

## UNUSUAL BEHAVIOUR IN PRE ADOLESCENTS: A CASE SERIES OF ENTRAPPED FOREIGN OBJECTS IN TEETH

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### **Abstract**

**Aim:** This article aims to discuss four case reports of rare and unusual behaviour in pre adolescents in dental scenario along with the psychological reasoning behind their behaviour.

**Background:** Pre adolescence is briefly between 9 to 11 years of age. It is a time period with multiple transitions. They have their own set of age typical goals to gain an identity among their peer groups. This may lead to problem behaviour and a tendency for risk taking actions. One such action encountered in dentistry is entrapping of foreign objects into the teeth. It can be self harming and considered socially unacceptable.

**Case description:** This article is a case series encountered in the dental practice. Social changes in the environment of pre adolescents responsible for their unusual behaviour are discussed in this article along with a review of management with such cases.

**Conclusion:** As pediatric dentists, understanding the psychological aspect responsible for the development of self embedding behaviours is paramount so we can attempt behaviour modification and parent counselling to help avoid these self harming acts and improve the quality of the child's life.

**Clinical significance:** Foreign objects in teeth are a rare finding and are classified under self harming and risk taking behaviours. Although innumerable articles have discussed the management of such cases, the psychological aspect is often ignored, rarely reported or even misdiagnosed.

**Key words:** entrapped foreign object, pre adolescent, risk taking behaviour, self embedding behaviour

### **INTRODUCTION**

Pre adolescence is the period or stage of human development that follows early childhood and precedes adolescence. This is approximately between 9 to 11 years of age. This stage is also called the pre pubertal stage since it is the brief period before the onset of puberty. Preadolescent children have an inner world often mysterious and not completely understood by adults. Their habits and behaviour are often hidden from their own kith and kin, usually due to the fear of punishment.

Pre-adolescent period of middle childhood is a time period with multiple transitions. After achieving the stages of trust followed by autonomy and initiative, they have entered the stage of industry, duty and accomplishment. Erikson classified this stage as latency, in which children seek pleasure in intellectual stimulation. He referred to the stage as Industry vs. Inferiority. If they do not receive praise and rewards from their parents and teachers at school, they may feel like a failure and develop inferiority and if they do, they develop a sense of accomplishment or Industry. Igra and Irwin conceptualized pre adolescence as a time period of growing autonomy and emerging individualization. Pre adolescents have their own set of age typical goals to gain an identity among their peer groups. There is a shift seen from home to peer groups and child is motivated by activities that bring attention of his/her peer groups. In this stage, the youngster makes new acquaintances and spends a lot of energy on academics. Parents' emotional support is crucial in assisting children in developing their sense of self, resolving any difficulties they may be experiencing at this point, and help in moving on to the next developmental stage in a healthy manner.

Behaviour guidance works finest amongst the children of this age group since behaviour can be best reinforced in them. When parents don't give their wards that security and reliance, it might result in problem behaviour and a propensity for recklessness. These reckless behaviours often include risks causing self harm, also called self harming or self embedding behaviours. One such action encountered in dentistry is entrapping of foreign objects into the teeth. Others include injuries to various parts of the soft tissues of the oral cavity. Foreign objects in primary teeth are an uncommon occurrence. In very young

children it is often considered as an exploratory nature where as in pre adolescence, it is classified under self embedding behaviour. The child often to alleviate pain or irritation in a carious tooth, lodges some foreign objects which can easily access his tooth and sometimes it is an act of self harm showing a masochistic tendency. Foreign objects mentioned in literature include indelible ink pen tips, pencil tips, tooth picks, fruits seeds, stapler etc. When these foreign bodies get stuck in the tooth, they become a source of infection. If the foreign body is trapped in the coronal portion of pulp chamber, retrieving it is simple. When it is in the apical area, it becomes challenging to remove. Consequences include pain, swelling, infection leading to sepsis, in some cases leading to the formation of cyst and sinusitis. In rare circumstances, aspiration or inhalation of foreign object was also reported. Prompt management is necessary in such situations. Literature has also reported that they lead to fracture of primary teeth at crown or root level and damaging the developing permanent tooth germ. It is very difficult to save the primary tooth in such a scenario. If the permanent tooth bud is damaged at the time of odontogenesis, it leads to complete disorganization of the tooth bud resulting in the formation of a complex odontoma. If the object has reached the periapical region, apicectomy as the treatment choice was reported. Apart from the management of the foreign objects in the teeth, it is a diagnostic challenge for dentists to identify a masochistic or a self injurious behaviour. Treatment must not only pertain to the chief complaint but include the pharmacological part and behaviour modification.

