

# Lower Incisor Extraction-A Case Report

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### Abstract

There are several any approaches for crowded mandibular anterior teeth which are currently employed: distal movement of posterior teeth, lateral movement of canines, labial movement of incisors, interproximal enamel reduction, removal of premolars, removal of one or two incisors, and various combinations of the above. Selecting the best treatment is often difficult, and all guidelines do not apply to every case. A case report is presented one mandibular incisor extraction treatment of a 17 year-old male with a Class II malocclusion that shows a significant mandibular arch length deficiency and mandibular tooth-size excess. After careful evaluation of the degree of mandibular anterior dental crowding, existing mandibular tooth-size excess, and the dental midline discrepancy a treatment protocol of extraction of one mandibular incisor was decided upon.

### Introduction

Bourdet, a disciple of Pierre Fauchard, in 1757 recommended the removal of the premolars to relieve crowding<sup>1</sup>. Likewise Hunter<sup>4</sup> in 1835 advocated extraction of first premolars to allow incisor retrusion in cases of posterior protrusion. Almost two centuries elapsed before Hahn<sup>2</sup> in 1942 advocated the removal of mandibular incisor to gain space for a camouflage treatment of a case with class III malocclusion. This approach however opened up a new avenue of gaining space specific to individual patient needs.

Kokich and Shapiro<sup>3</sup> in 1984 pointed out that the deliberate extraction of a lower incisor in certain cases allows the orthodontist to improve occlusion and dental aesthetics with minimum of orthodontic action. The extraction of mandibular incisors is indicated in four types of clinical situations. The situations being, discrepancies in the mesiodistal size of six anterior teeth. The disproportion as reflected by Boltons Index<sup>4</sup>, is due to the relative macrodontia of the lower incisors. The other indication is the ectopic eruption of incisors. The transposition of anterior teeth or severe malpositioning of a lower incisor indicated extraction for a more occlusally stable result and reduced orthodontic treatment time. Anterior crossbite of edge to edge relation of the incisors with a tendency towards

anterior open bite is another indication or the above, the philosophy being that occlusion improves on shortening the length of mandibular arch, which retrudes the position of lower incisors<sup>5</sup>.

The aim of this case report was to assess the treatment outcome and changes in dentofacial structures especially mandibular incisor position after extraction of one single lower incisor

### Case Report History & Diagnosis

A 14 year old male patient reported to the Department of Orthodontics of B.I.D.S.H with a chief complaint of upper and lower arch crowding. The patient presented with a straight profile, class I skeletal pattern and symmetrical face. Intraoral examination showed Angles Dentoalveolar class I molar relation with an overjet of 8mm and overbite of 9mm. Lower arch showed labially placed central incisors, lingually placed lateral incisors and mesiolingual rotation in relation to both 2<sup>nd</sup> premolars.

Mandibular midline was shifted to the left by 1mm. Lower central incisors showed marked gingival recession. Careys arch perimeter analysis shows 7mm Tooth Material Excess in lower arch and 5.5mm space available in upper arch. Boltons Ratio reveals Overall mandibular tooth material excess of 4mm.

Cephalometric analysis reveals a horizontal growth pattern, orthognathic maxilla & prognathic mandible proclined upper and lower incisors, protrude upper & lower lips.

### Pre Treatment Pics Treatment Objectives:

A requirement of maintaining the ideal dentoalveolar molar relation along with reduction of excessive overjet was the apparent objective. Relieving the crowding was of paramount importance, as not only was this the chief concern of the patient but the lower anterior crowding was also an eyesore for the orthodontist.

Thus the treatment objectives include:

1. Elimination of dental crowding in lower arch
2. Reduction of overjet in upper & lower arch
3. Maintain the Class I Molar relation
4. Provide for a more regular alignment of the maxillary and mandibular teeth for aesthetics, function and hygiene
5. Maintain the acceptable facial balance and muscle tone.
6. Compensate for the relative excess mandibular tooth mass with the removal of one mandibular incisor
7. Attain balanced occlusion, stability and retention
8. Attain straight soft tissue profile and satisfactory orthodontic look.

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9. Reduce orthodontic treatment time.

Considering all aspects of the case in detail, during the treatment-planning interview, two treatment options were presented to the patient. The first involved extraction of one single mandibular incisor. This would allow easy resolving of the lower crowding and improvement of the overjet. The second option involved extraction of the all first premolar. After careful evaluation, our team of orthodontists and patient opted for the first option.

**Treatment Progress:**

The case was started with extraction irt 15,25 and 41. This was followed with placed o brackets according to MBT Prescription 022slot. Anchorage was critical and leveling and aligning with 014 NiTi, followed by 016 NiTi.after leveling and aligning stiffer wire was used ,i.e 17\*25 S.S,with open coil spring in realltion to 31. Retraction was sarterd on 19\*25 S.S in the upper arch and spaced closed itr 41 in the lower arck by 19\*25 S.S wire. Finishing was done on 014 NiTi.

