Role Of Supportive Periodontal Therapy (SPT) In Implant Therapy And Periodontitis: A 4-Year Follow-Up

Varshal J. Barot*, Mitul H. Patel, Krupa A. Pandya*****

*Assistant Professor, **Self Employed (Prosthodontist), ***Dental Surgeon, Department Of Dentistry, G.M.E.R.S. Medical College & Hospital, Junagadh, Gujarat.

Abstract: Periodontal diseases include a group of chronic inflammatory conditions usually connected with dysbiotic plaque biofilms leading to progressive destruction of the tooth-supporting apparatus, ultimately leading to tooth loss. Patients with a history of periodontal diseases are potential candidates for dental implant therapy; therefore it is imperative to address the management of implants survival in such patients. This case report depicts an instance of a case of implant-prosthetic rehabilitation in a patient with history of periodontitis, highlighting the importance of initial periodontal treatment and continuous supportive periodontal therapy (SPT) which is fundamental for effective outcome following implant rehabilitation.[Barot V Natl J Integr Res Med, 2021; 12(2):74-77]

Key Words: Dental implant therapy, periodontal disease, periodontitis, supportive periodontal therapy.

Author for correspondence: Varshal J. Barot, 403, B-1 Block (Staff Quarters), G.M.E.R.S. Medical College Campus, Majevadi Gate, Junagadh-362001. Gujarat. Mobile: +919558805347 E-Mail: varshalb@gmail.com

Introduction: Dental implants are undeniably a well-known treatment modality for the substitution of missing or lost teeth due to its high rates of long-term survival when used to support various fixed dental prostheses. Like natural teeth, implants too are susceptible to inflammatory diseases that are caused by the accumulation of biofilm. The conventional treatment of periodontal and peri-implant diseases involves cause-related therapy comprising of a home-based self-care oral-hygiene program, together with professional management (scaling, root-planing or implant instrumentation) for long-term success.

Case Report: A 45-year-old female patient reported with the chief complains of loose teeth and discomfort in the lower jaw during chewing since 2 years. She was a known diabetic with HbA1c around 6.5 with no h/o medication or any adverse habits. In past dental history, she mentioned about her last visit to a general dentist before 6 months for teeth cleaning after which she noticed that her symptoms aggravated.

Intraoral examination revealed grade 1 supra-gingival stains and calculus with marked gingival recession i.r.t lower anteriors, various degrees of tooth mobility, and wear facets i.r.t posterior teeth in both the jaws. The clinical [Figure 1] and radiographic [Figure 2] examination with initial periodontal charting [Figure 3] showed generalized moderate to severe bone-loss. Non-surgical (phase 1) periodontal therapy was carried out and was re-evaluated at 4 weeks. Deep pockets were persistent in posterior areas of both the arches with severe attachment loss i.r.t anteriors and each first premolar in the lower arch.

Figure 1: Pre-Operative Clinical Photographs Showing Attachment Loss I.R.T 31,32,34,41,42 And Lingually Mal-Aligned 44

