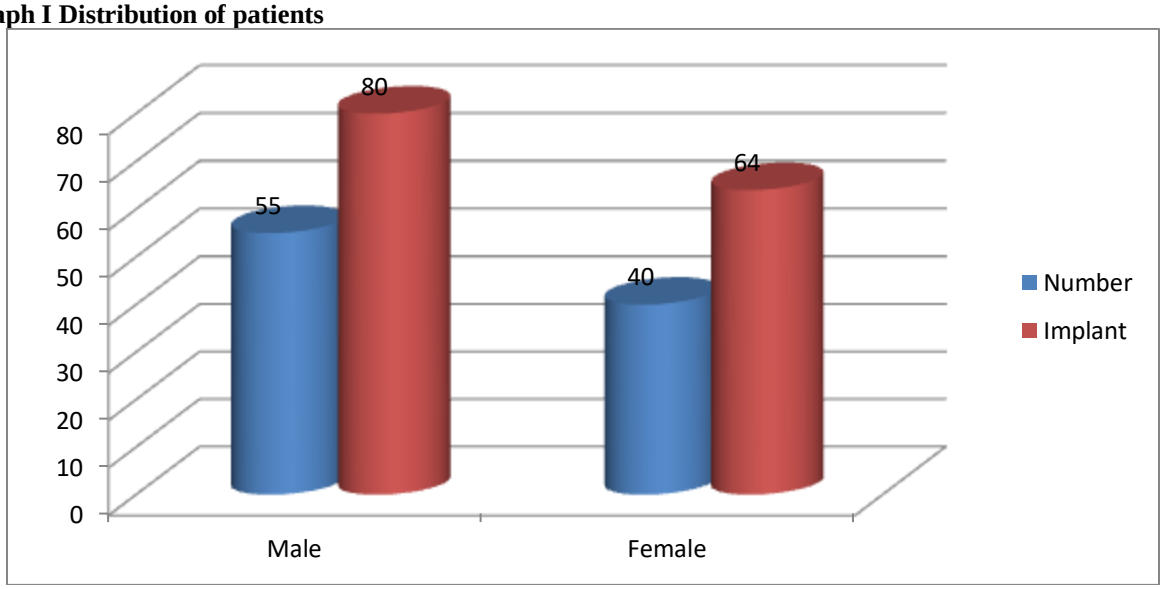
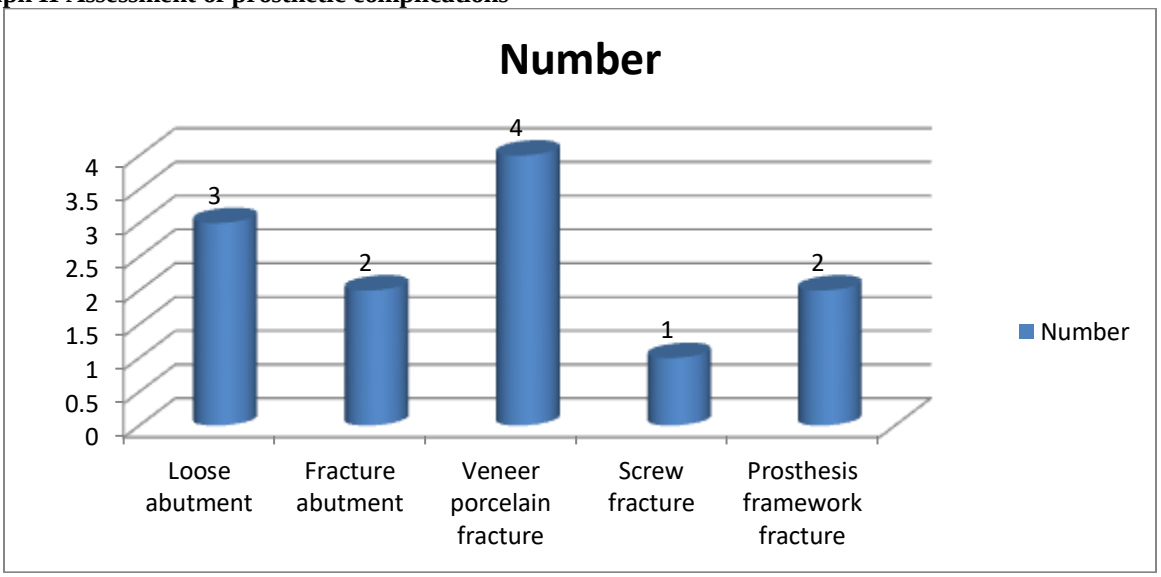


