

ORIGINAL ARTICLE

Retrospective Evaluation of Various Complications Associated with Dental Implant Supported Over-Dentures

Aditi Sharma¹, Mamta Sharma², Randhir Singh³

¹Lecturer, ³Registrar, Department of Prosthodontics, ²Dental Surgeon, Department of Oral Medicine and Radiology, IGGDC, Jammu

ABSTRACT:

Introduction: An implant-supported overdenture (ISO) is a removable complete denture combined with implants designed to improve stability in the oral environment. Edentulous patients often do not get used to wear conventional dentures. Hence; we planned the present study to assess the complications associated with implant supported over dentures. **Materials & methods:** The present study included retrospective assessment of complications in patients rehabilitated with dental implant supported over-dentures. We completely analyzed data records of the departments and obtained data of all the patients who underwent prosthetic rehabilitation by dental implant supported over dentures in the past two years. A total of 30 patients were included in the present study. All the results were analyzed by SPSS software. **Conclusion:** Fewer complications are observed with artificial tooth fracture and denture fracture being the most common complication.

Key words: Artificial, Implant supported, Overdenture

Corresponding author: Dr. Aditi Sharma, Lecturer, Department of Prosthodontics, Department of Oral Medicine and Radiology, IGGDC, Jammu

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INTRODUCTION

An implant-supported overdenture (ISO) is a removable complete denture combined with implants designed to improve stability in the oral environment. Edentulous patients often do not get used to wear conventional dentures.¹⁻³ Their support is compromised by progressive bone reabsorption that will increase patients' instability, insecurity and discomfort. Overdentures constitute a predictable and secure therapeutic alternative affording a great patient's satisfaction due to simpler hygiene and good chewing efficiency.⁴ Overdenture use represents a cheaper treatment than fixed prostheses and, in some cases as those with lip support loss or with an interocclusal space larger than 15 mm, their use will prevent future aesthetic or phonetic problems. In the maxillary, implant divergent emergency, worse bone quality and the use of short implants due to anatomical limits as sinus, will condition the use of bar attachments. On the other hand, in the mandible, it will be easier to place parallel implants, thus we might use Locator or ball systems that will help to maintain a correct hygiene.⁵⁻⁸ Hence; we planned the present study to assess the complications associated with implant supported over dentures.

MATERIALS & METHODS

The present study was conducted in the department of prosthodontics of the dental institute and included retrospective assessment of complications in patients rehabilitated with dental implant supported over-dentures. Ethical approval was obtained from institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. We completely analyzed data records of the departments and

obtained data of all the patients who underwent prosthetic rehabilitation by dental implant supported over dentures in the past two years. A total of 30 patients were included in the present study. Follow-up records of the patients of the patients were analyzed by frequency and pattern of complications were recorded. All the results were analyzed by SPSS software. Chi-square test was used for assessment of level of significance. P-value of less than 0.05 was taken as significant.

RESULTS

A total of 30 patients were included in the present study. Majority of the patients were of age group of 56 to 65 years. 8 and 7 patients belonged to the age group of 66 to 75 years and more than 76 years respectively. Out of 30, 20 patients were males the remaining 10 were females. Various complications observed in patient with dental implant supported over dentures were ball fracture, ball attachment fracture, clip fracture, denture fracture and artificial tooth fracture. Artificial tooth fracture was the most common prosthetic complication observed in the present study.

Table 1: Demographic details of the patients

	Parameter	No. of patients
AGE (years)	45-55	5
	56-65	10
	66-75	8
	76 and above	7
SEX	Male	20
	Female	10

Table 2: Prosthetic complications

Prosthetic complications	Number
Bar fracture	1
Ball attachment detachment	1
Clip fracture	1
Magnet attachment detachment	1
Denture fracture	5
Artificial tooth fracture	9

