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## Surgical Implant Failure and Its Prosthetic Complications

Dr. Aashish Kemmu<sup>1</sup>, Dr. Satish Patil<sup>2</sup>, Dr. Rajesh Prasad<sup>3</sup>, Dr. Akanksha Anand<sup>4</sup>, Dr. Shubham Chelkar<sup>5</sup>, Dr. Sudhanshu Kamboj<sup>6</sup>

<sup>1</sup>Oral and maxillofacial surgeon, Private consultant, Ahmedabad Gujarat.

<sup>2</sup>Reader, Dept of prosthodontics n implantology, Al badar rural dental college and hospital,kotnoor kalburgi

<sup>3</sup>M. O. Dental, Community health centre, nawadih, bokaro, jharkhand

<sup>4</sup>MDS prosthodontist, Reader, Pacific dental college and hospital, Udaipur,Rajasthan

<sup>5</sup>Se. Lecturer ( prosthodontics), Triveni institute of dental sciences hospital &research centre

<sup>6</sup>Reader,department of prosthodontics, JCD dental college, Sirsa

### Corresponding Author

Dr. Aashish kemmu, Oral and maxillofacial surgeon, Private consultant, Ahmedabad Gujarat.

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#### KEYWORDS

Dental implant, prosthetic complications, surgery.

#### ABSTRACT:

**Background:** This study was conducted to assess the prosthetic complications of surgical implant failure.

**Material and methods:** This study comprised of 30 subjects who underwent implant surgery. The subjects had been informed about the procedure and had been asked to give consent. The subjects who gave consent and those who were fit to undergo implant treatment had been included in the study. The subjects who did not give consent had been excluded from the study. The subjects reported with several complications which were examined by the dentist. Statistical analysis was conducted using SPSS software.

**Results:** In this study, there were 30 subjects of which 17 were male and 13 were female. In this study, loss of retention was seen in 8 cases, implant fracture was seen in 4 subjects and screw loosening was seen in 1 patient. There were total 13 prosthetic complications of implant surgery.

**Conclusion:** Prosthetic complications after implant surgery are common. Some complications in this study were loss of retention, fracture of the implant and screw loosening.

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### Introduction

Missing teeth can either be replaced by fixed or by removable implant-supported prostheses. The clinical decision between the two differing types of restorations is based on anatomic, esthetic, and economic factors, and most importantly the wishes of the patient. High survival rates and low complication rates of the prostheses are an

important prerequisite for the general success of treatment, as failures of the prosthesis may result in failures of the entire implant rehabilitation. One of the most important strategies to reduce the risk of failure is a comprehensive pretreatment diagnostic work-up followed by the decision to fabricate either a fixed or a removable implant prosthesis. According to the prosthetic plan the number of implants should be defined,



as well as their ideal three-dimensional prosthetic positions in the mesio-distal, bucco-oral, and vertical dimensions.<sup>1</sup>

In the case of single tooth gaps or partially edentulous areas framed by healthy neighboring teeth, fixed implant prostheses are usually indicated, and the decision-making process is straightforward. In edentulous situations, however, the choice of fixed or removable implant prostheses is more complex. A major driver of the decision is facial esthetics (ie, the need for facial tissue support). If both fixed and removable prostheses may be considered, the next factor influencing the selection is the complexity of the surgical interventions required. With pronounced horizontal and/or vertical bone loss, large amounts of hard and soft tissue regeneration may be needed for fixed implant prostheses. Hence, in cases where there is a need for facial tissue support or large bone and/or soft tissue augmentations, removable implant-retained prostheses such as implant-retained overdentures are less invasive treatment options.<sup>2,3</sup>

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### Material and methods

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### Results

**Table 1: Gender-wise distribution of subjects**

Gender	Number of subjects	Percentage
Males	17	17
Females	13	13
Total	30	30

In this study, there were 30 subjects of which 17 were male and 13 were female.

**Table 2: Prosthetic complications of implant therapy**

Prosthetic complications	Number of cases	Percentage
Loss of retention	8	61.5
Implant fracture	4	30.7
Screw loosening	1	7.6
Total	13	99.8

In this study, loss of retention was seen in 8 cases, implant fracture was seen in 4 subjects and screw loosening was seen in 1 patient. There were total 13 prosthetic complications of implant surgery.

### Discussion

Understanding the pattern of tooth loss in a population helps in determining the quality of dental health care being provided, which varies geographically and culturally between countries. Studies have demonstrated that dental caries and periodontal diseases are frequent reasons for tooth extraction.<sup>4-7</sup> In Pakistan, advanced dental caries (63.1%) followed by periodontitis (26.2%) are two major reasons for tooth loss.<sup>8</sup>

Once a tooth is lost, an individual may seek its replacement so that his/her function and esthetics could be restored. Clinical prosthodontics, during the past decade, has significantly improved and developed according to the advancements in the science and patient's demands and needs. Conventional options in prosthodontics for substituting a missing single tooth include the removable partial denture, partial and full coverage bridgework, and resin-bonded bridgework.

