

Implant Supported Over-Dentures- Improved Standard of Care for Edentulous Patients-A Report of Two Cases

Dr Hitesh Tawari¹, Dr Snehal Bansod², Dr.Dev Garg³, Dr Shaista Quarishi⁴,
Ganesh K. Kumeti⁵

¹Senior Lecturer, Oral & maxillofacial surgery, MCDRC, Anjora, Durg, Chhattisgarh, India

²Professor, Oral & maxillofacial surgery, MCDRC, Anjora, Durg, Chhattisgarh, India

³Senior Lecturer, Oral & maxillofacial surgery, MCDRC, Anjora, Durg, Chhattisgarh, India

⁴Post Graduate student, Oral Medicine Diagnosis & radiology, MCDRC, Anjora, Durg, Chhattisgarh, India

⁵Post Graduate student, Oral Medicine Diagnosis & radiology, MCDRC, Anjora, Durg, Chhattisgarh, India

I. Introduction

Implant prosthesis rehabilitation of edentulous patients with implant supported over-dentures has shown long term clinical success^{1,2,3,4,5}. Many studies has reported implant survival rates between 94 and 100% for implant supported over-dentures^{3,4,5,6,7,8,9,10}. Although a wide variety of different implant supported prosthodontic rehabilitation design is available. The basic standard treatment with an implant over-dentures has been recommended with of two interforaminal implants^{11,12,13}. The two implant supported over-dentures commonly used abutment types includes bar of different design, ball and magnetic attachments^{3,6,14,15,16,17}. The most common attachment uses is the ball attachment, while magnets are only used in rare instances^{14,17,18,19}. Naert and colleagues reported that bar attachment was the most technically demanding attachment, compared to both types of unlinked attachment^{14,15}.

II. Case Discussion

1. An 60yrs old patient who has been user of conventional dentures reported to our clinic with unstable mandibular denture. On examination we found severe resorption of mandibular alveolar ridge [fig1]. A per-operative OPG and IOPA was taken to determine the position of mental foramen [fig 2]. A 4.5Dx13mmL implants were placed in both parasymphysis region [fig 3]. After 6 months the implant were exposed and ball attachment was placed. The position of attachment was marked on pre fabricated dentures. The o-ring attachment was fixed with cold cure acrylic and final fitting of the denture was checked [fig 4,5].



Fig 1. Preop image showing poor alveolar ridge.



Fig 2. Pre op OPG

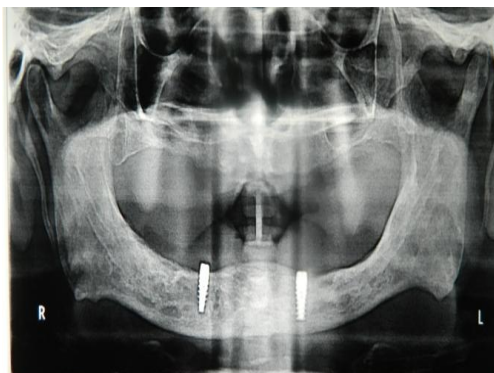


Fig 3. Post op OPG showing placed implant-retained



Fig 4. Placement of healing cap



Fig 5 Final fitting of denture

2. Another 55 yrs old female patient reported with completely edentulous mouth. A implant supported over-denture was planned and similar steps were followed as case1. The ball attachment was getting covered with flabby tissue. Hence, a repeat uncover surgery was performed with simultaneous vestibuloplasty along with use of collagen membrane. Both patients were followed for 1 year. Good retention of denture and implant stability was found in both patients. [fig 6,7,8]



Fig 6- Post op OPG showing four implant in place



Fig 7- O Ring attachment



Fig 8 Placement of Over denture

III. Discussion

Conventional dentures gets support and retention from residual alveolar ridge and mucosa. Many patients develop problems with adapting to the complete denture. The adaptation of mandibular prosthesis is usually poor due to poor ridge and tongue movement. The 2002 McGill Consensus Statement cites studies of several populations showing that patients with implant-supported overdentures enjoy a significantly higher quality of life than those who wear conventional dentures. The McGill Statement concluded there is overwhelming evidence that the restoration of the edentulous mandible with a conventional denture is no longer the most appropriate choice of prosthetic treatment. The implant-supported overdenture has become the standard of care.²⁰

IV. Patient Centered Outcomes

Conventional complete dentures are supported by the edentulous ridge and the mucosa that overlies them. There is close contact but no direct attachment between the prosthesis and the ridges, and the prosthesis are constructed to maximize any potential retentive forces while attempting to minimize those that displace them. In such an active muscularly controlled environment this is problematic, and many patient have difficulties adapting to their denture, particularly the lower denture. Edentulism is also associated with a less healthy diet. Many patient report that they have to modify their food choices, especially when eating in a social environment, because of the limitation of their dentures. Evidence also suggest that if patients are challenged to eat different range of foods, their current satisfaction with their conventional denture is reduced. In a wider

context, patients social interaction can be negatively affected by conventional denture. People report avoiding going out to eat, being self-conscious of the presence of others as they feel they may notice them moving in the mouth when taking , eating or laughing and because they may find it difficult to wear their denture for a prolonged period of time.

A substantial body of evidence is now available demonstrating that patients satisfaction and quality of life with implant-supported mandibular denture is significantly greater than for conventional dentures. Much of this data comes from high quality randomized controlled trials. Patients report greater satisfaction with the stability and retention of their prosthesis which, in turn, appear to contribute to greater satisfaction with comfort and ability to chewing efficiency is also significantly increased, when the lower conventional denture is stabilized by means of implants. There is accumulating evidence that these advantages can be carried into old age. More recent evidence demonstrate that patient with mandibular implant supported overdenture are more likely to positively modify their diet than patient with convention denture particularly following dietary intervention. In contrast to conventional denture wearer, when encouraged to modify their diet, the satisfaction with their prosthesis of those wearing implant-supported over-denture appear to increases ²¹.

