Unusual Foreign Objects in Immature Permanent Teeth and Its Management- A Case Report

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Abstract During dental treatment, foreign objects are commonly detected without warning. Children and teenagers are more likely than adults to have foreign bodies in their teeth because they have a propensity to put things in their mouth, especially when there are open carious lesions. Due to patients' propensity to clean their teeth with sharp things, food lodgement in cariously affected teeth might also result in object lodgement. Foreign objects serve as infection foci, which causes pulpal pathosis. Numerous reports have described various foreign things getting stuck in the root canal, which is a persistent source of discomfort and illness in the oral cavity. The management of the affected teeth as well as the retrieval of the foreign objects in a tooth are covered in this case report.

Keywords: Case Report, MTA, Apexification, Foreign Object, Permanent Teeth, Open Apex, Blunderbuss Canal

INTRODUCTION

The habit of inserting foreign objects into the mouth is common among children, with some continuing the habit persistently. In some cases, children may not report the trauma to their parents for fear of punishment. [1] The incidence of foreign objects in the pulp chamber and root canals of teeth is high in children due to this habit.[2] These objects can also act as a focus of infection and lead to complications.[3] Examples of foreign objects that have been reported in the pulp chamber and root canals include pencil leads and staple pins.[4] The risk of foreign objects getting embedded in teeth is higher when the pulp chamber is open due to traumatic injury, large cavities, or incomplete root canal procedures.[2,5]. The diagnosis of foreign objects in teeth is often made accidentally, as the tooth may not show any symptoms.[2] The tooth may be associated with infection, pain, swelling, and recurrent abscesses as a result of pulp exposure and lodgment of the foreign body.[6] The foreign object may impede complete debridement of the root canal and can also act as a potential source of infection.[5] Therefore, removal is necessary to successfully complete root canal treatment. If the object has been pushed apically, retrieval becomes complicated, and surgery may be necessary.[2]

This article discusses a case of foreign objects embedded in teeth, the potential causes, and treatment options.

CASE DESCRIPTION

CARE guidelines 2013 were used for this case report.

A 16 year old boy reported to the Department Of Conservative Dentistry And Endodontics, Government College Of Dentistry, Indore with pain in the upper front tooth region for 2-3 days. The patient had dull aching pain. There was no associated swelling. The patient gave a history of trauma to the upper anterior teeth region 5 years back. The medical history was noncontributory.

On clinical examination the tooth 11 was discolored with Ellis Class III fracture and was tender to vertical percussion. On further Sensibility testing with heat and cold tests the tooth gave no response. On further examination there was a shiny metal object lodged inside the pulp chamber.

Intraoral periapical (IOPA) radiograph revealed a radio-opaque paper clip-like object in the pulp chamber, blunderbuss apex with peri-apical radiolucency. The parents were unaware of the child inserting any foreign object inside the tooth.