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**Goodacre CJ et al (2003)<sup>9</sup>** identified the types of complications that have been reported in conjunction with endosseous root form implants and associated implant prostheses. A Medline and an extensive hand search were performed on English-language publications beginning in 1981. The searches focused on publications that contained clinical data regarding success/failure/complications. The complications were divided into the following 6 categories: surgical, implant loss, bone loss, peri-implant soft tissue, mechanical, and esthetic/phonetic. The raw data were combined from multiple studies and means calculated to identify trends noted in the incidences of complications. The most common implant complications (those with a greater than a 15% incidence) were loosening of the overdenture retentive mechanism (33%), implant loss in irradiated maxillae (25%), hemorrhage-related complications (24%), resin veneer fracture with fixed partial dentures (22%), implant loss with maxillary overdentures (21%), overdentures needing to be relined (19%), implant loss in type IV bone (16%), and overdenture clip/attachment fracture (16%). It was not possible to calculate an overall complications incidence for implant prostheses because there were not multiple clinical studies that simultaneously evaluated all or most of the categories of complications. Although the implant data had to be obtained from different studies, they do indicate a trend toward a greater incidence of complications with implant prostheses than single crowns, fixed partial dentures, all-ceramic crowns, resin-bonded prostheses, and posts and cores.

**Goodacre BJ et al (2018)<sup>10</sup>** presented recent data regarding prosthetic complications with implant prostheses and crowns as well as compared this data with data presented in a 2003 publication. An electronic Medline (PubMed) with MeSH terms search was performed, focussing on clinical studies that reported data on prosthetic complications associated with implant fixed complete dentures, implant overdentures, implant fixed partial dentures, and implant single crowns. There were nine prosthetic complications reported with implant fixed complete dentures, 17 with implant overdentures, four with implant fixed partial dentures, and six with implant single crowns. The greatest number of complications and the largest incidence of percentages occurred with implant overdentures. The lowest incidence percentages were recorded for implant single

crowns. These findings are in agreement with the previous 2003 publication. It is of interest to note that some of the complications reported previously were not reported in this review, and some complications reported in this review were not listed in the 2003 publication, thereby limiting the number of direct comparisons between this paper and the earlier report. A surprising finding was that some complications associated with implant overdentures from the current data exceeded the incidence in 2003 (reactivation of the retentive attachment; mucosal hyperplasia; and the need for overdenture relines). Implant overdentures are associated with more complications than implant fixed complete dentures, implant fixed partial dentures, and implant single crowns. The lowest incidence of complications was reported with implant single crowns. The most common complication reported with implant fixed complete dentures was denture tooth fracture. The most common complication associated with implant overdentures was the need for adjustments. Porcelain veneer fracture/chipping was the most common complication identified in the studies of implant fixed partial dentures. The most common complication reported with implant single crowns was abutment screw loosening.

## Conclusion

Prosthetic complications after implant surgery are common. Some complications in this study were loss of retention, fracture of the implant and screw loosening.

## References

1. Buser D, Chappuis V, Belser UC, Chen S. Implant placement post extraction in esthetic single tooth sites: when immediate, when early, when late? *Periodontol 2000*. 2017; 73(1): 84-102.
2. Gallucci GO, Hamilton A, Zhou W, Buser D, Chen S. Implant placement and loading protocols in partially edentulous patients: a systematic review. *Clin Oral Implant Res*. 2018; 29(Suppl 16): 106-134.
3. Zitzmann NU, Marinello CP. A review of clinical and technical considerations for fixed and removable implant prostheses in the edentulous mandible. *Int J Prosthodont*. 2002; 15(1): 65-72



4. Murray H, Locker D, Kay EJ. Patterns of and reasons for tooth extractions in general dental practice in Ontario, Canada. *Community Dent Oral Epidemiol.* 1996;24:196–200.
5. Reich E, Hiller KA. Reasons for tooth extraction in the Western states of Germany. *Community Dent Oral Epidemiol.* 1993;21:379–83.
6. Ong G, Yeo JF, Bhole S. A survey of reasons for extraction of permanent teeth in Singapore. *Community Dent Oral Epidemiol.* 1996;24:124–7.
7. Angelillo IF, Nobile CG, Pavia M. Survey of reasons for extraction of permanent teeth in Italy. *Community Dent Oral Epidemiol.* 1996;24:336–40.
8. Haseeb M, Ali K, Munir MF. Causes of tooth extraction at a tertiary care centre in Pakistan. *J Pak Med Assoc.* 2012;62:812–5.
9. Charles J Goodacre, Guillermo Bernal, Kitichai Rungcharassaeng, Joseph Y.K Kan. Clinical complications with implants and implant prostheses. *The Journal of Prosthetic Dentistry.* 2003;90(2):121-132.
10. Goodacre BJ, Goodacre SE, Goodacre CJ. Prosthetic complications with implant prostheses (2001-2017). *Eur J Oral Implantol.* 2018;11 Suppl 1:S27-S36.