Table II Assessment of prosthetic complications

Complications	Number	P value
Loose abutment	3	0.04
Fracture abutment	2	
Veneer porcelain fracture	4	
Screw fracture	1	
Prosthesis framework fracture	2	

Table II, graph II shows that common complications were loose abutment in 3, fracture abutment in 2, veneer porcelain fracture in 4, screw fracture in 1 and prosthesis framework fracture in 2 cases. The difference was significant (P< 0.05).

Graph II Assessment of prosthetic complications



DISCUSSION

Numerous researches have been conducted on the survival and complication rates of FPDs supported by implants. Good survival rates of up to 10 years have been reported for both single-unit and multiple-unit implant-supported FPDs. It is acceptable that fixed implant-supported prostheses are fully acknowledged as a better treatment option for the replacement of single or multiple missing teeth nowadays.[6] However, the survival rates generally refer to the prosthesis that continued its clinical service during definite follow-up period and this does not necessarily render them free of complications.[7] The present study was conducted to assess prosthetic complications of dental implants.

In present study, 55 males had 80 and 40 females had 64 dental implants. Janapala et al[8] included 86 patients who received dental implants in last 10 years of both genders. Complications arising from prosthetic portion of dental implants were recorded. Out of 86 patients, males were 46 and females were 40. Males comprised of 58 and females 42 dental implants. Prosthetic complications were abutment fractured in 2, loose abutment in 4, fracture of veneering porcelain in 5, prosthesis framework fracture in 1 and screw fracture in 3 patients. The difference was significant (P< 0.05).

We observed that common complications were loose abutment in 3, fracture abutment in 2, veneer porcelain fracture in 4, screw fracture in 1 and prosthesis framework fracture in 2 cases. During the past 2 decades, one of the major interests in implant research has been the success and/or failure of implants from a biological point of view. More recently, implant research has focused on factors affecting prosthetic outcomes and patient satisfaction with treatment. Failures in implants can be divided into early failure and late failure according to failure time.[9] First, early failure is one that failed osseointegration within several weeks or several months. It was due to bone necrosis, surgical trauma, bacterial infection, inadequate initial stability and early occlusal loading. Late failure is failure that turns up after functional loading of several period of time. It takes place because of infection and excessive loading. There are many difficulties to figure out the cause of implant success and failure because it is affected by many various factors.[10]

Goodacre et al[11] found abutment screw loosening (both screw and cement-retained crowns): 262 of 7,648 crowns (3%), implant fracture: 13 of 438 implants (3%), porcelain veneer fracture/chipping: 177 of 7,245 crowns (2%), loss of retention (decementation of cemented crowns): 161 of 7,683 crowns (2%), open proximal contacts: 94 of 4,846 crowns (2%), crown remakes: 38 of 5,471 crowns (0.7%).

Screw/implant fracture can be due to two major causes of implant fracture: biomechanical overloading and peri-implant vertical bone loss. The risk of implant fracture increases multifold when the vertical bone loss is severe enough to concur with the apical limit of the screw. Implant fractures are also attributable to flaws in the designs and manufacturing of implant itself. Unnoticed and recurrent screw loosening is a risk factor for dental implant fracture, which indicates change in the prosthesis design.[12]

The shortcoming of the study is small sample size and short follow up.

CONCLUSION

Authors observed that common complications were loose abutment, fracture abutment, veneer porcelain fracture, screw fracture and prosthesis framework fracture.

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