CASE REPORT

Interdisciplinary Approach in Management of Anterior Open Bite in Adult Patient - A Case Report

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Abstract

This case report illustrates the orthodontic treatment combined with the endodontic and prosthetic procedure carried out in an adult patient to correct the anterior open bite. The patient was a 38-year-old woman with an anterior open bite and generalized attrition and spacing in upper and lower incisors and was not happy with her esthetics. Active orthodontic treatment was followed by endodontic procedures and prosthetic coverage was done to achieve a successful closure of the anterior open bite with adequate overbite and interdigitiation of the teeth.


Introduction

Orthodontic treatment has the ability to modify the dentofacial skeleton and affect facial esthetics. Currently many adult patients seek orthodontic treatment for their malocclusions. Patients with anterior open bite present with aberrant neuromuscular function related to malfunctions of the tongue or oral habits, disproportionate neuromuscular growth, steep mandibular plane, increased anterior facial height, downward and backward rotation of the mandible, Vertical overgrowth of the maxilla, variations in dental eruption or alveolar growth. Anterior open bite is often caused by a downward rotation of the mandible and/or by excessive eruption of the posterior teeth. Patients usually present with a reverse curve of smile. This case report depicts the interdisciplinary management of an adult patient with anterior open bite.

Case report

A 38 year old female reported to the Department of Orthodontics with a chief complaint of inability to eat from anterior teeth and compromised facial esthetics.
Pre-treatment facial photographs showed a straight profile with competent lips (Fig 1). The patient had an Angle Class I malocclusion. The upper and lower arches were well aligned with moderate spacing, and an evident tongue thrust habit. Generalized attrition was present whose etiology could not be ascertained.

![Fig 1 Pre-treatment extra oral photographs](image)

Fig 2 shows pretreatment intraoral photographs. The patient showed a genuine interest to have the orthodontic treatment completed as soon as possible.

![Fig 2: Pre-treatment intra oral photographs](image)

Fig 3 shows pretreatment lateral cephalograms and OPG of the patient. Cephalometric examination revealed Class I skeletal pattern with orthognathic maxilla and mandible, horizontal growth pattern, upright maxillary and mildly proclined mandibular incisors and open bite of 7 mm. Soft tissue examination revealed straight profile with normal nasolabial angle.

![Fig 3 Pre-treatment lateral cephalograms and OPG of the patient](image)

**Treatment plan**

Considering the age of the patient and keeping in mind the objectives of orthodontic treatment i.e. establishing improved dentofacial esthetics and stomatognathic function; it was decided to proceed with interdisciplinary approach involving orthodontic intervention followed by restorative rehabilitation.

The suggested treatment plan involved comprehensive orthodontic treatment with fixed appliances to align the upper and lower teeth, extrude the incisors to reduce the anterior open bite and a palatal crib to guide the tongue. After sufficient reduction of anterior open bite, endodontic and prosthetic procedures were carried out to close the anterior open bite and obtain a pleasing smile.

**Treatment progress**

Preadjusted edgewise orthodontic fixed appliances of MBT 022 slot with composite brackets were bonded on the maxillary arch. Being an adult married female patient, she had time constraints so was not ready for full arch lower bonding. Mandibular arch brackets were bonded from canine to canine after strong persuasion. A palatal tongue crib was given to control the habit.

0.016” Ni-Ti wires were used for alignment and leveling. Wire sequence followed was 0.018” Ni-Ti, followed by 0.016 x 0.022” Ni-Ti, 0.017 x 0.025Ni-Ti, 0.019 x 0.025” Ni-Ti, 0.019 x 0.025”
Continuous extrusion arch made of 0.019 x 0.025” TMA wire was given in the upper arch as shown in Fig 4. Box elastics were given to assist in bite closure.

Fig 4 Intra oral photographs with Extrusion Arch

Then the patient was referred to Department of Conservative Dentistry and Endodontics for opinion.

Patient was evaluated for the amount of extrusion achieved and type of restorative procedure to be carried out.

After evaluation, patient was advised for full porcelain veneers but due to the cost concern patient opted for Porcelain fused to Metal (PFM) crowns for the anterior teeth. As attrition was already present, further reduction would have exposed the pulp. Hence Root canal Treatment was performed on 11,12,21,22,31,32,41,42 followed by crown preparation. Vital preparation was done on all the 4 canines and impressions were made in condensation silicone followed by light body impressions to get proper margins of the crowns. The proper shade selection was done in natural light using a Vita shade guide.

Metal coping try-in as well as try-in of the final PFM crowns was done to operator’s and patient’s satisfaction. Crowns were cemented. Fig 5 shows post-treatment extra oral photographs of the patient.

Fig 5 Post treatment Extra oral photos

Fig 6 shows post treatment intra oral photographs of the patient. Fig 7 shows post treatment Lateral cephalogram and OPG of the patient.

Fig 6 Post treatment Intra oral photographs of the patient

Fig 7 Post treatment OPG lateral cephalograms of the patient

A removable habit breaking appliance was given for correction of tongue thrusting habit. Vaccupress retainers were given for mandibular arch.

Conclusion

With this interdisciplinary approach we could restore patient’s self-confidence as seen from her vibrant and radiant post treatment smile.
References