The occurrence of foreign objects in teeth is itself rare in dental practice. Although innumerable articles have discussed such case reports emphasizing only on the clinical management, the psychological aspect is often ignored, rarely reported or even misdiagnosed. The following case series discuss management and psychological aspect behind these behaviours. The role of dentist, parents, school is also discussed below on how to prevent these types of behaviours.

### Case 1

An 11 year old male child reported to the clinic with the complaint of pain in the upper right back tooth region. On intra oral examination there was deep dentinal caries seen in relation to 16. (Fig 1a) Radiograph was advised and it revealed a radio opaque foreign object stuck in respect to 16 lodged into its pulp chamber.(Fig 1b) When asked, the child first denied on inserting any object, later slowly revealed that he had inserted a pen nib into his tooth. Denial showed a defence mechanism indicating the child was afraid to admit to the act and face the consequences. A thorough history disclosed that the father had once retrieved a gold chain from his ear. This revealed a Masochistic or a self injurious behaviour [SIB] in the child and the failure of the parent to modify such behaviour. It is also termed as self embedding behaviour. In this type of behavior, a person causes harm to oneself usually as a way of coping with overwhelming feelings.<sup>1</sup> It is repetitive and socially unacceptable.<sup>2</sup> During interaction, the child explained about his academic pressures in attending school and three private tuitions. He admitted to the pleasure he experienced in inserting different things in his ear, mouth and nose which started unconsciously and now had become a frequent habit of his. Parents and the child were explained of the danger this behaviour encompasses and the pen nib was carefully removed using tweezers. (Fig 1c,1d) Parents did not follow up with the treatment plan indicating signs of child neglect.

### Case 2

A 9 year old male child reported to the clinic with the complaint of pain and lodgement of a pen nib in the upper left back tooth region. Clinical examination revealed deep dentinal caries and food debris in 65(Fig 2a). Radiograph was advised and showed a foreign object lodged into the radicular pulp of 65, also damaging the permanent tooth bud of 25(Fig 2b,2c). History revealed that child inserted both pen and pencil nibs in his tooth. After further questioning, the father acknowledged that neither parent has the time to properly care for their child due to their hectic jobs. They consequently payed little attention to his actions, which may be the reason they failed to notice when the child additionally inserted a pen nib after inserting a pencil nib. The pen nib was precisely removed. (Fig 2d). During the irrigation of the canal, a pencil nib was also retrieved (Fig 2e,3a) which wasn't visible in the radiograph and was responsible for the graphite leak during treatment. Working length was determined (Fig 3b,3c) , canals were prepared,

copious irrigation with saline and sodium hypochlorite was done followed by metapex obturation of 65 (Fig 3d). Thus, pulpectomy of the tooth was successfully carried out as final treatment (Fig 3e).

#### Case 3

A 9 year old male child reported to the clinic with the complaint of pain in the lower left back tooth region (Fig 4 a). Upon investigating, the patient disclosed that he had inserted stapler pin in his mouth. Radiograph was advised and showed that the embedded foreign object fractured the root of 74 and damaged the permanent tooth bud of 34 (Fig 4b). Treatment began with the retrieval of the foreign objects, which surprisingly included 3 objects; a tooth pick, a pen nib and a stapler pin in the following order of its insertion as revealed by the child (Fig 4c,4d). Tooth was extracted and no space maintainer was delivered because the root of 34 was 3/4<sup>th</sup> formed and ready for eruption (Fig 4e,4f).

#### Case 4

An 8 year old girl showed up to the dental clinic with the chief complaint of dislodged space maintainer. This is not a case of trapped foreign object in tooth but an unusual case of trapped appliance in the mouth. The patient was delivered band and loop space maintainer as part of the treatment in 64, 65. Clinical history revealed that the child was very anxious of dental treatments even after multiple visits and had a phobia towards white coat doctors. The space maintainer was dislodged in the school and she tried to fix it back by herself despite the advice from the dentist not to do so under such circumstances and ended up inserting it in the opposite direction (Fig 5a). The parents were counselled to help remove her fear towards the doctors. Treatment included removal, cleaning and re-cementing of the band and loop in its correct way (Fig 5b).

