Single incisor extraction -a case report

Denny Joseph Payyapilly[1], Jibin Skaria[2], Anju Antony[3], Lincy Stephen Joseph[3], Anvar K.P.[4]

[1]Professor and Head of Department,
Department of Orthodontics,
Annoor Dental College and Hospital,
Muvattupuzha, Ernakulam dist. Kerala, India.

[2]Senior Lecturer,
Department of Orthodontics,
Annoor Dental College and Hospital, Muvattupuzha,
Ernakulam dist. Kerala, India.

[3]Postgraduate Student,
Department of Orthodontics,
Annoor Dental College and Hospital, Muvattupuzha,
Ernakulam Dist. Kerala, India.

[4]Former Postgraduate Student,
Department of Orthodontics,
Annoor Dental College and Hospital, Muvattupuzha,
Ernakulam dist. Kerala, India

Corresponding author:
Anju Antony
Postgraduate Student,
Department of Orthodontics,
Annoor Dental College and Hospital,
Muvattupuzha, Ernakulam dist. Kerala, India
E-mail: anjuantony91@gmail.com

Abstract

The extraction of the lower incisors is a therapeutic alternative in treatingcertain malocclusions. It is not a clinical situation in which the treatment objectives can be adjusted to individual patient needs.According to Kokich and Shapiro (1984), the deliberate extraction of lower incisor in certain cases allows the Orthodontist to improve the occlusion and dental esthetics with a minimum orthodontic action.[1]

INTRODUCTION

Ideal indications and case selection for mandibularincisor extraction:

1. Class I molar relationship with proper buccal interdigitation will be acceptable.[2]
2. Ideal or normal upper arch, which could not be just corrected by inter-proximal enamel reduction alone.
3. Soft-tissue profile should be normal.[2]
4. Class II molar case with lower anterior crowding, upper premolar extraction along with lower one incisor extraction can get a stable result.
5. Patients with minimal growth potential.[2] In growing patients, nonextraction therapy should be considered.
6. Missing lateral incisors or peg laterals, which can solve the tooth size discrepancy without any stripping or re-contouring.[2]
7. Class I cases with anterior dental crossbite, which is due to lower anterior crowding or lower anterior protrusion can be considered.[3]
8. Cases with borderline Class III or a Class III tendency are also indicated.[3,2,4,5,6]
9. Extreme crowding or protrusion, with gingival recession and bone loss .[6]
10. Tooth Size Arch Length Discrepancy (TSALD) in the mandibular arch (TSALD greater than 5 mm in lower anterior region) is an indication for extraction of single mandibular incisor.[7,8]
11. Presence of deep curve of Spee, proclined lower anteriors where uprighting can be easily done with a single lower incisor extraction.[7]
12. Extraction of lower incisor is indicated when there is ectopic eruption with normal inter canine width.[7]

Advantages of Extraction of Lower Incisor:

- Less teeth are sacrificed with single incisor extraction.[8,4]
- Shorter treatment time with faster results.
- Minimum teeth movement require
- Soft-tissue profile is balanced.

Disadvantages of Extraction of Lower Incisor:

- Esthetically acceptable result
- occlusion is not alwaysa perfect class one.[5,6]
- Lower midline deviation.
- Formation of a black triangle due to papillary defect between lower incisors.

The critical decision of which incisor to extract???

It depends on several considerations, including:

- Periodontal conditions
- The presence of gingival recession
- The location of any restorations, including endodontic treatment.
- In addition, the mesiodistal width of each incisor should be measured and the anticipated amount of tooth movement determined with the Bolton analysis, keeping in mind that in the mandible, the central incisors tend to be smaller than the lateral ones. Extraction of a lateral incisor is generally preferred because it is less visible from the front.[2]
- In cases with Class I and mild Class III malocclusions with mild open-bite tendencies.[6]
- when the patient has congenitally missing maxillary lateral incisors and significant mandibular anterior crowding.[4,5]

CASE REPORT

A male patient aged 21 years reported for treatment with mesoprosopic facial pattern, mild convex profile, prominent nose, average nasolabial angle, Angle's Class I molar and canine relationship, with upper and lower anterior crowding. Panoramic radiograph

showed presence of all the permanent teeth.

Cephalometric analysis revealed skeletal Class II malocclusion, with hypo divergent growth pattern, with proclination of upper and retroclination of lower incisors. Bolton's analysis showed anterior mandibular excess - 2.5 mm, Overall mandibular excess - 1.48mm.

TREATMENT GOALS

The treatment was aimed to correct the upper and lower incisor crowding and to level, align and establish optimum over jet and overbite while maintaining a Class I molar and canine relationship.