V. Conclusion

Dental implants have provided a another treatment option for edentulous patients. Evidence based studies have suggested conventional denture is a much poorer alternative than use of an implant-supported prosthesis. Hence, two implant-supported over-denture should be offered to edentulous patients as first choice of treatment.

References

- [1]. Sadowsky SJ. Mandibular implant-retained overdentures: A literature review. *J Prosthet Dent* 2001;86:468–473.
- [2]. Bergendal T, Engquist B. Implant-supported overdentures: A longitudinal prospective study. *Int J Oral Maxillofac Implants* 1998;13:253–262.
- [3]. Meijer HJ, Raghoobar GM, Van't Hof MA. Comparison of implant-retained mandibular overdentures and conventional complete dentures: A 10-year prospective study of clinical aspects and patients satisfaction. *Int J Oral Maxillofac Implants* 2003;18:879–885.
- [4]. Cooper LF, Moriarty JD, Guckes AD, et al. Five-year prospective evaluation of mandibular overdentures retained by two microthreaded, TiOblast nonsplinted implants and retentive ball anchors. *Int J Oral Maxillofac Implants* 2008;23:696–704.
- [5]. Attard NJ, Zarb GA. Long-term treatment outcomes in edentulous patients with implant overdentures: The Toronto study. *Int J Prosthodont* 2004;17:425–433.
- [6]. Naert I, Alsaadi G, van Steenberghe D, Quirynen M. A 10-year randomized clinical trial on the influence of splinted and unsplinted oral implants retaining mandibular overdentures: Peri-implant outcome. *Int J Oral Maxillofac Implants* 2004;19:695–702.
- [7]. Wismeijer D, van Waas MA, Vermeeren JI, Mulder J, Kalk W. Patient satisfaction with implant-supported mandibular overdentures: A comparison of three treatment strategies with ITI dental implants. *Int J Oral Maxillofac Surg* 1997;26:263–267.
- [8]. Awad MA, Lund JP, Shapiro SH, et al. Oral health status and treatment satisfaction with mandibular implant overdentures and conventional dentures: A randomized clinical trial in a senior population. *Int J Prosthodont* 2003;16:390–396.
- [9]. Siadat H, Alikhasi M, Mirfazaelian A, Geramipannah F, Zaery F. Patient satisfaction with implant-retained mandibular overdentures: A retrospective study. *Clin Implant Dent Relat Res* 2008;10:93–98.
- [10]. Awad MA, Lund JP, Dufresne E, Feine JS. Comparing the efficacy of mandibular implant-retained overdentures and conventional dentures among middle-aged edentulous patients: Satisfaction and functional assessment. *Int J Prosthodont* 2003;16:117–122.
- [11]. Thomason JM. The McGill consensus statement on over-dentures. Mandibular 2-implant overdentures as first choice standard of care for edentulous patients. *Eur J Prosthodont Restorative Dent* 2002;10:95–96.
- [12]. Batenburg RH, Meijer HJ, Raghoobar GM, Vissink A. Treatment concept for mandibular overdentures supported by endosseous implants: A literature review. *Int J Oral Maxillofacial Implants* 1998;13:539–545.
- [13]. Timmerman R, Stoker GT, Wismeijer D, Oosterveld P, Vermeeren JI, van Waas MA. An eight-year follow-up to a randomized clinical trial of participant satisfaction with three types of mandibular implant-retained overdentures. *J Dent Res* 2004;83:630–633.
- [14]. Naert I, Gizani S, Vuylsteke M, van Steenberghe D. A 5-year randomized clinical trial on the influence of splinted and unsplinted oral implants in the mandibular overdenture therapy. Part I: Peri-implant outcome. *Clin Oral Implants Res* 1998;9:170–177.
- [15]. Naert I, Gizani S, Vuylsteke M, van Steenberghe D. A 5-year prospective randomized clinical trial on the influence of splinted and unsplinted oral implants retaining a mandibular overdenture: Prosthetic aspects and patients satisfaction. *J Oral Rehabil* 1999;26:195–202.
- [16]. van Kampen F, Cune M, van der Bilt, Bosman F. Retention and postinsertion maintenance of bar-clip, ball and magnet attachments in mandibular implant overdenture treatment: An in vivo comparison after 3 months of function. *Clin Oral Implants Res* 2003;14:720–726.
- [17]. Cune M, van Kampen F, van der Bilt A, Bosman F. Patient satisfaction and preference with magnet, bar-clip, and ball-socket retained mandibular implant overdentures: A cross-over clinical trial. *Int J Prosthodont* 2005;18:99–105.
- [18]. MacEntee MI, Walton JN, Glick N. A clinical trial of patients satisfaction and prosthodontic needs with ball and bar attachments for implant-retained complete overdentures: Three-year results. *J Prosthet Dent* 2005;93:28–37.
- [19]. Davis DM, Packer ME. Mandibular overdentures stabilized by Astra Tech implants with either ball attachments or magnets: 5-year results. *Int J Prosthodont* 1999;12:222–229.
- [20]. Feine JS, Carlsson GE, Award MA et al. The McGill consensus statement on overdenture. Montreal, Quebec, Canada. May 24-25, 2002. *Int J Prosthodont* 2002;15:413-414.
- [21]. Thomason JM. Mandibular two implant-supported overdenture as the first choice standard of care for edentulous patients- the York Consensus Statement. *British Dental Journal* 2009;207,4:185-186.