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Management of Class III Malocclusion with Impacted Maxillary Central Incisor: A Case Report

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ABSTRACT

Class III malocclusions are considered one of the most complex and difficult orthodontic problems to diagnose and treat. Diagnosing the dentoalveolar and skeletal characteristics of class III malocclusion and evaluating their treatment possibilities is essential for a favorable nonsurgical correction. This article presents an asymmetric extraction approach to Class III subdivision malocclusion treatment along with the Surgical Exposure of the impacted maxillary central incisor with the help of Electrocautery.

Key words: Impacted central incisor, class III malocclusion, Camouflage

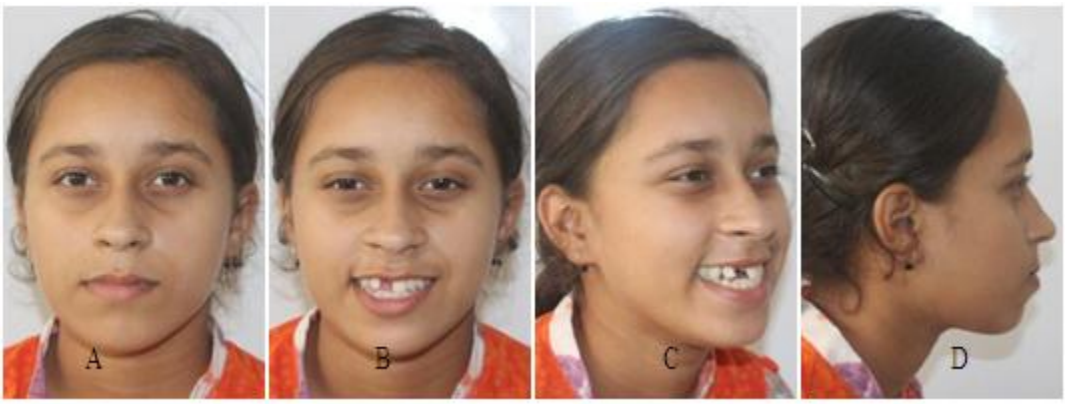
INTRODUCTION

Several studies have stated that most of the patients seeking orthodontic treatment aim to improve their facial appearance.[1,2] The patients with class III malocclusion are one of the most difficult cases, challenging one's knowledge of orthodontic biomechanics.[3] Several case studies have demonstrated orthodontic camouflage treatment of a class III subdivision malocclusion with asymmetric extractions.[4].

Maxillary central incisor impactions occur infrequently. Their origins include various local causes, such as odontoma, supernumerary teeth, and space loss. Supernumerary and ectopically impacted teeth are asymptomatic and found during routine clinical or radiological examinations. [5, 6]

CASE REPORT

This is a case of a 15 year-old female patient who reported to the clinic with the complaint of proclined front teeth and missing upper front teeth. The pre-treatment records showed that the patient had normal vertical proportions, a straight profile and good facial symmetry. Intraorally there was a missing maxillary central incisor in first quadrant [Figure 1]. Radiographically there was an impacted 11 along with a mesiodens, and a paramolar between 16 and 17.[Figure.2]. The cephalometric evaluation showed a Class III skeletal relationship with mandibular prognathism.



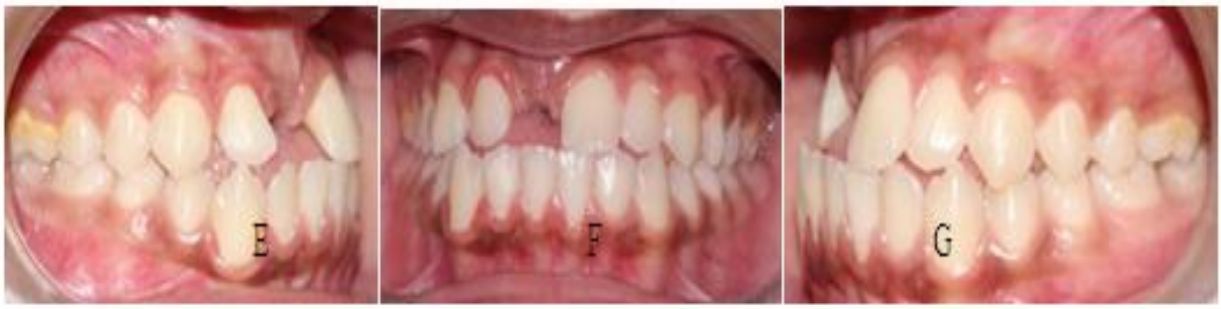


Figure 1: A- frontal view, B- frontal smiling, C- oblique view, D- lateral view, E- lateral view right, F- intraoral frontal view, G-lateral view left