TREATMENT PLAN AND MECHANICS

Fixed appliance therapy with Preadjusted edge-wise appliance of MBT prescription(0.022" × 0.028" slot) with extraction of lower right central incisor was carried out.

Arch wire sequence was 0.014" nickel titanium (NiTi), 0.016 "NiTi, 0.016" SS, 0.016"X0.022" SS and sectionally corrected upper left central incisor. After alignment, 0.017"X 0.025" followed by 0.019" × 0.025" stainless steel (SS). Ideal torque, optimum interincisal angle and root parallelism were achieved at the end of the treatment. The retention plan consisted of an upper Hawley's retainer and a fixed lingual retainer on the lower anteriors.

TREATMENT RESULTS

At the end of treatment lower incisor crowding was relieved with improvement in facial esthetics, maintaining Class I molar and canine relationship with good posterior occlusion, normal overjet and overbite. Superimposition of pre and post cephalometric tracings revealed slight proclination of upper and lower anteriors.

CONCLUSION:

Mandibular incisor extraction, is a better choice to opt for, for the correction of lower incisor crowding and also to maintain the facial profile as the mechanics becomes simpler and good results are achievable. Midline compromise will not be an esthetic problem as the lower midline is not visible in a normal social smile. Proper planning regarding the post-treatment occlusion should be done before single incisor extraction.

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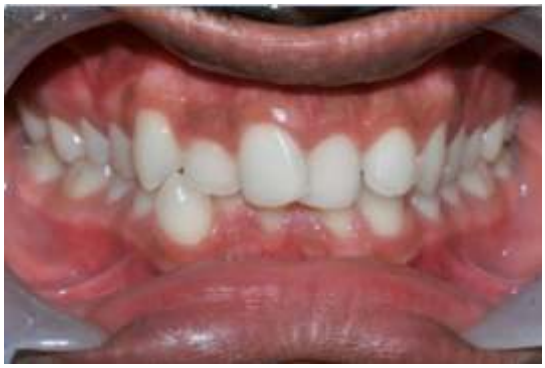
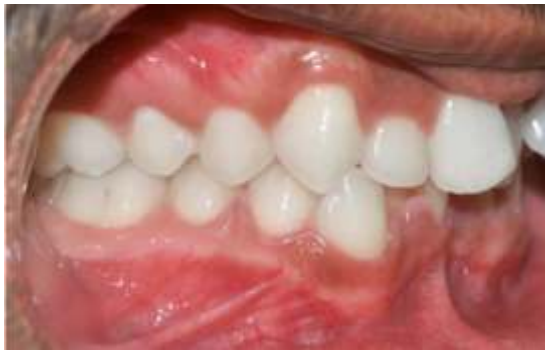
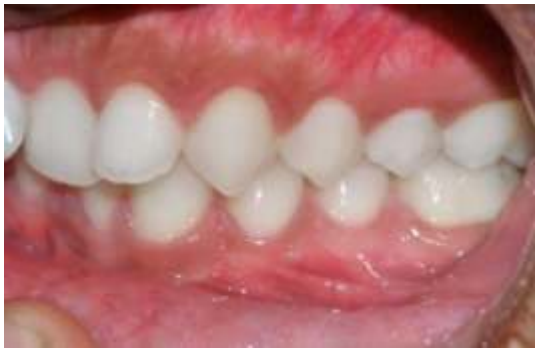
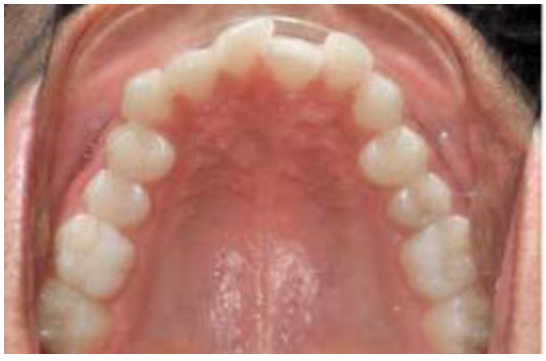
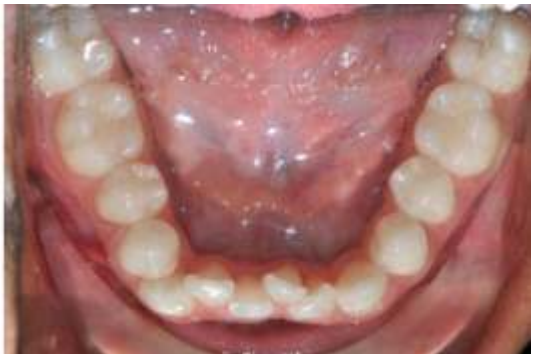
PRE TREATMENT PHOTOGRAPHS











POST TREATMENT PHOTOGRAPHS