

Maintenance of Implant Supported Overdenture: A Case Report

Manoj Humagain, Dilip G Nayak, Ashita S Uppoor

ABSTRACT

The long term success of dental implants likely requires the maintenance of healthy periimplant tissues because the soft tissue seal around implants is best when the surrounding mucosa is not inflamed. For this reason, good oral hygiene and regular professional care are essential to maintaining implants. However, despite many years of experience with the implants, there is no standard protocol which defined the most effective regimen for long term implant maintenance. This is a case report of a 63 year old female patient who presented to our clinics with the typical characteristic features of periimplantitis. A special emphasis on the non surgical management of such patient and need of periodic recall for long term maintenance has been highlighted in this case report which will be beneficial to general practitioners as well as periodontologists in management of such patients.

Keywords: Periimplantitis, Maintenance, Protocol

Contact Author

Dr. Manoj Humagain

E-mail : mhumagain@hotmail.com

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Missing teeth and supporting oral tissues have traditionally been replaced with dentures or bridges permitting restoration of chewing function, speech, and aesthetics. Dental implants offer an alternative. These implants are inserted into the jaw bones to support a dental prosthesis and are retained because of the intimacy of bone growth onto their surface. This direct structural and functional connection between living bone and implant surface, termed osseointegration, was first described by Branemark (Branemark 1977) and has undoubtedly been one of the most significant scientific breakthroughs in dentistry over the past 30 years.

Implant treatment is becoming more widely known by patients and consequently their expectations of receiving this type of treatment are increasing. A multitude of implant designs have been marketed over recent years, and the clinical situations in which osseointegrated implant retained prostheses are used have expanded enormously. One of the key factors for the long-term success of oral implants is the maintenance of healthy tissues around them. A cause-effect relationship between bacterial plaque accumulation and the development of inflammatory changes in the soft tissues surrounding oral implants has been shown (1). If this condition is left untreated, it may lead to the progressive destruction of the tissues supporting an implant (periimplantitis), which may compromise its future and ultimately lead to its failure (2).

For maintaining healthy tissues around oral implants it is important to institute an effective preventive regimen (supportive therapy); when a pathologic condition of the periimplant tissues is diagnosed, a therapeutic intervention should be initiated as soon as possible (2).

Case report

A 63 year old female patient reported to the Department of Periodontics, Manipal College of Dental Sciences, Mangalore, with the chief complaints of mild pain in the lower anterior region, due to which she was unable to wear her implant



Fig. 1: Calculus deposits on the implant abutment

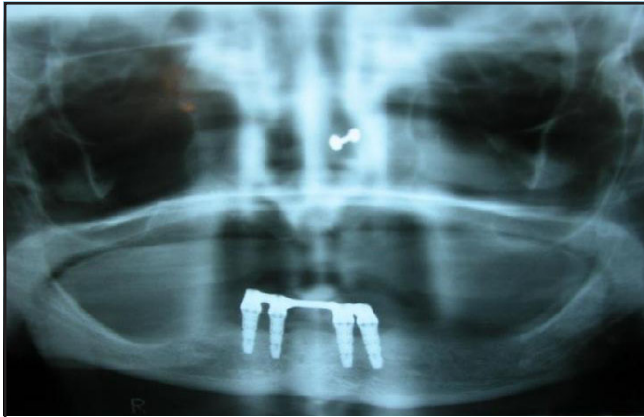


Fig. 2: OPG showing bone loss around implants

supported lower complete denture since one week. History revealed that four endosseous dental implants were placed 5 years back and she has never visited dentist since then. Clinical examination showed that the periimplant mucosa was inflamed and there was diffuse swelling around the implant on both sides. Patient's oral hygiene was poor. There were heavy deposits of calculus around the implant abutments (Fig. 1). Orthopantomograph (OPG) reveals bone loss around the implants (Fig. 2). A diagnosis of periimplantitis was made and non surgical treatment plan was formulated.

On the first day calculus was removed from the abutment surface with Gracey curettes (Hu friedy) with the care not to scratch on the implant surface. The area was irrigated with the chlorhexidine. Reinforced oral hygiene instructions were given to the patient. Different modes of periimplant maintenance were demonstrated (Fig. 3) and patient was motivated about the importance of home care of the implant and was asked to visit the dentist every 3 months for the professional care. Patient was recalled 2 weeks after phase I therapy. There was significant improvement with resolution of inflammation around the implants (Fig. 4). Interdental cleansing aids like interdental brush, dental floss was prescribed. After one month follow up, the periimplant mucosa was completely healthy and



Fig. 4: Two weeks after treatment

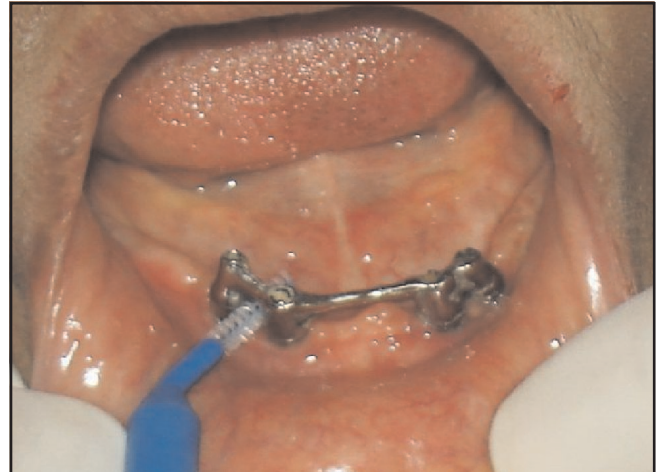


Fig. 3: Use of interdental brush for implant maintenance

patient's maintenance was excellent (Fig. 5).