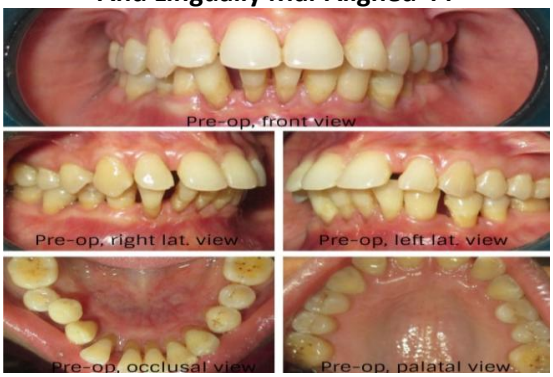


Figure 2: Pre-Operative Radiographs Showing Moderate To Severe Bone-Loss

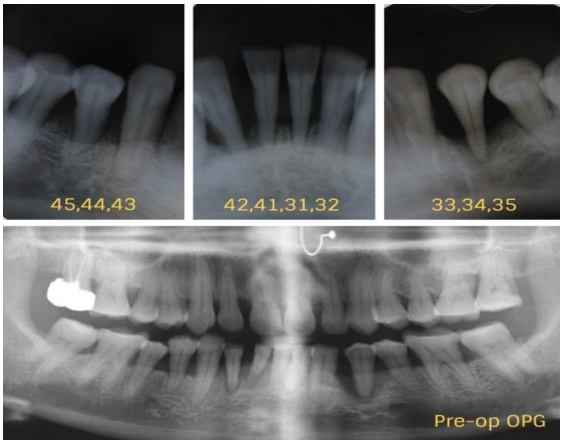
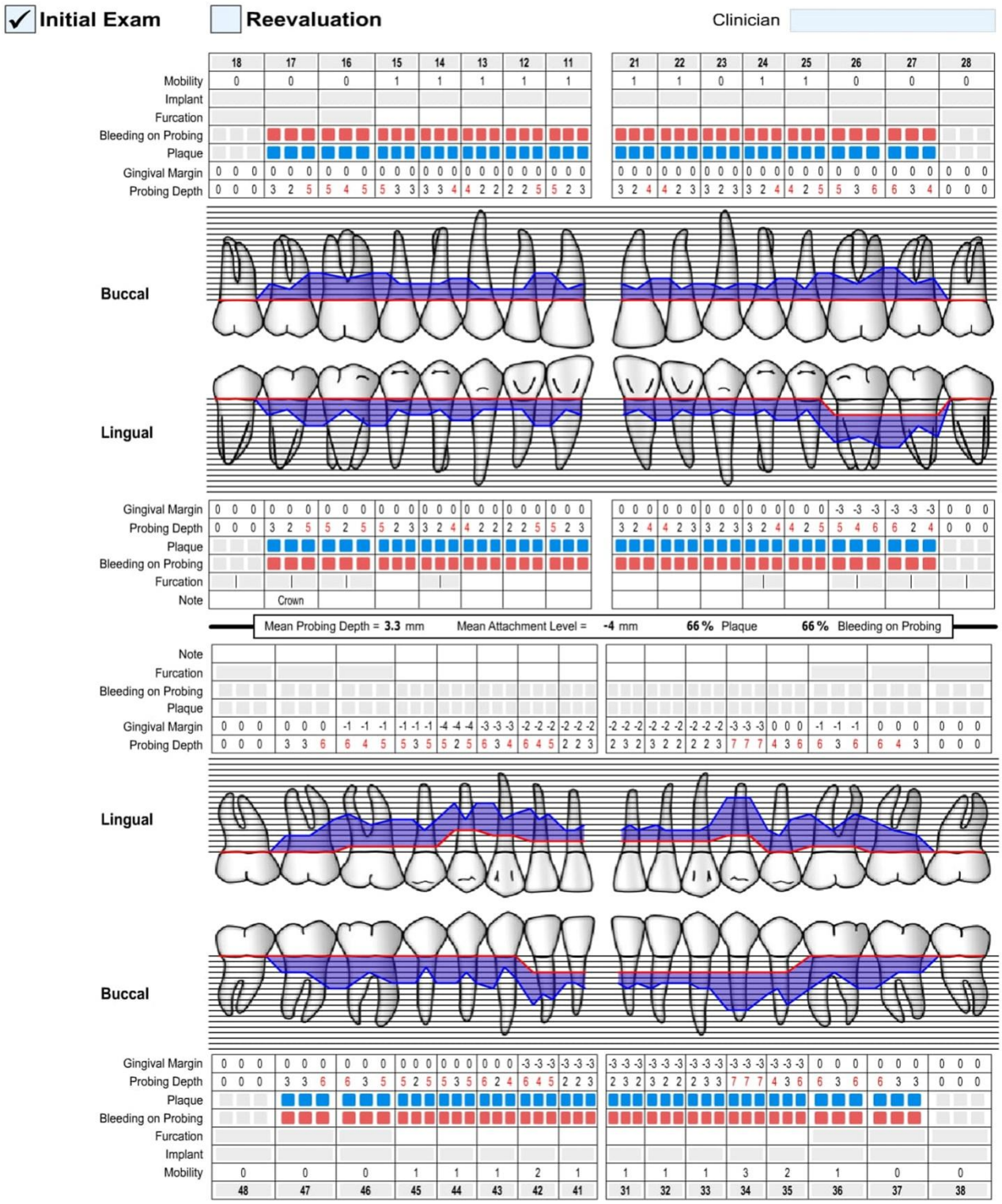


