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A Dynamic Technique of Oral Rehabilitation Using Fixed Prosthesis and CSC Telescopic Denture for Severe Advanced Periodontitis with Secondary Occlusal Traumatism – A Long-term Case Report

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ABSTRACT

Clinical reports of many literatures had documented that meticulous non-surgical periodontal therapy (NSPT) and combined with periodontal prosthesis application might not only improve periodontal parameters, but also provide effective reduction of microbiological organisms associated with periodontal pathogen.

A 54-year old female individual visited with chief complains of gingival bleeding and mobile teeth, and recurrent periodontal abscess over # 13, # 11, # 21, and # 22. Periapical radiographs disclosed moderate periodontal bone loss on the total remained teeth of maxilla and mandible arches. A diagnosis of generalized severe advanced periodontitis (SAP) with secondary occlusal traumatism (SOT) was established. This present case was to document the treatment of a 6 years longitudinally retrospective evaluation of case affected SAP with SOT using treatment of the combination of periodontal and perio-prosthetic design. Results showed that the remarkable improvement of periodontal tissues, reconstruction of posterior bite occlusion and recovery of esthetic appearance.

It can be concluded that the Sandwich's technique in treating patients affected SAP with SOT is an effective and valuable option.

Keywords: Sandwich's technique, CSCTD, Oral rehabilitation, SAP, SOT.

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I. Introduction

Initial periodontitis can be assessed using probing of clinical periodontal attachment and radiographic periodontal bone. Former reports documented that the initial stage of the marginal periodontitis with small changes or crest bone loss is not accurately estimated by conventional radiography [1-[3]. The understanding the periodontal epidemiology associated with different types of periodontal diseases, such as juvenile periodontitis (JP), chronic periodontitis (CP), and aggressive periodontitis (AP) has been from retrospective study via clinical diagnosis among individuals reporting the teaching hospitals [4]-[6]. In addition, other reports related to the distribution, prevalence, and periodontal bone loss rates based on the long-term radiographic evaluation of clinically healthy cases were also documented [7], [8]. Only limited studies associated with the extent periodontal bone destruction versus ages, degree and location in patients affected periodontitis have been reported [9], [10].

There is well known that little or limited reports regarding bilateral occlusal bite collapse and the extent alveolar bone loss alteration due to neglect and not known the endanger teeth of severity early loss of permanent teeth affected advanced severe adult periodontitis (SAP) with secondary occlusal traumatism (SOT). It is necessary for cases involved SAP with SOT of full mouth oral rehabilitation affected with bilateral occlusal bite collapse and the extent alveolar bone loss alteration.

The purpose of present study was to investigate the therapeutic outcomes of full mouth oral rehabilitation affected with bilateral occlusal bite collapse and the extent alveolar bone loss alteration in a case affected SAP with SOT.

II. Case Report

A 54-year old female individual visited our office with chief complains of gingival bleeding and mobile teeth, and recurrent periodontal abscess over # 13, # 11, # 21, and # 22. According to the patient's complain, she had mobile teeth of upper and lower arches, especially located on the # 13, # 11, # 21, and # 22. In addition, the other complaints of occlusal interference were also noted.

Oral examination indicated that maxillary missing teeth were located on the #17- #15, #12, and #24 - #26, where the mandibular missing teeth located on the # 35- #37 and # 45, #46 with ill-fitted clasped removable partial denture were also found, respectively.

