

Uncovering The Unerupted Incisor: A Case Report

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Abstract

The eruptive pattern of teeth is a major factor in influencing facial esthetics and phonetics, of children. Any aberrations in this often present a challenge for the dentist so as to restore the function and form for the growing child, most common reported speech difficulties focus around the 's' sound. The incidence of delayed or non-eruption of permanent maxillary incisors ranges from 0.13% for maxillary central incisor to 2 % for maxillary lateral incisor. A variety of treatment procedures for unerupted maxillary incisors are proposed in the literature ranging from surgical to orthodontic aspects. A nine-year-old girl child reported to the Department of Pediatric and Preventive Dentistry, with a chief complaint of unerupted permanent tooth in the upper anterior segment. On examination, palpation a bulge could be felt over the unerupted tooth signifying its eruptive stage. IOPA of the affected region revealed asymptotically erupting permanent maxillary left lateral incisor. Electrocautery was planned for providing the eruptive incision in the region to aid for spontaneous eruption of this tooth.

Keywords – Eruption, Electrocautery, Incision

Date of Submission: 24-09-2023

Date of acceptance: 04-10-2023

I. INTRODUCTION

Delayed eruption of teeth in children can be concluded if there is eruption of contralateral teeth that occurred greater than six months previously or if there is deviation from the normal sequence of eruption. The eruptive pattern of teeth is a major factor in influencing facial esthetics and phonetics, of children. Any aberrations in this often present a challenge for the dentist so as to restore the function and form for the growing child. Some of the most common reported speech difficulties focus around the 's' sound.¹ Another important aspect of missing or unerupted teeth in Pediatric age group is effect on self-esteem and social interaction and hence when a significant change from the normal shedding process occurs, diagnosis and treatment should be carried out as soon as possible as this could be a symptom of a hereditary condition or associated with some pathology.²

The incidence of delayed or non-eruption of permanent maxillary incisors ranges from 0.13% for maxillary central incisor to 2 % for maxillary lateral incisor.³ Since these teeth erupt around middle school going age, their un-eruption is most associated with complaints of poor facial esthetics and phonetics.⁴ Some of the most common associated factors for non-eruption of teeth include presence of supernumerary teeth⁵, presence of syndromes, primary tooth trauma, developmental pathologies and even prolonged retention of primary incisor which can cause altered pathway of eruption or non eruption due to dense mucoperiosteum forming a physical eruption barrier.⁶

A variety of treatment procedures for unerupted maxillary incisors are proposed in the literature ranging from surgical to orthodontic aspects; however, successful outcome of treatment is best achieved with early diagnosis and prompt treatment planning.⁶The main aim of any such treatment would be removing of obstruction and creating space spontaneous eruption.

II. CASE REPORT

A nine-year-old girl child reported to the Department of Pediatric and Preventive Dentistry, with a chief complaint of unerupted permanent tooth in the upper anterior segment. No relevant medical or dental history was reported. There was also no relevant history provided by child or parent with respect to any traumatic injury, pathology in the region. On intra-oral examination normal set of complement teeth were found corresponding to the chronological age of child with missing maxillary left lateral incisor (Fig No.1). On palpation a bulge could be felt over the unerupted tooth signifying its eruptive stage. The parent however reported this to be present since last six months (Fig No.2). As the first line of diagnosis radiographs were planned to rule out pathology and also to see the status of erupting teeth. not associated with any pathology or

supernumerary teeth. It was also evaluated that more than 2/3rd root of the permanent maxillary left lateral incisor was formed (Fig No.3). This was conclusive evidence that although the tooth is present with sufficient root development it is failing to erupt due to loss of eruptive forces or presence of thickened mucoperiosteum in the region.

Hence it was decided to use electrocautery for providing the eruptive incision in the region to aid for spontaneous eruption of this tooth. Complete blood count and haematological investigations were carried out as a protocol measure prior to the procedure. Lignocaine with adrenaline was administered to anaesthetize the area after the application of topical anesthetic agent. Electrocautery unit consist of various parts such as passive electrode, electrode power, foot control, active electrode handle etc. Needle type electrode tip was used for eruptive incision. well planned movements without pressure and brushing like strokes were performed. Smooth cutting technique was used and soft tissue uncovering was done (Fig No.4). The area was checked for any other etiology followed by thorough irrigation with 5% povidone iodine and saline after the removal of soft tissue (Fig No.5). Post operative instructions were given to patient and the tissue sample was sent for biopsy evaluation which revealed thicked fibrous gingival tissue. The patient was recalled after one week to check for healing and was on follow up for three months till the complete eruption of permanent maxillary left lateral incisor and was asymptomatic (Fig No.6).