FIG.1: PRE-OP PICTURE SHOWING 11 WITH DISCOLOURATION AND ELLIS CLASS III FRACTURE

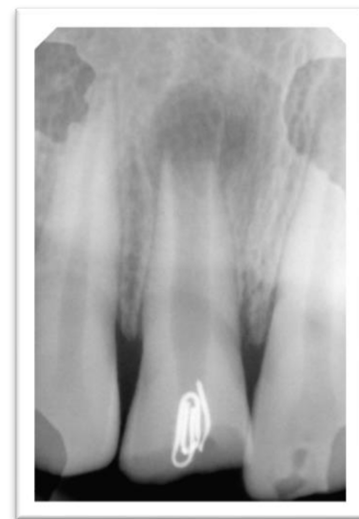

FIG.2: PRE-OP IOPA SHOWING PAPERCLIP-LIKE OBJECT LODGED INSIDE THE PULP CHAMBER

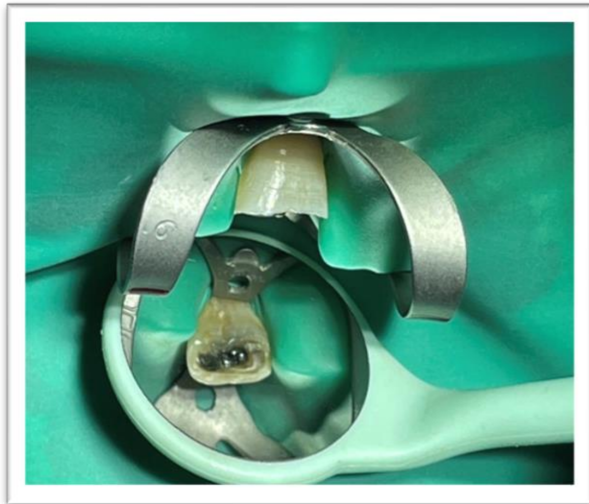

FIG.3: SHINY METALLIC OBJECT VISIBLE IN THE EXPOSED PULP CHAMBER

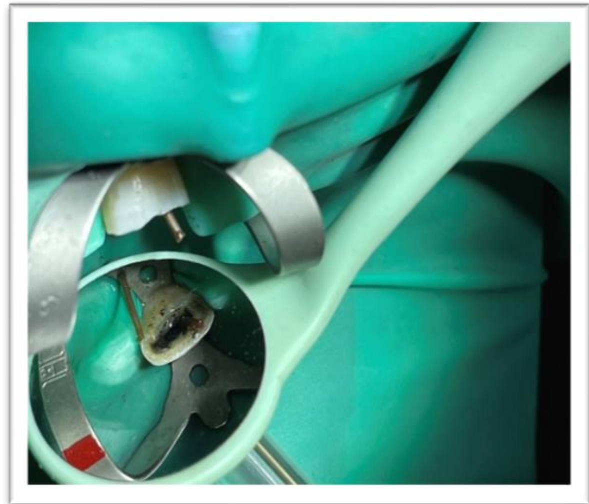

FIG.4: WOODEN PARTS OF THE INCENSE STICKS COMING OUT FROM THE INSIDE OF THE ROOT CANAL

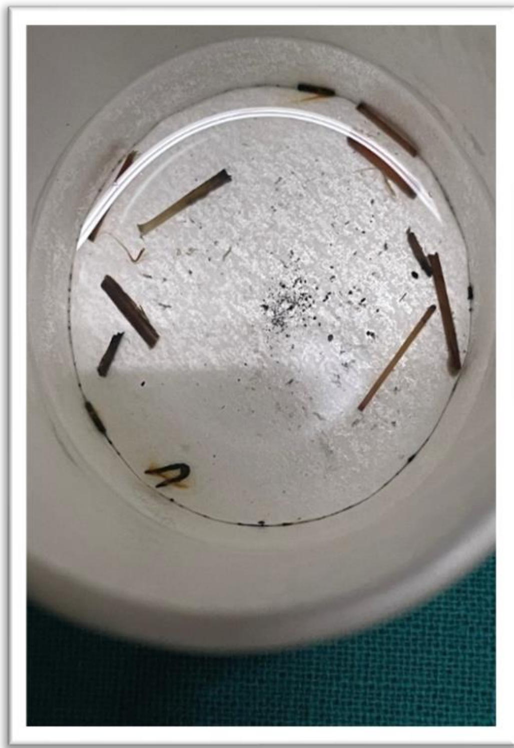