#### Discussion

Only a dearth of articles in the dental literature has addressed preadolescent behavioural tendencies and how they may be to blame for the peculiar behaviours seen in dental situations. Hence, this case study offers fresh perspective on the subject and, in addition to discussing parental roles; the psychological underpinnings of these behavioural patterns as well as clinical management strategies are also mentioned. Until now, these kinds of cases have only been discussed in the clinical scenario along with its therapeutic management. The psychological aspects are infrequently discussed and require deeper comprehension and hence the need for this case series.

All four cases discussed come under the age group of 8 to 12 years and are classified under middle school years. According to Psychosocial developmental stages by Erikson, they are going through the phase of industry vs inferiority. As there is academic pressure during this phase and constant evaluation in the school experience, this stage is closely related to self esteem. When any achievement matches or exceeds the child's expectation, then the child gains high self esteem. If it doesn't the child often feels dejected. According to Piaget, it is the stage of concrete operational child. The child acts in terms of whether it does good or bad and uses logic but as age increases, a pre adolescent child can separate an act from its consequences and is more likely to perform risk taking actions. Thus parent's supervision is pivotal during this stage. The child is logically trying to come to a solution for his irritation in the tooth. Instead of thinking of the consequence like an adult and due to lack of attention from parents the child finds this reckless behaviour as a solution. The child thus entraps foreign objects in his/her teeth.

In case 1, similar to the history of gold chain retrieved from the ear of this child, Goldstein cited the development of actinomycosis in his case report due to entrapment of jewellery in the maxillary central incisor.<sup>3</sup> Atypical foreign objects in literature retrieved include safety pins, pen nibs, jewelry, crayon, stapler pin etc. Usually such an act of self injury to the tooth is associated with a long standing case of untreated caries or trauma to the primary or permanent dentition. In long standing caries, bacterial irritation leads to pulpal inflammatory response.<sup>4</sup> In case 3, one reason why he inserted multiple objects into his teeth can be that he is seeking some relief from the irritation, but the habit lead to the fracture of root of 65 causing self harm.

Cases that involve permanent tooth (Ex: case 1), need a more conservative approach and saving the tooth is of utmost priority. Cases 2 and 3 include primary dentition. In the former, the tooth was treated but in the later the tooth was damaged completely and extraction was considered as the treatment plan. Also in both these cases, the foreign bodies entrenched has caused trauma to the developing permanent teeth. Any

damage to the tooth bud during odontogenesis can lead to complete disorganization and forming of a complex odontome. The effects on the permanent dentition include hypoplastic defects, dilaceration of roots, delayed, ectopic or failed eruption.<sup>5</sup>

In Case 2, the irrigation of the canal revealed grayish graphite leak and food debris. According to the Wiene the tooth should be left to drain for an hour for complete disinfection.<sup>5</sup> The graphite pencil nib was not visible in the radiograph. For locating entrenched foreign bodies in teeth, Mckauliffe in his report mentioned different radiographic techniques.<sup>6</sup> They include:

1. Parallax views (either horizontal or vertical);
2. Vertex occlusal views;
3. Triangulation techniques;
4. Stereo radiography; and
5. Tomography

Varied instruments like ultrasonic scaler, Masserann kit, modified castroveijo needle holders for retrieval of foreign objected from the root canal were reported.<sup>7</sup> Walvekar gave a method to retrieve the foreign object with minimal intra canal space loss.<sup>8</sup>

In case 4, the psychological aspect behind the behavior of the child might be the fear of dental treatment. She tried to fix the space maintainer by herself to avoid visiting the doctor. Although fear is a basic emotion in most children during dental visits, the reaction is different at different ages.<sup>9</sup> Pediatric dentist must recognize that and take it into consideration in further treatment. Behavior modification to remove her fear was attempted and it was made sure that the child left the clinic happy.

Dentists, parents and schools equally play a role in preventing this behavior. An important part in management for dentists is parent counseling. The American Academy of Pediatric dentistry has emphasized on the importance of anticipatory guidance in the oral health of children.<sup>10</sup> One of the topics it encompasses is of prevention of injury. It provides practical, developmentally appropriate information about children's health to prepare parents for their psychological and developmental milestones. For the pre adolescents, the treatment should be directed at provision of a role model to aid identification which can help them recognize certain behaviors can be harmful to them. Usually the male child identifies with his father and the female child with her mother. They can teach the child of what habits are harmful and must be avoided. In helping the child gain his identity, apart from parents, the teachers in school can also provide the emotional support a child needs for his growth.