**Treatment Progress Photo-graph**

**Result & Discussion**

The Class I molar and canine relationship were established with satisfactory interdigitation of posterior teeth. The overjet was improved. The upper and lower arch length deficiencies was eliminated and the tooth-size discrepancy was managed successfully. The dentition and the periodontal tissues remained healthy during treatment. Unaesthetic loss of the inter-dental papillae between the lower central incisors was occurred as an unwanted side-effect.

Posttreatment radiographs showed that minimal root resorption had occurred during treatment and that root parallelism was satisfactory achieved. Cephalometric evaluation revealed that no significant changes.The lower and the upper incisors were retroclined slightly, and the interincisal angle was decreased.

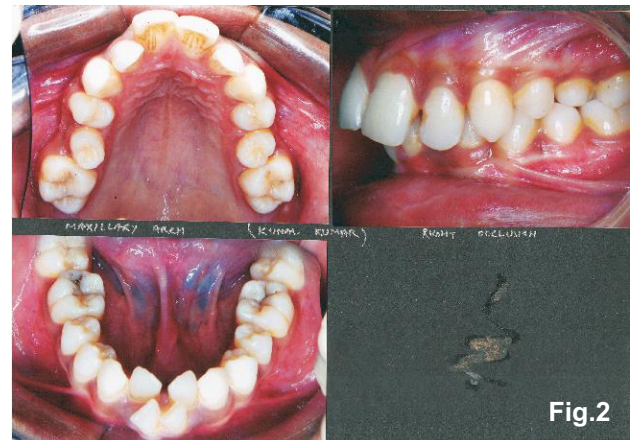
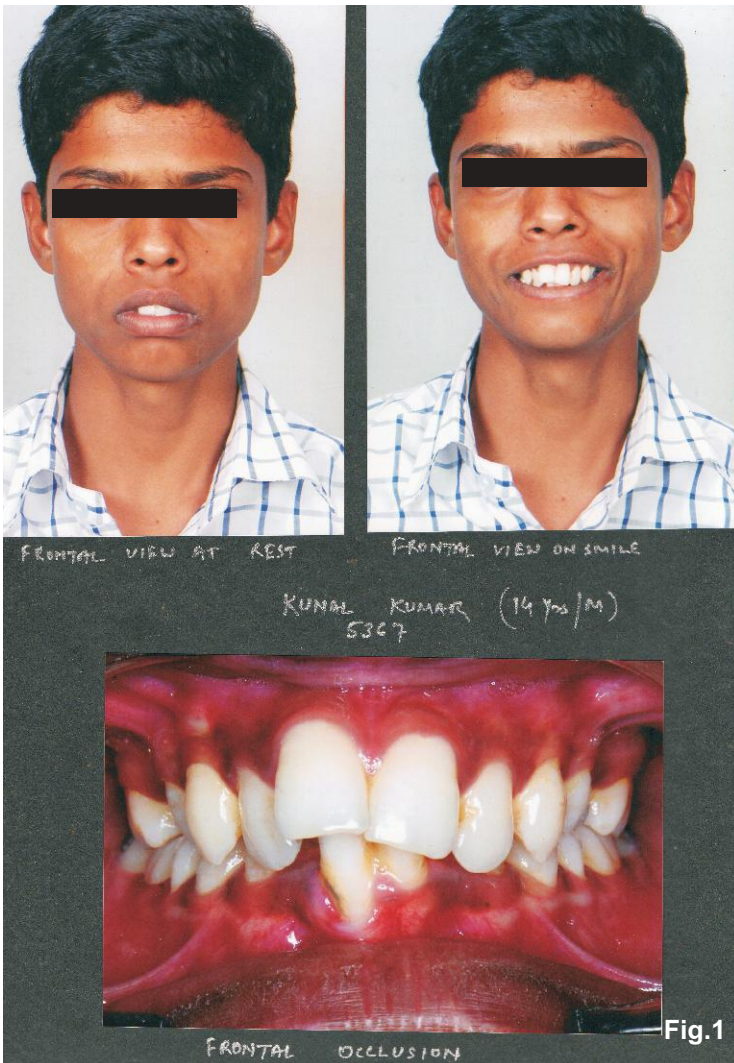
**Conclusions**

One single mandibular incisor extraction can be an effective treatment choice for the appropriate malocclusion with a Bolton discrepancy. Whenever single lower incisor

extraction treatment is contemplated, a full diagnostic setup should be made. Tooth-size formulas are not consistently accurate in predicting a final occlusion; a full setup is the best way to be sure the occlusal results, including overbite and overjet, will be acceptable. However, several factors must be considered before making the final treatment decision. In addition, evaluation of a diagnostic wax set-up will allow the orthodontist to predict the success of the proposed treatment plan.

**References**

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