

# Open Bite Correction with Asymmetric Extraction Pattern: Case report

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## Abstract

This case report summarizes an alternative orthodontic treatment approach for a 23 year old adult female patient with anterior open bite, retained 71, congenitally missing 31 and tongue thrusting habit.

**Keywords:**

## INTRODUCTION

There is much controversy among orthodontists about the prognosis of treatments for open bite. The causation is difficult to identify since a wide range of etiological factors exists. These factors include skeletal or dental causes, congenital or acquired causes, and combinations of these forms. From the morphological point of view, open bite is basically classified as skeletal or dental. In the case of dental open bite, the etiology is roughly sub classified as acquired, caused by a habit such as thumb sucking or tongue thrusting, and congenital.

There also are indistinguishable dental open bite subclasses caused by airway obstruction or neurological problems. Although it may be relatively easy to treat the causative factor of open bite directly when the factor is clearly identified, it is rather difficult to do so in daily practice because the etiology is often obscure and combined. Although the etiology may bring a consideration of tongue reduction when the tongue volume is excessive, the diagnosis is not always easy. This is because the diagnosis of macroglossia is not fully estab-

lished and also because the tongue sometimes adapts to the contracted narrower space after orthodontic treatment.

### CASE REPORT

Here we report a patient with dental open bite that we first treated with a removable palatal crib appliance for habit breaking in 6 months. Ideally the treatment plan was all first premolar extraction pattern followed by prosthetic rehabilitation of 31. However the patient was unwilling for prosthesis and preferred for orthodontic space closure only. Hence an

alternative extraction approach involving upper first premolars and retained 71 was decided.

### Pre-treatment evaluation

An adult 23 year old female patient with following intraoral findings: anterior open bite, retained 71, congenitally missing 31 and tongue thrusting habit.

**Extraoral findings include:** Mesocephalic head with average facial form, Class II convex profile and posterior divergence with lip incompetence.



Fig 1: Pre Treatment

### Initial treatment objectives and plan

In order to correct the open bite and to establish an ideal overbite, Habit removal using a simple removable palatal crib and all first premolars extraction line of treatment followed by prosthetic rehabilitation on 31 was planned. However patient insisted on not having any artificial teeth, hence an alternative extraction approach involving 14, 24 and retained 71 was planned. Objective was to achieve an ideal overbite and functional movements with class I canine relation. Moderate anchorage was decided so as to protract molars to a class II relation maintaining cusp to fossae relations.

### Treatment progress

Removable palatal crib was delivered to eliminate underlying simple tongue thrusting habit for 6 months. This case was treated using 0.022" by 0.028" slot pre-adjusted edge-wise appliances with MBT prescription. Levelling and alignment followed by Class I space closure mechanics was employed. Light vertical elastics used in conjunction to correct the bite discrepancy.



Fig 2: Removable palatal crib appliance



Fig 3:  
Treatment records prior to fixed appliance treatment





Fig 4: Bonding fixed appliance



Fig 5: Mid Treatment

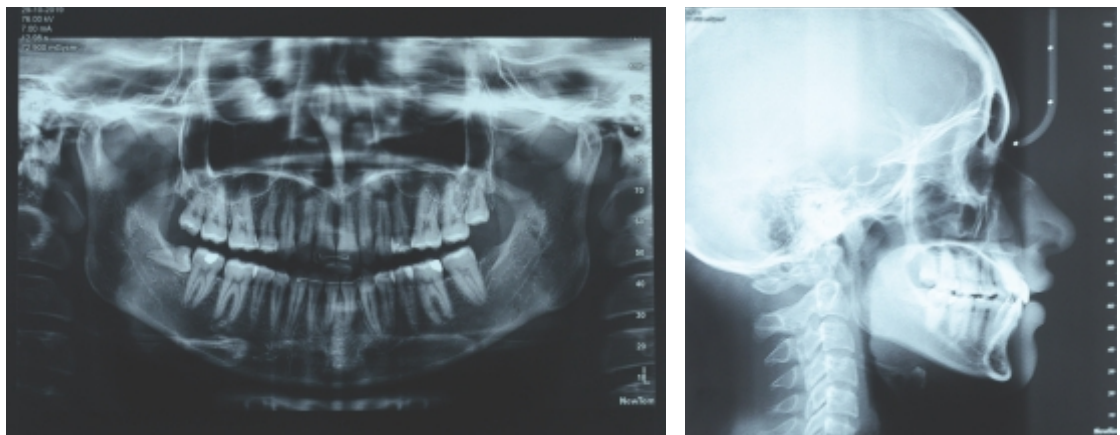


Fig 6: Post Treatment records

## Post Treatment Results

### Skeletal

The patient displayed favorable vertical proportions, and this contributed to the correction of the open bite through ranterior extrusion. There were insignificant changes to both the mandibular plane angle and the ANB value was improved at the end of treatment.

### Dental

Ideal overbite and overjet was achieved with good intercuspatation.

### Soft tissue

The soft-tissue facial outline showed a decrease in convexity from pre-treatment to post-treatment. Satisfactory upper anterior esthetics, lip competence and optimal facial esthetics were achieved at appliance debond. The patient was very pleased with the overall result.

### Retention

Fixed lingual retainers were bonded in conjunction with conventional retainers.

### Critical Appraisal

This extraction approach was not the ideal line of treatment but satisfactory results were obtained meeting realistic goals for this adult patient's concerns. Constriction of lower intercanine width can compromise post treatment stability. Hence fixed lingual retainer and appliance wear compliance was ensured.

## CONCLUSION

Compromised orthodontic treatment approaches to improve facial esthetics and to meet patient treatment needs are essential counterparts of adult orthodontic treatment. However careful patient selection and goals of occlusion should be kept in mind before instituting treatment.

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