Assessments of periodontal parameters of maxillary and

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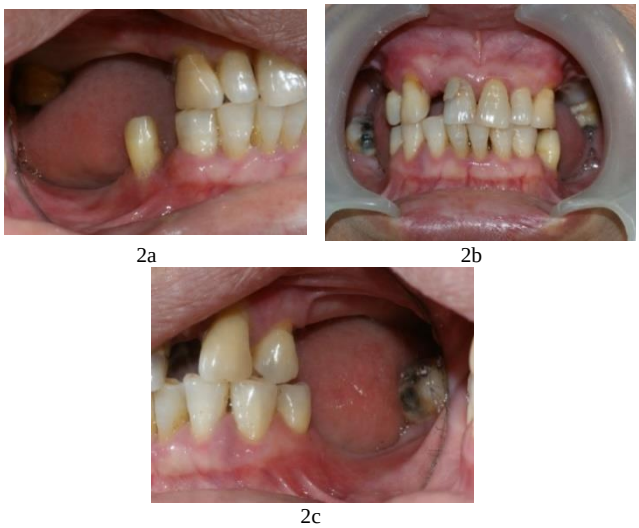
mandibular teeth included gingival index (GI) [11], plaque index (PLI) [12], probing pocket depth (PPD), and clinical attachment level (CAL), were recorded at baseline and every six months until the end of the study. Periapical radiographs disclosed moderate periodontal bone loss on the total remained teeth of maxilla and mandible arches (Fig. 1). In addition, severe advanced bone loss and SOT were noted on the # 12, respectively. A diagnosis generalized SAP with SOT was established (Fig. 2a, 2b, and 2c).

Fig. 1. Radiographs disclosed moderate and severe periodontal bone loss on the remained teeth of maxilla and mandible arches at baseline. (2009/3/6) (2009/3/6).



2a 2b 2c

Fig. 2. Clinical appearance of oral remained teeth in both maxilla and mandible arches at baseline.

Treatment sequences including removed Ill-fitted clasp removable partial denture, oral hygiene instruction, basic periodontal treatment including subgingival scaling, curettage, basic occlusal adjustment, root planning. Personal and professional oral hygiene educations are the basic priority, following subgingival scaling, root planning and periodontal pocket irrigation with Chlorhexidine glouconate (1%). Construction of maxillary fixed prosthesis of #11, #21, and #22, and application of inner crowns at #14, # 13, # 23, and # 27. Finally, removable prosthesis of crown and sleeve-coping telescopic denture was applied at #17- #12 and #23- #27), respectively (Fig. 3a, 3b, 3c, and 3d).

3a 3b 3c 3d

Fig. 3. Removable prosthesis of crown and sleeve-coping telescopic denture (c, d) was applied at #17- #12 and #23- #27(b, d), respectively. (abutments on the #13, #14, #23, and # 27) (b, d).

Application of lower mandibular inner crowns (Fig. 4a) at #34, #33, #44, and #47, and followed by the removable crown and sleeve-coping telescopic denture crowns (Fig. 4b).

a b

Fig. 4. Application of lower mandibular inner crowns (a) at #34, #33, #44, and #47, and followed by the removable crown and sleeve-coping telescopic denture crowns (b).

Fig. 5a and 5b showed the clinical appearance of maxillary and mandibular periodontal prosthesis of both fixed crowns at #11, #21, and #22, inner crowns (Fig. 5a), and CSCTD (Fig. 5b) at the upper and lower arches, respectively.

a b

Fig. 5. Buccal views showed the clinical appearance of maxillary and mandibular periodontal prosthesis of both fixed crowns at #11, #21, and #22, inner crowns (a) , and CSCTD (b) at the upper and lower arches, respectively.

Radiographic image analysis (Fig. 6a, 6b, 6c) indicated the present case affected SAP with SOT demonstrated that prominent improvement of periodontal bony defects before periodontal treatment after periodontal and prosthetic treatments. In addition, remarkable healings of alveolar crests, lamina dura, and bone fills were noted at the baseline of angular bone defects after using the treatment of

