



Case Series

The risks of DIY dental practices: a look at self-inserted objects in teeth

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ABSTRACT

Foreign objects in the pulp chamber or root canal are frequently discovered in individuals who undergo root canal therapy and have their canals left open for drainage. A comprehensive clinical examination, radiological inspection, and patient history are necessary to determine the type, location, and degree of difficulties associated with removing the foreign material. Since they routinely put unexpected objects in their mouths, children are more prone to suffer this kind of occurrence. The foreign things may lead to an infection, which may then develop into an uncomfortable condition. This unusual instance of a metallic pin and multiple nail fragments removed from a patient's root canal due to their propensity to bite their nails is documented.

Keywords: *Foreign objects, Nail-biting habit, Self-insertion, Pencil lead, Nail pieces*

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INTRODUCTION

An interesting yet alarming tendency that needs further study is the self-insertion of foreign objects into dental tissues.

When patients receive root canal therapy and have their canals left open for drainage, finding foreign items in the pulp chamber or root canal is not uncommon. Children often exhibit habitual behaviour involving the oral cavity. Foreign bodies such as toothpicks, fingernails, pencil leads, staple pins, metal screws, crayons, tomato seeds, beads, and needles, get stuck in the pulp chambers, exposing traumatically or carious injured permanent and deciduous teeth. Concluding the nature, location, and difficulty of retrieving the foreign body requires a thorough patient history, clinical examination, and radiographic inspection. The foreign objects could potentially cause an infection, which could then result in a painful condition.

A typical oral behaviour that affects about 30% of children aged 7 to 10 and 45% of teenagers is chewing one's nails. The 10 fingernails are typically bitten uniformly and at the same extent.¹ They can cause excruciating pain and serve as an infection target for the patient.^{2,3} It is a difficult process to remove foreign objects from a root canal; they must either be bypassed or removed without altering the canal's morphology.⁴ To remove the obstruction, cautious instrumentation, irrigation, and flotation are employed. This unique case of pencil lead and several nail fragments extracted from a patient's root canal who also had a nail-biting habit is reported.

CASE REPORT 1:

An 11-year-old female child accompanied by her parents reported to the Department of Pediatric Dentistry, Krishnadevaraya College of Dental Sciences with a complaint of swelling in the upper right front tooth region. On clinical examination, there was an Ellis Class III fracture concerning the upper right front tooth. The patient gives a history of falling from the stairs of his hostel 7 months back.



Figure 1



Figure 2

Figure 1: shows the patient clinical image and **Figure 2:** shows the pre-operative radiograph of the foreign body inside the teeth

An intra-oral peri-apical radiograph was taken concerning 11 which confirmed Ellis Class III. Access cavity preparation was done with 11 followed by pulp extirpation. Working length was taken and biomechanical preparation with copious irrigation and lesion sterilisation and tissue repair material was placed. During biomechanical preparation, various pieces of human fingernails were found embedded in the root canal of the teeth. The patient was a known nail biter and would bite nails to relieve the pressure/pain in the tooth. On the next appointment, obturation was done followed by glass ionomer restoration.

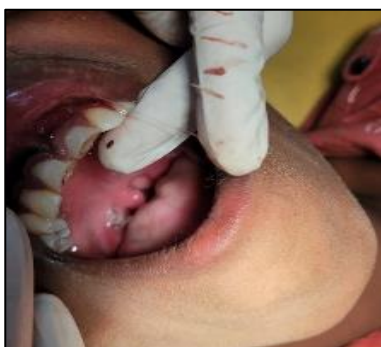


Figure 3



Figure 4

Figure 3: shows the patient's clinical image of pieces of human fingernails and **Figure 4:** shows the post-operative clinical image.

CASE REPORT 2:

An 8-year-old female child accompanied by her parents reported to the Department of Pediatric Dentistry, Krishnadevaraya College of Dental Sciences with a complaint of pain in the upper right back tooth region. On examination, there was a carious lesion extending to the pulp concerning the upper right first permanent molar. Blackish discoloration has been noted within the cavity and all the walls of the tooth. She gives a history of pain for a month and swelling with the decayed tooth 15 days back, which was relieved upon taking antibiotics and analgesics that were prescribed by a general physician at a private clinic. Parents revealed that they had put Tulsi leaves in the decayed tooth a few days back.



Figure 5



Figure 6

Figure 5: shows the patient's clinical image of the lower arch with remnants of tulsi in 74,84 and **Figure 6:** shows clinical image of upper arch with remnants of tulsi in 16 and 65

Intraoral periapical radiograph was taken with respect to 16 that revealed carious lesion extending to pulp. Access opening was done with respect to 16 followed by pulp extirpation. Working length was taken, biomechanical preparation with thorough irrigation was done. On next appointment obturation and GIC restoration was done. The parent was advised to not put any foreign objects into the cavity and should visit dental office for proper treatment of the decayed tooth. After 2 weeks follow-up, the patient did not have any pain with the respected tooth. The parents reported that child was able to eat and brush without discomfort.