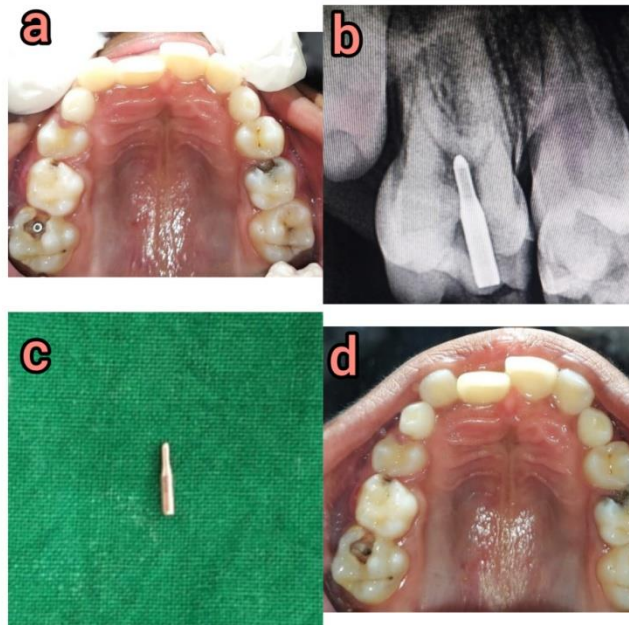
**Conclusion:** As a pediatric dentist, it is critical to look at behavioral patterns rather than just the treatment of the tooth in order to assist the parents for the healthy upbringing of their children. The understanding of the bio behavioural factors responsible for the development of self embedding behaviours is paramount. Early detection, prompt management along with behaviour modification and parent counselling can help in improving the quality of the child's life.

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Fig 1 (Case 1) a: Pre operative Intra oral photograph i.r.t 16 , b: Radiograph showing the embedded foreign object i.r.t 16, c: retrieved foreign object – Pen nib d: Foreign object removed i.r.t 16



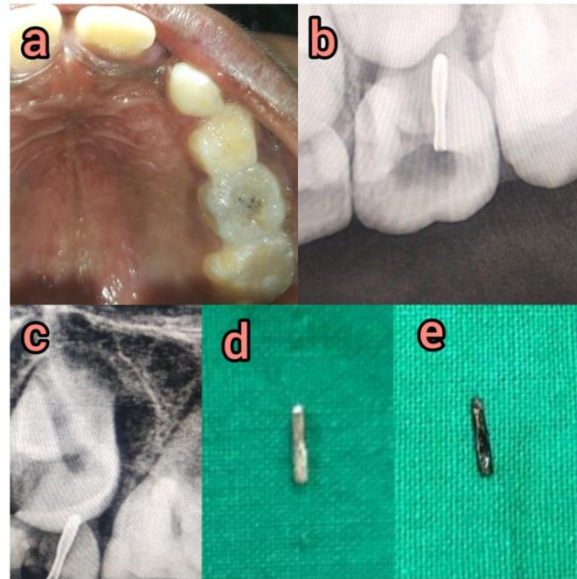


Fig 2 (Case 2) a: Intra oral pre operative photograph i.r.t 65 with food debris, b,c: Radiographs showing lodged foreign object i.r.t 65 damaging the tooth bud of 25, d: pen nib, e: graphite pencil nib retrieved during treatment

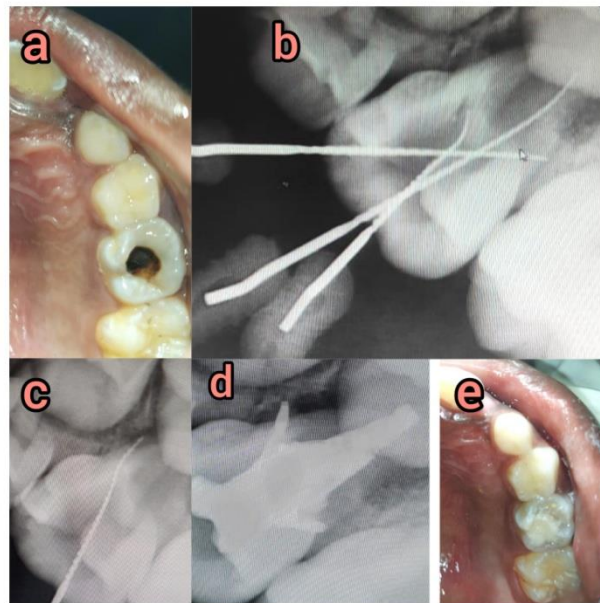


Fig 3 (Case 2) a: 65 after retrieving the foreign objects, b,c: Working length determination i.r.t 65, d: Metapex obturation done i.r.t 65, e: Post operative intra oral picture i.r.t 65