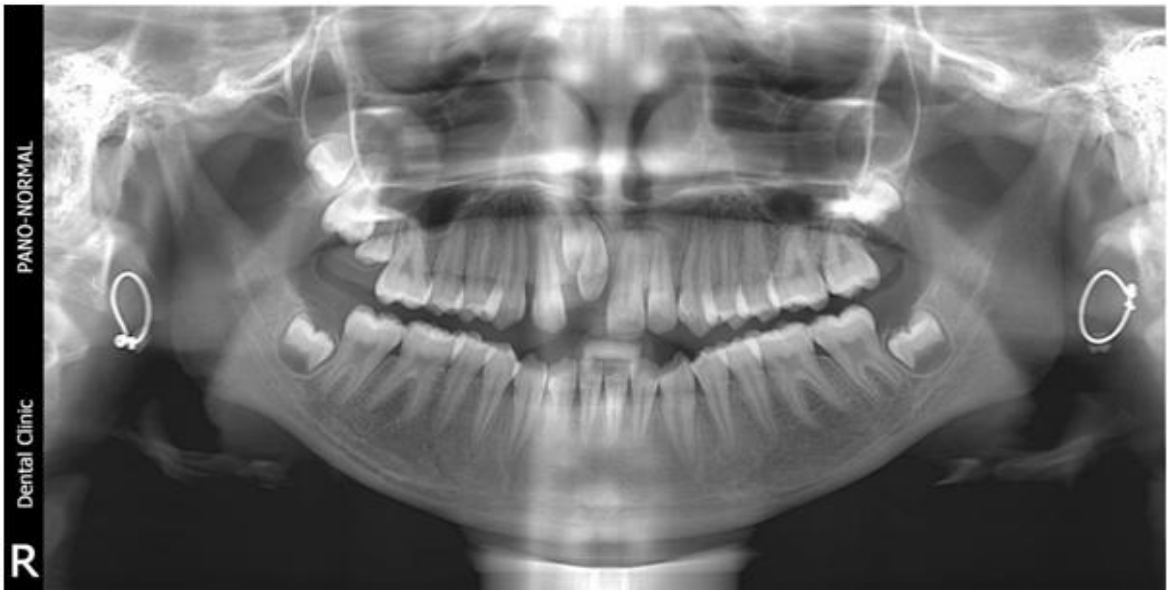


Figure 2: Pre treatment OPG

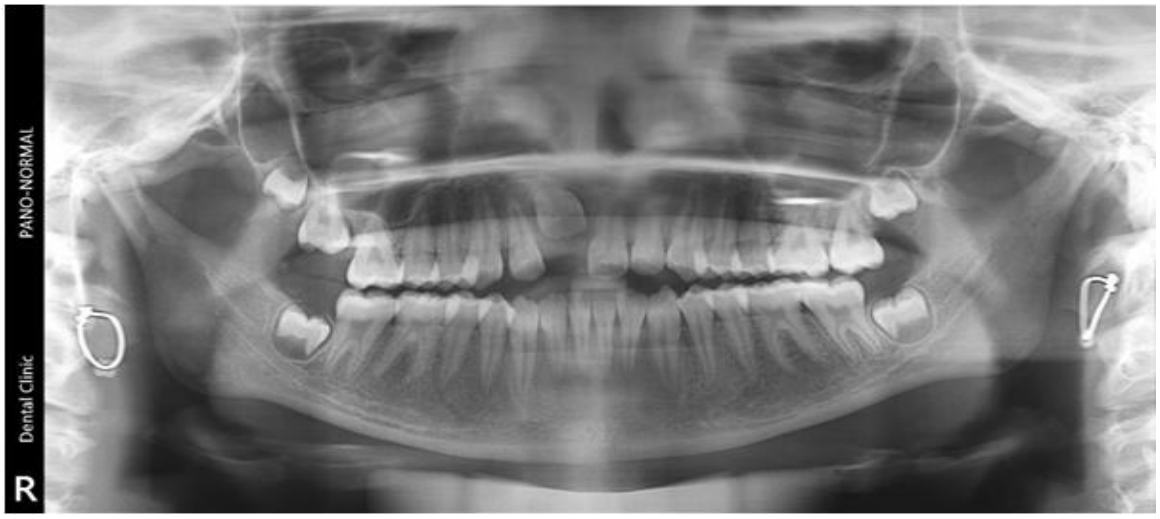
TREATMENT OBJECTIVES

Treatment objectives include:

1. Extraction of the supernumerary teeth.
2. Disimpaction of the central incisor.
3. Prevention of progressive irreversible soft tissue or bony changes.
4. Attaining positive overjet
5. Improvement of occlusal function - extraction of 24, 34, 44 and finishing the occlusion in class I canine on both sides and class III molar relation on right side and class I molar relation on left side.
6. Providing pleasing facial esthetics which would help in improving the psychosocial development of the child. Treatment objectives include:

TREATMENT PROGRESS

Treatment was started with extraction of mesiodens and paramolar.[Figure 3] The upper and lower arches were bonded with MBT bracket system (022 slot). Extraction of 24, 34 and 44 was carried. After the leveling and aligning of both the arches was done. Patient was referred to the department of periodontology for surgical exposure of 11. There are 3 techniques for uncovering a labially impacted maxillary canine, excisional uncovering, apically positioned flap, closed eruption techniques. Electrocautery for the excision exposure of 11 was done Electrocautry was preferred over scalpel because it controls hemorrhage due to coagulative effect and provide bloodless field.7 lingual button was bonded on impacted incisor and traction was carried out with the help of e-chain attached on the loop incorporated in 0.019x0.025 SS arch wire. [Figure 4]