Fig No.1: Missing maxillary left lateral incisor



Fig No.2: Eruptive bulge

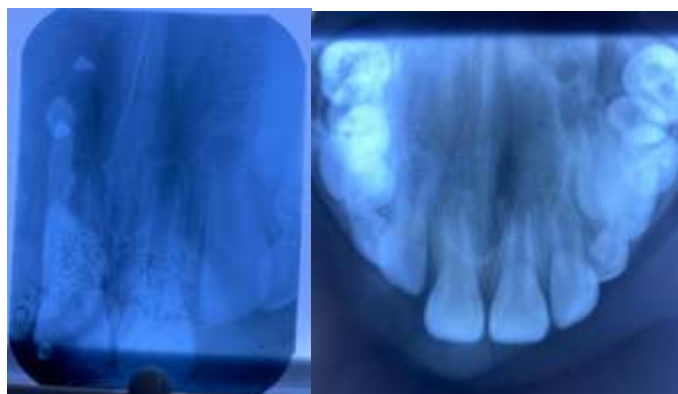


Fig No.3: Radiograph of the unerupted tooth



Fig No.4: Removal of tissue with electrocautery



Fig No.5: One week post-operative view



Fig No.6: Three month post-operative view

III. DISCUSSION

When making the decision to perform any surgical procedure for young children, the psychological consequences of the treatment must be considered.⁷ A detailed dental and medical history should be obtained to determine possible hereditary or environmental factors, which may be contributory to the delay in eruption. An intra-oral examination to identify the space present and radiographs should be taken to access the succedaneous tooth with horizontal parallax technique for better localization.⁸ Cone beam computed tomography technology also has significance in case of impaction and orthodontic extrusions.

A minimal approach can be employed in which a small window is created if the permanent incisor is close to the surface, the attached gingiva is wide and there is extensive preservation possible at the gingival margin.⁹ This type of approach is more warranted in case of spontaneous eruption. Another popular approach is the closed eruption technique, which is mostly used in cases of impactions and orthodontic tractions. In this flap is raised and a bracket attached steel ligature is bonded to the tooth followed by replacement of the palatal flap and orthodontic traction.⁹ Artificial eruption for impacted teeth is a procedure that relies on many factors, as well as experience, in order to choose the proper treatment option. It is noticeable that there is no complete consensus regarding the best technique but it may be influenced by position of the impacted incisor (i.e. distance from alveolar crest, rotation, angulation and inclination). Shi et al. found that the best results were achieved when no more than two-thirds of the entire root length of the impacted tooth is formed and the mean age of the patients in their study was 6.4-10.4 years.¹⁰ Mahardawi et al. reviewed various techniques used over a period of time to expose impacted teeth and their treatment outcomes as summarized in Table 1.¹¹

Table 1. Techniques to expose impacted teeth and treatment outcome in the literature

Study	Age of each patient or age range (yr)	Tooth	Type of impaction	Technique	Success/failure
Burch et al. ⁴⁸ (1994)	11/12/9/9	Premolar	N/A	Interceptive	Success
Chaushu and Chaushu ⁴⁷ (2010)	14-19	Canine	Labial	N/A	Failure
	22-26	Canine	Palatal	N/A	Success
Yordanova et al. ⁴² (2011)	13/15/20	Canine	Palatal	Open	Success
Londhe et al. ⁴³ (2014)	14-30	Canine	Labial	Closed+open	Success
Shetty et al. ⁴⁶ (2015)	11	Canine	N/A	Open+closed	Success
Shi et al. ⁴⁵ (2015)	6.4-10.4	Incisor	N/A	Closed	Success
Kinaia et al. ⁴⁹ (2016)	12/12/15/12	Canine	Buccal+palatal+mid alveolar	Open+closed	Success

There are three methods for surgical exposure of un-erupted teeth, surgical with blade, electrocautery and laser treatment.¹² Among this Laser was presumed to be the recent most option with obvious advantage of superior blood control and healing, however studies of Dan et al.¹³ and Kumar et al.¹⁴ and proved the removal efficacy and wound healing to be similar for all the three methods. We have used electrocautery in our case as it not only eliminate intraoperative bleeding, but also provide a good view of the surgical area without suturing. It provides homeostasis by coagulation, seals the capillary and lymphatic vessels, and permits an adequate contouring of the soft tissues. However, the burning odor and sight may be discomforting to the child and hence we combined our procedure with audiovisual distraction to eliminate visualization of machinery and aromatherapy to minimize odor due to tissue manipulation by cautery.

IV. CONCLUSION

The treatment options for unerupted teeth range from surgical, electrocautery, Laser to orthodontic tractions and should depend on individual case evaluation but the focus should be on minimal tissue manipulation. Leaving a tooth untreated can lead to several problems including esthetic, functional, pathological, periodontal and space complications. In children especially the difficulties may be more enhanced due to social and psychological issues due to unpleasant tooth alignment. Hence it is ideal that prompt diagnosis and treatment leading to space creation for spontaneous eruption of teeth should be the focus of clinician.

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