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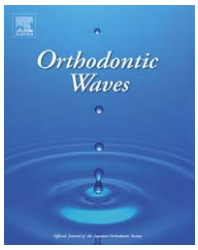

Case report

Orthodontic contribution to the periodontal management of a patient with localized aggressive periodontitis (post-juvenile periodontitis)

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ABSTRACT

In aggressive periodontitis, pathological tooth migration and destruction of occlusion often occur in patients' younger age, therefore, it is necessary to give a treatment considering their quality of life.

A 30-year-old female patient diagnosed as Angle class I upper protrusion associated with post-juvenile periodontitis had diastema of maxillary incisors since she was about 20 years old. She was treated by multidisciplinary approach of a periodontist and an orthodontist and patients obtained esthetical dental arch and functional occlusion. Periodontal tissue was also in good condition and she was very satisfied with the outcome. The patient has obtained periodontal and orthodontic long favorable stability. Good periodontal condition has been maintained for 6 years after active orthodontic treatment.

1. Introduction

In advanced periodontal disease, spacing of anterior segments combined with proclination of maxillary incisors and deep bite often occurs [1,2]. Once this malalignment has been occurred, the traumatic occlusion could cause further breakdown [3] of the periodontal tissue and also it would make brushing procedure very difficult and would fail to remove plaque as to maintain oral hygiene, therefore, it seems that this situation fails into the negative spiral in periodontal destruction.

As far as juvenile periodontitis is concerned, which is now called localized or generalized aggressive periodontitis [4], progress of lesion is very rapid as it is formally known as the early onset periodontitis [5] and the conditions described above occur in the early stage. Reconstruction of the occlusion and alignment of the malposed teeth with orthodontic treatment should be necessary not only to prevent the further progress of disease, but also to satisfy the patients' functional and esthetic demands, especially for young patients.

The present article shows the result of treatment using multidisciplinary approach of orthodontic and periodontal management to the patient with destruction of occlusion and malposition of anterior segments caused by post-juvenile periodontitis, who showed the long-term stability of reconstructed occlusion and good periodontal condition.

2. Case report

A patient was referred from a periodontist to consult about the possibility of orthodontic treatment. The patient was a 30-year-old female and her chief complaint was maxillary incisor

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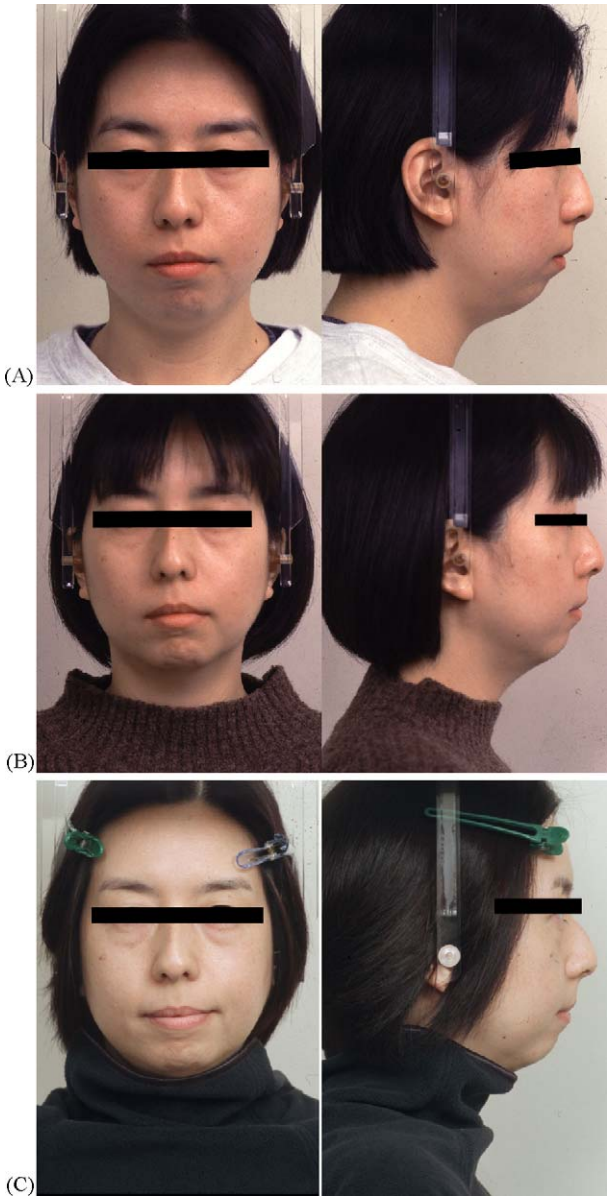