DISCUSSION

In the present study, we observed that artificial tooth fracture and denture fracture was the most common prosthetic complication observed by patients of complete edentulous denture or partially edentulous denture. Raghoebar GM et al systematically reviewed the treatment outcome of concepts used for implant-supported maxillary overdentures, focusing on the survival of implants, survival of maxillary overdentures and condition of the implant surrounding hard and soft tissues after a mean observation period of at least 1 year. MEDLINE (1950 to December 2013), EMBASE (1966 to December 2013) and CENTRAL (1800 to December 2013) were searched to identify eligible studies. Two reviewers independently assessed the articles using specific study design-related quality assessment forms. Out of 195 primarily selected articles, 24 studies fulfilled the inclusion criteria. A metaanalysis showed an implant survival rate of 98.1% and overdenture survival of 99.5% per year in the case of ≥ 6 implants and a splinted (bar) anchorage. In the case of ≤ 4 implants and a splinted (bar) anchorage, implant survival rate and overdenture survival were 97.0% and 96.9% per year, respectively. In the case of ≤ 4 implants and a non-splinted anchorage (ball, locator, telescopic crown), implant survival rate and overdenture survival were 88.9% and 98.8% per year, respectively. The condition of the peri-implant tissues was not reported in most studies. An implant-supported maxillary overdenture (all studies ≥ 4 implants) provided with a splinted anchorage is accompanied with a high implant and overdenture survival rate (both $>95\%$ per year), while there is an increased risk of implant loss when ≤ 4 implants with a non-splinted anchorage are used.⁹ Carlsson GE. et al presented a literature review on implant overdentures after a brief survey of bone loss after extraction of all teeth. Papers on alveolar bone loss and implant overdentures have been studied for a narrative review. Bone loss of the alveolar process after tooth extraction occurs with great individual variation, impossible to predict at the time of extraction. The simplest way to prevent bone loss is to avoid extraction of all teeth. To keep a few teeth and use them or their roots for a tooth or root-supported overdenture substantially reduces bone loss. Jaws with implant-supported prostheses show less bone loss than jaws with conventional dentures. Mandibular 2-implant overdentures provide patients with better outcomes than do conventional dentures, regarding satisfaction, chewing ability and oral-health-related quality of life. There is no

strong evidence for the superiority of one overdenture retention-system over the others regarding patient satisfaction, survival, peri-implant bone loss and relevant clinical factors. Mandibular single midline implant overdentures have shown promising results but long-term results are not yet available. For a maxillary overdenture 4 to 6 implants splinted with a bar provide high survival both for implants and overdenture. In edentulous mandibles, 2-implant overdentures provide excellent long-term success and survival, including patient satisfaction and improved oral functions. To further reduce the costs a single midline implant overdenture can be a promising option. In the maxilla, overdentures supported on 4 to 6 implants splinted with a bar have demonstrated good functional results.¹⁰

Bergendal T et al evaluated the clinical function and long-term prognosis of overdentures retained by a small number of implants in the maxilla and mandible using one of two different attachment systems. Included in the study were all patients referred to specialty clinics in Jönköping and Linköping, Sweden, during the treatment period who needed an overdenture and could be provided with a minimum number of two bilaterally-placed implants. Excluded were patients with bone-grafted jaws, irradiated cancer patients, heavy bruxers, and patients who had lost a fixed prosthesis because of implant losses. The patients were randomly assigned to receive one retentive system, either a round 2-mm-diameter bar with clips or ball attachments (Nobel Biocare). Eighteen overdentures were placed in maxillae and 32 in mandibles, supported by a total of 115 Brånemark implants. Of the implants placed, 86.1% were continuously osseointegrated. The cumulative implant survival rates after 7 years of loading were 75.4% in the maxillae and 100% in the mandibles. There was no difference in implant survival rate between the attachment systems. Patients with implant losses were characterized by severely resorbed maxillary ridges and inferior bone quality, together with unfavorable loading circumstances such as short implants combined with long leverages. Complications and prosthetic adjustments were mostly resolved early and easily.¹¹

CONCLUSION

From the above results, the authors concluded fewer complications are observed with artificial tooth fracture and denture fracture being the most common complication. However; future studies are recommended.

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