Figure 3: Initial Periodontal Charting



After informed consent, prosthetic rehabilitation was planned on implants considering the poor prognosis of 31,32,41,42, 34 and 44. Full mouth flap surgery was performed so as to stabilize the periodontium for successful outcome of implant rehabilitation. Extractions of above mentioned teeth were carried out during periodontal surgery (phase2) followed by immediate implant placement. Moreover, left premolar region was completely curetted after extraction of 34 and platelet-rich fibrin (prf) was used as grafting material along with implant placement. Total four titanium plasma spray-coated implants, two each (11.5mm L / 3.75mm D) in the anterior region (32 & 42) and other two implants, (10mm L/ 4.2mm D) in left lower first premolar (34 region) and (8mm L / 4.2mm D) in right lower first premolar (44 region) were placed. Considering the proximities of vital structure, implant lengths were restricted in both first premolar regions.

After 3 month of implant placement, the sites were re-opened and gingival formers were placed on all well osseointegrated implants.Three weeks later, gingival formers were removed and healthy well-formed gingival sulcus were appreciated [Figure 4]. Considering the advantages of screw-retained prosthesis and excessive gingival collar height i.r.t 34, screw-retained prosthesis were planned for both first premolars (34 and 44) and cement retained four-unit porcelain-fused-to-metal (PFM) prosthesis i.r.t 31,32,41,42.

Figure 4: Various Steps In Implant-Prosthesis Restoration

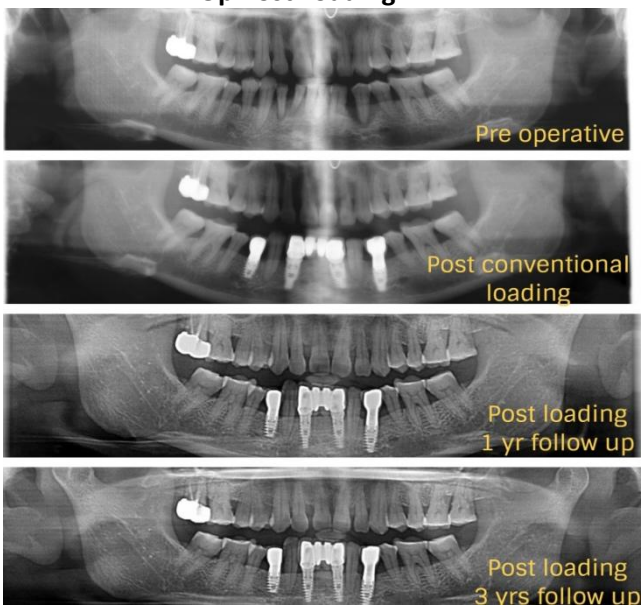
A (closed tray impression technique) transfer type impression posts were used to make indirect implant level impression. For making impression addition silicone impression material was used; light-bodied was syringed around the impression posts and heavy-bodied loaded in the impression tray. Metal abutments with 32 and 42 regions; and each plastic abutment for 34 and 44 regions were placed.

Figure 5: Final PFM Restoration Inserted I.R.T 31,32,41,42 And 34 & 44

After marking the gingival height on plastic abutments, all metal and plastic abutments were sent to dental laboratory for casting along with bite registration impression and final restoration shade. Jig verification and metal try-in was done and the final prosthesis was inserted [Figure 5] after checking the occlusion and crown contour.