CASE REPORT 3:

A 11year-old boy reported to the department of pediatric dentistry, Krishnadevaraya College of Dental Sciences with a complaint of pain and swelling in the lower left posterior region of jaw. On clinical examination, there was carious lesion in the permanent mandibular left first molar. Surprisingly a foreign object (lead in 3-4 fragments) was also embedded in the carious part of the tooth and the patient was completely unaware of this object. Intra-oral peri-apical radiographs were taken to locate the exact position of the lead object.



Figure 7: shows the patient's clinical image of the lower arch with remnants of lead in 75 and
Figure 8: shows clinical image remnants of lead in cervix of 23

In radiographic findings lead piece was not visible as lead can effectively attenuate certain kind of radiations because of its high density and high atomic number. It also revealed, carious lesion extending till pulp & peri apically radiolucency present in both roots with respect to 36.

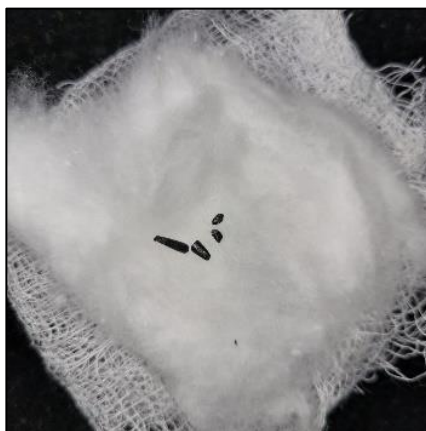


Figure 9: shows clinical image of remnants of lead recovered from teeth

DISCUSSION

A number of foreign things were discovered to be clogged in the tooth's pulp chamber and root canal, including pencil lead, beads, and staples. According to Grossman, objects such as tomato seeds, pencil lead, toothpicks, and suction points have all been extracted from teeth. Foreign items are more likely to be found in children's teeth because they are more likely to be introduced into their mouths by them. Sometimes, fear prevents kids from telling their parents. In these circumstances, a routine X-ray examination finds the foreign body. These foreign objects have the potential to cause severe symptoms and infections.

The pulp cavity is usually left open in an emergency to allow pus to continue leaking out of the root canal and to prevent it from drying out within a reasonable amount of time. Weine⁵ states that patients should remain in their examination room for at least an hour after the examination is finished. Closing the access cavity stops food particles and foreign objects from building up on the tooth and also stops the introduction of new strains of bacteria.⁶ An X-ray examination may be necessary for diagnosis, especially if the foreign object is radiopaque.

McAuliffe⁷ summarized the various radiographic methods used to localize radiopaque foreign bodies, including parallax views, vertex occlusion views, triangulation techniques, stereo radiography, and tomography. Triangulation uses two views that are perpendicular to each other. The other incisors are difficult to interpret because they are above the roots. Stereoscopy and tomography were not considered due to the very low availability of equipment in dental clinics. Special radiological techniques such as radiography and 3D CAT scans play an important role in locating these foreign bodies within the root canal.

A Castroveijo needle holder⁸ modified Maseran kit⁹ could be used to remove foreign bodies in the pulp cavity or root canal and also ultrasound instrument¹¹

Ethylenediaminetetraacetic acid has been suggested as a useful tool for lubricating root canal when attempting to remove foreign objects. Stieglitz forceps have also been described for removing silver tips from root canals. It describes an assembly consisting of a needle (disposable) and a loop of thin steel wire that is formed by threading the wire through the needle during use. This assembly was used in conjunction with mosquito hemostatic forceps to tighten the loop around the object. Nehme¹⁰ recommended the use of a surgical microscope in conjunction with ultrasound rasping treatment to remove metal obstructions within the canal.

Srivastava and Vineeta¹¹ have suggested periapical surgery or intentional reimplantation is helpful in removing such objects.

McCulloch¹² suggested that removing a small amount of tooth structure improves access to the foreign body. According to Walvekar¹³ et al., if the foreign body is firmly fixed within the root canal, it may be necessary to release it first. It must then be removed with minimal damage to the internal tooth structure to prevent root perforation

Zillich and Pickens¹⁴ and Turner¹⁵ found that hat pins and Taylor's needles used to remove food debris from the root canals of upper and lower incisors undergoing endodontic treatment ultimately removed the roots of these teeth. This is an example of a pipe breaking inside a pipe. Gelfman et al¹⁶ reported a case of a 3-year-old child in whom two straws were inserted into the root canal of the first central incisor and subsequently removed.

Though the presence of foreign objects retrieved from the root canals and pulp chambers of the permanent teeth have been reported, the presence of foreign objects found in the deciduous teeth is an uncommon situation. Timely diagnosis and management of foreign object embedded in the tooth should be done to avoid further complication.

CONCLUSION

A multidisciplinary team including general dentists, pediatric specialists, orthodontic clinicians, and dental hygienists would be helpful for properly managing patients with amelogenesis imperfecta. As several amelogenesis imperfecta cases are being reported, it is very important to know the complications, clinical features, and management for better diagnosis and clinical management of the problem.

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Nil

CONFLICTS OF INTEREST

There are no conflicts of interest

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