

Use of a posterior bite block modified with TPA and palatal crib for treating open bite in growing individual - A case report¹Dr. Jibin Joy Daniel, Assistant Professor, Pushpagiri College of Dental Sciences, Kerala.²Dr. Asjad Nizar, Postgraduate Student, AJ Institute of Dental Sciences, Mangalore.³Dr. K. Nillan Shetty, Professor & HOD, Department of Orthodontics, AJIDS, Mangalore.⁴Dr. Anil Kumar, Reader, Department of Orthodontics, AJIDS, Mangalore.**Corresponding Author:** Dr. Asjad Nizar, Postgraduate Student, AJ Institute of Dental sciences, Mangalore.**Citation of this Article:** Dr. Jibin Joy Daniel, Dr. Asjad Nizar, Dr. K. Nillan Shetty, Dr. Anil Kumar, “Use of a posterior bite block modified with TPA and palatal crib for treating open bite in growing individual - A case report”, IJDSIR- November - 2022, Vol. – 5, Issue - 6, P. No. 49– 52.**Copyright:** © 2022, Dr. Asjad Nizar, et al. This is an open access journal and article distributed under the terms of the creative commons’ attribution non-commercial License. Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.**Type of Publication:** Case Report**Conflicts of Interest:** Nil**Abstract****Background:** The aim of this paper is to illustrate the use of a Posterior bite block modified with TPA and Palatal crib to obtain the vertical control of maxillary molars, restrict tongue pressure as well as Intruding posterior molars thereby autorotating mandible.**Case report:** Use of posterior bite block modified with TPA and Palatal crib for correcting Anterior Openbite in growing individual is illustrated. Patient was successfully treated, and the open bite was fully corrected thanks to molar intrusion, following counter clockwise rotation of the mandible and tongue correction. Finishing of alignment was performed in phase II of the treatment with conventional appliances.**Conclusion:** Posterior bite block modified with TPA and Palatal crib proved to be effective in controlling the vertical position of maxillary molars promoting the

counter-clockwise rotation of the mandible and stimulating a different tongue posture.

Keywords: Open bite, Open bite correction, Growing Individuals, Tongue pressure**Introduction**Anterior open bite is a challenging malocclusion characterised by a deficiency in the normal vertical overlap between anterior incisors edges when the posterior teeth are in occlusion¹. The prevalence of anterior open bite ranges from 1.5% to 11% among different age and ethnic groups [Pisani et al., 2016; Harvold et al., 1981. Di Ventura et al., 2019; Nota et al., 2019; Carvalho et al., 2011]The aetiological features of open bite can generally be grouped under three headings as follows²:

1. Disturbances in the eruption of the teeth and alveolar growth (e.g., ankylosed primary molar).

2. Mechanical interference with eruption and alveolar growth (e.g., finger-sucking habit).
3. Vertical skeletal dysplasia.

According to Profit and Fields³ [1983], the ideal timing to start interceptive treatment is during the mixed dentition because every modification in deciduous dentition has the potential to relapse due to on-going growth-related changes. Since patients with this type of vertical growth are more susceptible to dental extrusion and further bite opening during conventional biomechanical therapy, several authors have proposed intraoral devices, similar to vertical holding appliances used during orthodontic treatment, to inhibit the maxillary molar over-extrusion and to promote a more favourable mandibular counter clockwise rotation^{4,5}[Bascifici and Karaman, 2002; De Berardinis et al., 2000; Gracco and Spena, 2008; Wise et al., 1994; Linder Aronson et al., 1993; Shpak et al., 2006; Cerruto et al., 2018].

Materials and methods

A posterior bite block is made with a clear acrylic on a working model which is modified with TPA made of 0.9mm stainless steel wire where U loop is made in a direction opposite to conventional TPA and It should be 2mm away from the tissue surface and a Palatal crib is made to restrict tongue pressure.



A Case Report

A 16 yrs old female patient came to our department with a chief complaint of forwardly placed upper teeth. On

extra oral examination she has convex profile, posterior divergence.

mesomorphic build with athletic body type and mesocephalic head with incompetent lips.

On Intraoral examination, Patient presented with class I molar relation, anterior openbite, Proclined upper and lower incisors with midline diastema, lower arch crowding and tongue thrusting habit.

After examination she was diagnosed as Skeletal Class II base, with underlying Angle's Class I malocclusion with anterior open bite and Proclined upper and lower anterior, spacing in upper and crowding in lower anteriors and a vertical growth pattern.

Treatment Objectives

1. Correction of tongue thrusting habit.
2. Correction of open bite.
3. Correction of Proclined upper and lower anteriors.
4. Correction of spacing in upper anteriors.
5. Correction of crowding in lower anterior region.

Treatment plan

Non-extraction treatment plan is finalised and correction of anterior openbite by Intruding upper posteriors thereby auto rotating mandible with the use of posterior bite block modified with TPA and Palatal crib. So that we can achieve vertical control over upper molars at the same time intrusion of upper molars as well as we can restrict tongue pressure.

After that, phase II with Conventional fixed appliance therapy.

The appliance used is PEA MBT mechanotherapy in 0.022 SLOT.

Figure 1: Pre-treatment intra oral photographs



Figure 2: Posterior bite block modified with tpa and palatal crib



Figure 3: After 6 months of treatment, anterior openbite is corrected and strap up with 0.014 niti on both arches



Discussion

Open bite malocclusion is a difficult to treat in orthodontic practice. Treatment modalities include functional appliances in growing children and surgeries in adults. Minor cases can be treated by fixed orthodontics along with some habit breaking appliances. Relapse rates are highest in this type of malocclusion. Functional efficiency of the stoma to logical system is undermined in such cases. Extra care should be taken while diagnosing and planning treatment for such these cases as any error in identifying the etiology may lead to a poor end result.

In this case Posterior bite block modified with TPA and Palatal crib proved to be effective in controlling the vertical position of maxillary molars promoting the counter-clockwise rotation of the mandible and stimulating a different tongue posture.

Conclusion

Open-bite malocclusion is the one in treatment group, which has the most possibility of relapse. The most important feature for dental treatment is the stability of

treatment. The functional treatment methods, when applied in early and active stages of growth and development, provide positive stable results by turning vertical development towards horizontal development.

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