Patient was recalled after a week of insertion of the final prosthesis. Along with self-care oral hygiene, patient was kept on regular professional oral hygiene maintenance and follow-up every 6 months. At 3-year follow-up post loading, radiographs [Figure 6] show stable periodontium with ongoing supportive periodontal therapy (SPT).

Figure 6: Radiographs Showing A 3-Year Follow-Up Post Loading



Discussion: Patients with a history of periodontitis are at considerable risk of being affected by peri-implant mucositis[1]. Also, periodontitis subjects were at significantly higher risk for implant failure and greater marginal bone loss as compared with periodontally healthy subjects[2]. Hence it is better to treat periodontal disease and establish good oral hygiene behaviour before implant placement.

Also, the fabrication of passively fitting prostheses is a precondition for the maintenance of osseointegration. Thus, the significance of accurate impression making is strongly emphasized to achieve this. A misfit of superstructures generates initial stress and strain on implants; mechanical complications such as fracture of the prosthetic framework or

veneering material and fracture or loosening of occlusal and/or abutment screws may be seen with functional loading[3].

SPT was shown to be a viable method of periodontal maintenance when placing implants in patients with periodontitis. Roccuzzo and colleagues demonstrated successful management of implants, with a survival rate of 94.7% in 15 of the subjects with a history of advanced periodontitis who were maintained and treated periodontally before implants were placed[4].

A lack of compliance to SPT was correlated with a higher incidence of marginal peri-implant bone loss at follow-up as well as an increased incidence of implant failure. Furthermore, a higher implant survival rate was observed in the mandible (96.2%) than in the maxilla (93.5%)[4]. However on the compliance level of implant treated patients; periodontally treated patient demonstrated better compliance than those without prior periodontal therapy experiences[5].

SPT defined as regular visits to the clinician for periodontal care and maintenance, formed the basis of long-term success after periodontal implant placement[6]. Moreover; it has shown to be an effective method in maintaining implant success and preventing periodontitis recurrence.

Conclusion: Patients with a history of periodontal disease have a higher risk of peri-implant diseases and consequent implant loss. However, comprehensive periodontal evaluation and supportive periodontal therapy are key elements to ensure long-term maintenance and overall treatment success. Thus with proper management and good patient compliance, clinically acceptable long-term results can be achieved after placing dental implants in patients with history of periodontitis.

References:

1. Is History of Periodontitis a Risk Factor for Peri-implant Disease? A Pilot Study. Int J Oral Maxillofac Implants. 2018;33:152-60.
2. Risk of implant failure and marginal bone loss in subjects with a history of periodontitis: a systematic review and meta-analysis. Safii SH, Palmer RM, Wilson RF. Clin Implant Dent Relat Res. 2010;12:165-74.
3. Zarb GA, Schmitt A. The longitudinal clinical effectiveness of osseointegrated dental implants: the Toronto study. Part III: problems and complications encountered. J Prosthet Dent. 1990;64:185-94.
4. Ten-year results of a three-arm prospective cohort study on implants in periodontally compromised patients. Part 1: implant loss and radiographic bone loss. Roccuzzo M, De Angelis N, Bonino L, Aglietta M. Clin Oral Implants Res. 2010;21:490-6.
5. Implant Patient Compliance Varies by Periodontal Treatment History. Zeza B, Pilloni A, Tatakis DN, Mariotti A, Di Tanna GL, Mongardini C. J Periodontol. 2017;88:846-53.
6. Impact of supportive periodontal therapy and implant surface roughness on implant outcome in patients with a history of periodontitis. Quirynen M, Abarca M, Van Assche N, Nevins M, van Steenberghe D. J Clin Periodontol. 2007;34:805-15.

Conflict of interest: None
Funding: None
Cite this Article as: Barot V, Patel M, Pandya K. Role Of Supportive Periodontal Therapy (SPT) In Implant Therapy And Periodontitis: A 4-Year Follow-Up. Natl J Integr Res Med 2021; Vol.12(2): 74-77