

Maxillary incisor impaction: A case report

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Abstract

Missing/Impacted anterior teeth can have very adverse impact on dental and facial esthetics which might cause an effect on self-esteem & general social interaction, hence it is important to detect and manage the problem as early as possible.

Although impaction of permanent tooth usually take time to get diagnosed during the mixed dentition period. An impacted central incisor is usually diagnosed accurately when there is a delay in the eruption of juxtaposed tooth.

This case report is on Impacted Incisor which was brought into its proper position after surgical exposure and orthodontic traction, after which it showed good stability results.

Keywords: Impacted Incisor, Surgical Exposure, Orthodontic Traction.

Introduction

The maxillary incisors are inevitable among the 'social six', are the most prominent teeth in an individual's smile. They have the maximum visibility during speech in most individuals.² Central incisors are very crucial for facial esthetics and during pronunciation of certain words. Premature loss of the primary maxillary incisor appears to have long-term effect on the speech development.³ Even its missing can lead to psychological trauma. So it is very important to detect missing incisors and manage it as soon as soon as possible. Careful planning is required for maintaining or achieving space for orthodontic traction or prosthetic rehabilitation. Impacted teeth can be properly positioned by orthodontic traction after confirmation of its position using radiographs.

Incidence/Prevalence

The incidence of unerupted maxillary central incisor is comparatively less when compared to canines. About .13% in the age group between 5–12 year has been reported. In a referred population the prevalence has been estimated as 2.6%.

If there is a change in normal eruption pattern it should be taken into consideration as early as possible, which usually might indirectly effect psychosocial behavior of a child for e.g. lateral incisors erupting prior to the central incisor.

Causes of delayed eruption

Delayed eruption can be classified into two groups.

1. Hereditary: like in case of Odontomes, Supernumerary teeth, cleft lip and palate.
- 2 Environmental: Trauma, early loss of deciduous teeth (with or without space loss), retained deciduous teeth, cystic formation, and endocrinal problems usually thyroid related.

Treatment alternatives for an impacted central incisor includes

1. Removal of impacted central incisor if it is in an unfavorable position latter on going for a restoration with a removable partial denture or an implant.
2. Missing central incisor can be substituted by the lateral after a composite recontouring.
3. Surgical exposure and traction of the impacted central incisor into proper position according to availability of space,

Case Report

This case report of Interdisciplinary Management of Incisor Impaction associated with Odontomes.

A 14-year-old male patient came to the department of orthodontics, KMCT (Calicut) Kerala with chief complaint of missing upper right anterior teeth. There was no relevant medical history. Past dental history revealed he had been diagnosed with compound Odontomes which seems to be a common cause of failure of eruption of teeth adjacent to it. Extra oral examination (Fig.1) revealed no facial asymmetry. Straight facial profile and presence of good facial proportions was seen.



Fig.1: Extra oral examination Photos

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Intraoral examination Fig. 2 revealed the presence of all permanent teeth except for maxillary right central incisor. Fig 3.shows the study model of this patient.



Fig. 2: Intraoral examination Photos-occlusal view



Fig. 3: Study models

Panoramic radiograph (OPG), CBCT (Fig 4) were also taken to confirm the position of unerupted right permanent central incisor in maxilla. Its position was slightly high about 4mm high from alveolar crest with a layer of soft tissue covering the crown in an oblique direction. The space available for right permanent central incisor was 8mm because of mesially inclined right lateral incisor obstructing the path of eruption. Adjacent teeth was having a measurement of 10mm.so we tried to attain another 2mm of space by up righting the mesially inclined central incisors.



Fig. 4: lateral cephalogram, panoramic orthopantogram (OPG), CBCT



Fig. 5: Surgical exposure of central incisor and traction.

On the basis of clinical and radiographic finding, he was planned for orthodontic treatment using 0.22 MBT prescription pre- adjusted edgewise appliance followed by surgical exposure of central incisor.

In this case, a mucoperiosteal flap was raised to expose central incisor on right side from mesial side of right lateral extending till the mesial side of left central incisors for proper visibility. Careful elevation of the flap was done, adequate amount of bone was removed using bur and constant irrigation. After surgical exposure of the tooth, an orthodontic Begg bracket was bonded along with a ligature from labial surface of the impacted incisor extending to oral environment through the repositioned flap. This suture was left for 5 days for proper healing. Traction was done using elastic thread after a week with a base wire as 017x 025 SS which was changed for every 25 days.

For 3 months, traction was continued and then the begg bracket was replaced by MBT bracket and tooth was brought to normal position.

Case was later completed with a stable occlusion without undergoing any extraction .Table I. shows the comparison of pre and post cephalometric radiographic readings.



Fig 6: Post treatment extra oral and intra oral photographs

As a part of retention phase, Beggs wrap around retainer with bonded lingual retainer was given

Table 1

Parameters	Skeletal Analysis	
	Pretreatment	Post treatment
SNA angle	78	78
SNB angle	77	78
ANB angle	1	0
Go-Gn to SN	30	33
Angle of inclination		
Y axis angle	64	64
	Dental Analysis	
U1 -NA in degree	33	30
U1 -NA in mm	9mm	5mm
U1 -SN in degree	110	109
L1-NB in degree	34	33
L1-NB in mm	8mm	6mm
L1-A pog in mm	8mm	6mm
IMPA	100	99
Interincisal angle	111	112
U1-NF in mm	14	13
	Soft Tissue Analysis	
S line-U lip in mm	3mm	+1mm
S line -L lip in mm	3mm	4mm
Nasolabial Angle	80	80



Fig. 7: Post treatment study model



Fig. 8: Post treatment lateral Cephalogram and OPG along with superimposition.

Results

The impacted maxillary right permanent incisor was successfully brought to proper alignment through surgical

crown exposure and orthodontic traction using elastic thread which seems to be less economical.

Space for proper alignment of impacted incisor in arch was achieved without undergoing extraction and finally Ideal over jet and overbite was maintained.

Conclusion

Maxillary permanent right central incisor which was successfully positioned into proper alignment through surgical crown exposure and orthodontic traction had showed good stability. But long-term monitoring for the stability and periodontal health is usually very important for orthodontic traction. This type of impaction need not be considered as a dilemma for the patients anymore.

Source of Funding

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Conflict of Interest

None.

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