Fig. 1 – Facial photographs: (A) initial (30 years 9 months); (B) post-active treatment (32 years 9 months); and (C) 6 years after active treatment (38 years 9 months).

spacing and protrusion. Gingival inflammation had occurred in her earlier age and incisor spacing has been present since she was about 20 years old. The patient displayed a profile of convexity (Fig. 1A). Dental examination showed 5.0 mm of overbite and 8.0 mm of overjet combined with 4 mm of diastema in maxillary incisors and slight crowding of mandibular incisors (Figs. 2A and 3A). There were non-appropriate contacts because of slight rotations at right mandibular premolars. The molar relationship was Angle class I.

Lateral cephalometric analysis showed the proclination of both maxillary and mandibular incisors (U-1 to FH = 116.0°, L-1 to MP = 108.0°) and SNA–SNB difference was 10.0°. Radiographic examination revealed sever bone loss at both maxillary and mandibular incisors, at proximal sites of maxillary right and left first molars and a left mandibular first molar, and also both proximal and distal site of a right maxillary first molar (Fig. 4A). Pocket probing also proved the attachment loss for measured 10 mm at the mesiobuccal site of a maxillary left molar as the deepest and 6–7 mm at the proximal sites of maxillary incisors. Mandibular molars also had deep probing depth as 6 mm at the proximal sites of the left first molar and 6 mm at the distolingual site of the right first molar (Table 1).

For all of the above, the patient was diagnosed as Angle class I maxillary protrusion associated with post-juvenile periodontitis and treatment plan was decided with consideration of the approach to both periodontitis and malocclusion.

3. Treatment planning and progress

Prior to starting orthodontic treatment, the patient received periodontal treatment to aim at complete exclusion of the infection source and reduce the deep periodontal pockets to the depth of less than 3 mm. The treatment included scaling and root planing, flap surgery at the site with more than 6 mm of pocket depth and instruction in oral hygiene.

After 8 months from first inspection of periodontal treatment, tissue condition was greatly improved as the maxillary incisor pocket depth showed a decrease, from 7 to 1 mm, and at the maxillary left first molar, from 10 to 2 mm, which had been with the most sever attachment loss (Figs. 2B and 3B, Table 2). No bleeding was observed at probing.

After periodontal treatment the orthodontic treatment was planned to aim at (1) alignment of the maxillary and mandibular arches to close the space in maxillary incisors and correct the excessive curve of Spee (4.7 mm) and discrepancies in the height of marginal ridges; (2) intrusion of maxillary and mandibular incisors to reduce the overbite; and (3) lingual movement of the maxillary incisors to reduce the overjet.

At the patient's age of 31 years and 2 months, and 6 months after the flap operation, the orthodontic treatment started using multi bracket appliance with .022 slot standard brackets. The sequence of archwires is provided in Table 3. The first molars were continuously ligated with those adjacent second molars and premolars so that the force would not act on the first molars only, and the light depressive forces were applied carefully when intruding the anterior teeth. Anterior teeth also were placed altogether with continuous ligation when retracted, for distributing the force acting on the central incisors with bone loss. During the orthodontic treatment, the patients were given periodontal management including professional mechanical tooth cleaning performed at 3-months intervals [6] and when decided necessary.

Orthodontic treatment was finished at the age of 32 years and 9 months, and Begg-type retainer for the maxillary arch and fixed-type retainer for the mandibular were applied. Active orthodontic treatment period was 1 year and 7 months.

4. Treatment results

Post-treatment facial photographs are shown in Fig. 1B. Examination of intraoral photographs (Figs. 2C and 3C) and the cast model showed continuous dental arches, which were