Figuer 3: OPG after extraction of the supernumerary teeth.

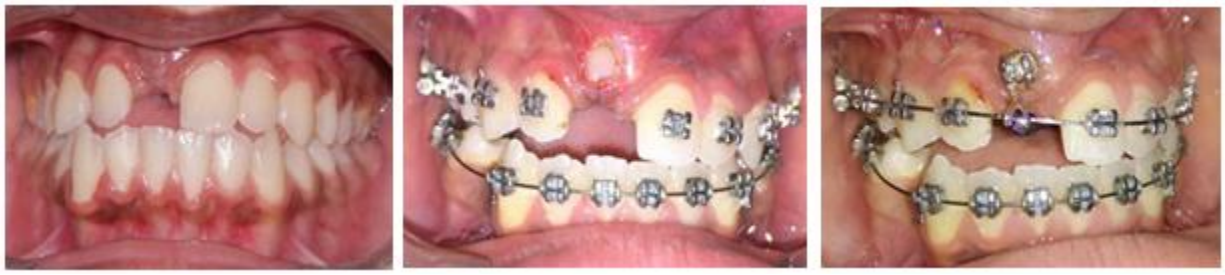


Figure 4: Disimpaction of the impacted maxillary central incisor

TREATMENT RESULTS

After the camouflage orthodontic treatment of 22 months a positive overjet was attained and the canines are in class I along with the molars in class III on right side and class I on left side. The impacted right central incisor was levelled and aligned.[Figure 5] The en-mass space closure of lower arch was done with loops, and the maxillary canine was retracted with active tie back. Space consolidation and further finishing and detailing of the case is in progress.

Figure 5: Post-treatment extraoral and intraoral photographs

DISCUSSION & CONCLUSION

Camouflage of skeletal class III malocclusions when the patient has an acceptable profile needs a meticulous effort in order to avoid unesthetic changes of the profile and to have a stable result. A proper diagnosis and treatment planning is the key factor in determining the success of treatment outcomes in orthodontic patients. In disimpaction of central incisor, bracket was attached during exposure surgery and traction was applied with E chain. Application of NiTi close coil spring could be a better option to deliver constant light traction force on incisor. The case is yet to be completed but it has been managed with optimum attached gingiva covering the incisor fulfilling the macro and the micro esthetics.

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