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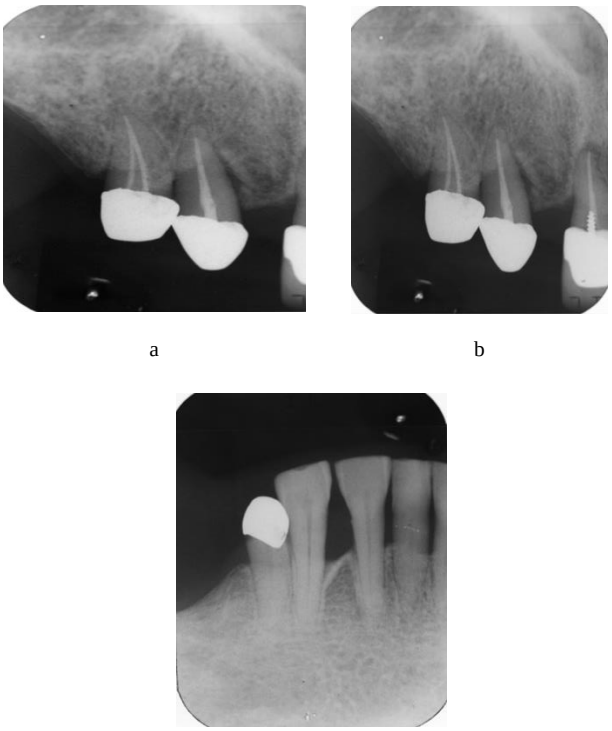
Sandwich's technique including NSPT, fixed prosthesis and CSCTD as compared to those radiographic images at the baseline, respectively.



a b c

Fig. 6. Periapical radiographs indicated that remarkable healing of angular bony defects on the total abutment teeth of maxilla and mandible arches after NSPT and CSCTD perioprosthetic therapy. (2015/2/20).

Periapical radiographs disclosed moderate periodontal bone loss on the total remained teeth of maxilla and mandible arches (Fig. 6a, 6b, and 6c; 2015/2/20).

III. Discussion

A. Clinical Findings after Periodontal Treatment

Clinical symptoms and signs disappeared almost completely within 2-4 weeks and showed remarkable and excellent healing in both gingival and periodontal tissue afterward until the end of study 5 years later. Leon and Vogel [13] demonstrated that ultrasonic debridement was more effective than hand scaling in class II and III molar furcation involvement (FI) at reducing spirochetes and motile rods. It has been documented that most favorable modality in periodontal therapy in the removal of all soft and hard deposits on root surfaces exposed by SAP [14], [15].

B. Periodontal Bone Fills

Andreasen [16] suggested that even the loss of periodontal ligament, up to 2 mm in width around the root surface, may be repaired by a new periodontal attachment. Our former reports [17]-[19] also confirmed the fact that remarkable healing of periodontal bone occurred after using non-surgical periodontal therapy, immobilization of teeth affected severe periodontal bone loss with SOT, and periodontal prosthesis after mid-term (3-5years) and long-term (5-39 years) [20] evaluations. The present case affected SAP with SOT demonstrated that prominent improvement of periodontal parameters, periodontal tissues, and remarkable alveolar crests, lamina dura, and bone fills (Fig. 6a, 6b) located at the angular bone defects using NSPT, fixed prosthesis and CSCTD.

C. Clinical application of CSCTD

The effect of immobilization on teeth with mobile and poor bony support using Sandwich's technique of provisional prosthesis (PP), NSPT, and CSCTD seems to promote remarkable healing of soft and hard periodontal tissue. This finding is consistent and supported with earlier investigators. [21]-[25] We, thus, concluded that the sequential use of Sandwich's technique [20] included PP, NSPT, and CSCTD appeared to be a valuable alternative for preserving the compromised teeth that served as an abutment necessary for restoring occlusal function.

D. Radiographic Analysis

Radiographic image analysis indicated the present case affected SAP with SOT demonstrated that prominent improvement of periodontal bony defects before periodontal treatment. In addition, remarkable healings of alveolar crests, lamina dura, and bone fills (Fig. 6a, 6b, 6c) were noted at the baseline of angular bone defects after using the treatment of Sandwich's technique including NSPT, fixed prosthesis and CSCTD as compared to those radiographic images at the baseline data, respectively.

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