Discussion

Maintenance programs for implants should be designed individually because there is a lack of data detailing precise recall intervals, methods of plaque and calculus removal, and appropriate antimicrobial agents for maintenance around implants (2). Because periimplant lesions result from opportunistic infections that may lead to loss of supporting bone, it is mandatory to monitor periimplant tissues at regular intervals in hope of implementing early interventions when signs of disease are noted (3). Studies have shown that mucositis lesions can exhibit apical progression after 3 months of plaque buildup around implant (4). Therefore a 3-month maintenance regimen is recommended within the first year of implant placement. Depending on risk factors, oral hygiene compliance, and assessments, the recall interval can then be extended to 6 months (5). Because periodic evaluation of the dental implant is vital to its long-term success, the following factors must be evaluated at each maintenance appointment (6).

- Presence of plaque and calculus.
- Clinical appearance of periimplant tissue.

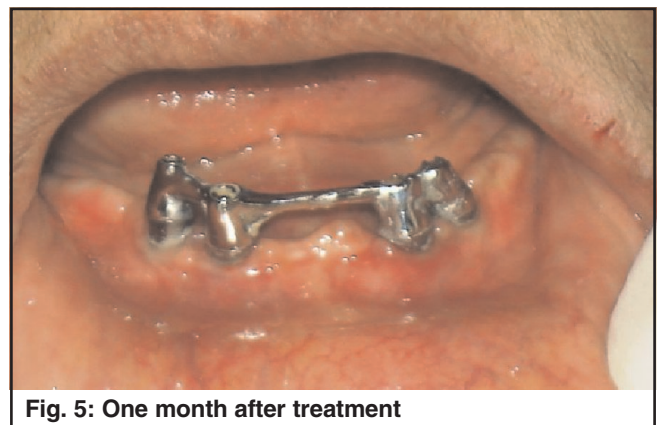


Fig. 5: One month after treatment

- Radiographic appearance of implant and periimplant structures.
- Occlusal status, stability of prostheses and implants.
- Probing depths and presence of exudates or bleeding on probing.
- Patient comfort and function.

Various mechanical means for daily self-administered bacterial plaque removal have been proposed, including soft toothbrushes, nylon coated interproximal brushes powered tooth brushes and dental floss to facilitate cleaning in less accessible areas. Adjunctive twice-daily rinsing with antimicrobial agents, such as chlorhexidine has been recommended (7).

Professionally administered maintenance consists of removal of dental plaque and calculus from the implant–abutment surface. This can be accomplished in several ways, but special procedures have been recommended for oral implants. The use of plastic and gold coated curettes has been advocated to protect the titanium implant surface and titanium abutment from contamination by other metals. These curettes were also used to reduce the likelihood of scratching the surface. Unfortunately, plastic curettes do not work very well, and gold coated curettes can not be sharpened. The location of the connection between the implant and the abutment is typically below the mucosa and often near the crest of the alveolar bone; most calculus removal will be above this level. Thus the fear of contaminating the titanium implant is unwarranted. This area can be debrided with most of the scalers and curettes including stainless steel scalers and curettes without damaging the surfaces (8). One report indicated that titanium-tipped curettes produced rougher surfaces than those treated with steel instruments (9) However, a literature review determined that roughened implant abutment surfaces caused by different maintenance techniques have not been shown to increase implant complications (2).

Conclusion

The long term success of the dental implants likely requires the maintenance of healthy periimplant tissues because the soft tissue seal around the implants is best when the surrounding mucosa is not inflamed. For this reason, good oral hygiene and regular professional care are essential to maintaining implants (8). Periodontal maintenance at individually established intervals is critical to the ongoing success of implant therapy. Periodic clinical assessment of implant fixtures, prosthesis and surrounding tissue is critical to clinical success. Equally important is the professional removal of supragingival and subgingival deposits on the regular basis and counseling on the home care technique (3).

However there is no evidence based protocols for the maintenance of implant, it seems prudent to recommend the routine implementation of an active maintenance program tailored to the circumstances of each individual implant patient. As in other field of medicine and dentistry, primary and secondary preventive approaches are usually superior to dental implants too (10).

THE AUTHORS

Dr. Manoj Humagain

Lecturer
Department of Periodontics
Kathmandu University Medical School, Dhulikhel, Kavre, Nepal
Email: mhumagain@hotmail.com
Tel: +9779841273503

Dr. Dilip G Nayak

Professor & Head
Department of Periodontics
Manipal College of Dental Sciences
Mangalore, Karnataka, India

Dr. Ashita S Upoor

Professor
Department of Periodontics
Manipal College of Dental Sciences
Mangalore, Karnataka, India

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