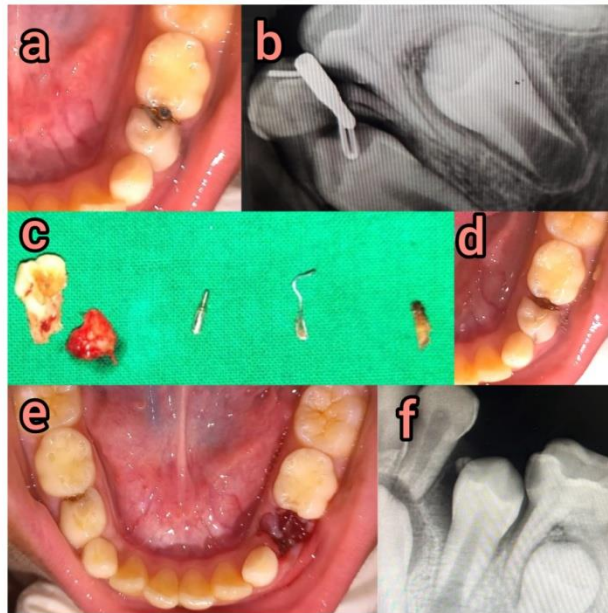


Fig 4 (Case 3) - a: Intra oral photograph i.r.t 74, b: Radiograph of 74 revealing fracture of root due to entrenched foreign objects , c: Retrieved foreign object – pen nib, stapler pin, tooth pick and fractured parts of 74, d: Tooth post retrieval, e: intra oral photograph after extraction of 74, f: radiograph post extraction of 74.

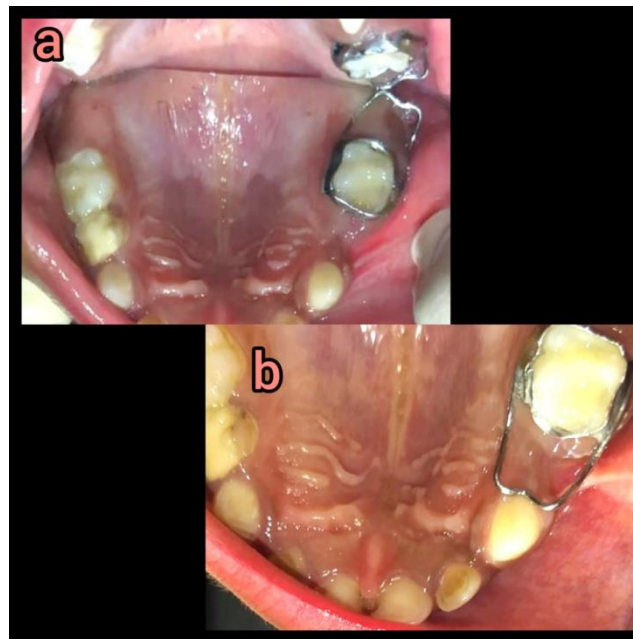


Fig 5 (Case 4) – a: intra oral photograph – appliance fitted wrongly, b: Recementation of band and loop space maintainer correctly

Table 1: Comparison of the four cases

Case no	Foreign object trapped	Dentition affected	Behaviour tendency	Parental role	Management
1	Pen nib i.r.t 16	Permanent	Masochistic	Lack of attention on their child. Signs of child	Pen nib removed. Parent counselled

				neglect.	regarding the dangers of this behaviour. Treatment plan wasn't followed up by the parent.
2	Pencil nib and pen bin i.r.t 65	Primary	Self embedding	Lack of attention and emotional support to the child	Pulpectomy of 65 done. Parent and child counselled.
3	Pen nib, pencil nib, stapler, tooth pick i.r.t 74	Both primary [root fracture 74]and permanent 34 tooth bud	Self harming, repetitive	Noticed only after multiple foreign objects are entrapped in the tooth	Extraction of 74.
4.	Entrapped band and loop space maintainer in opposite direction	None.	Dangerous, fear towards the dentist.	Failed to remove her fear and prevent these acts.	Recementation of space maintainer in right direction.