FIG.5: FOREIGN OBJECTS RECOVERED FROM THE ROOT CANAL

FIG.6: FOREIGN OBJECTS RECOVERED FROM THE ROOT CANAL

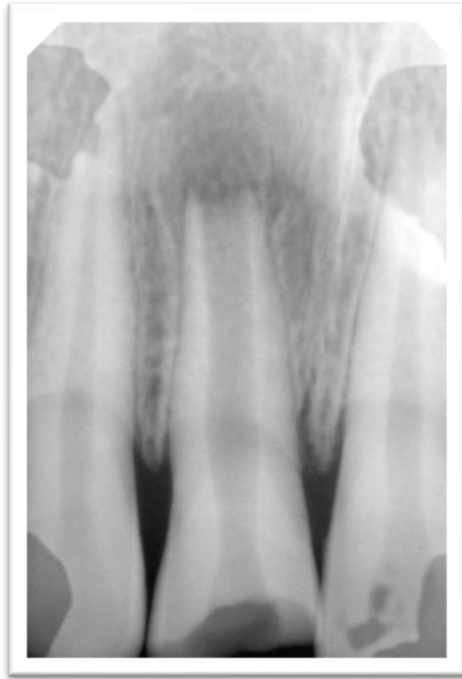

FIG.7: IOPA AFTER RETRIEVAL OF FOREIGN OBJECTS

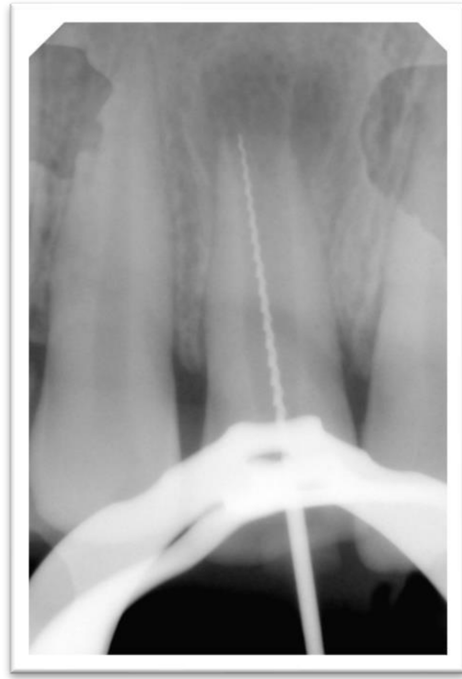

FIG.8: WORKING LENGTH DETERMINATION

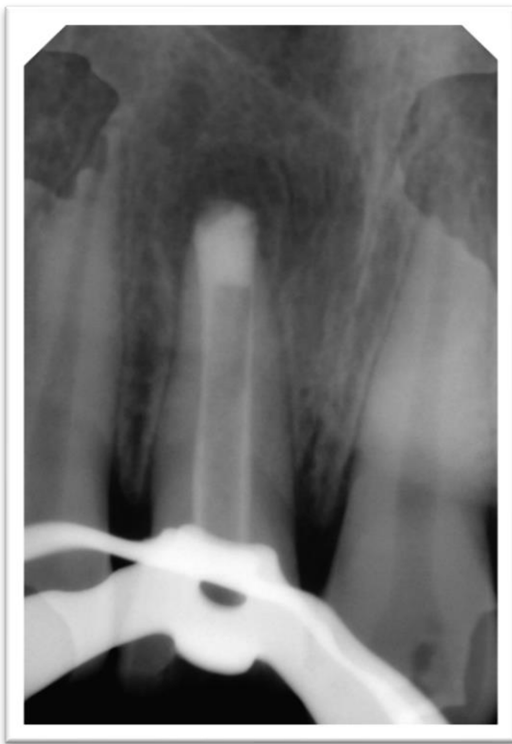

FIG.9: MTA PLUG

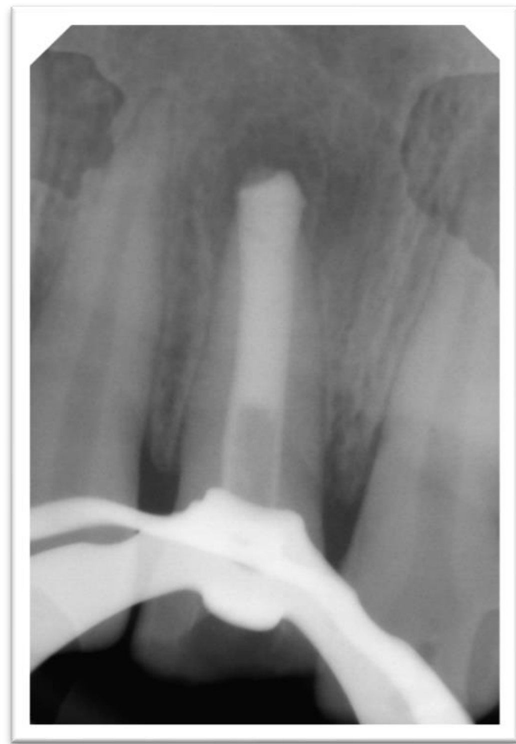

FIG.10: CANAL FILLED WITH MTA TILL MID ROOT LEVEL TO REINFORCE THE WEAK CANAL WALLS

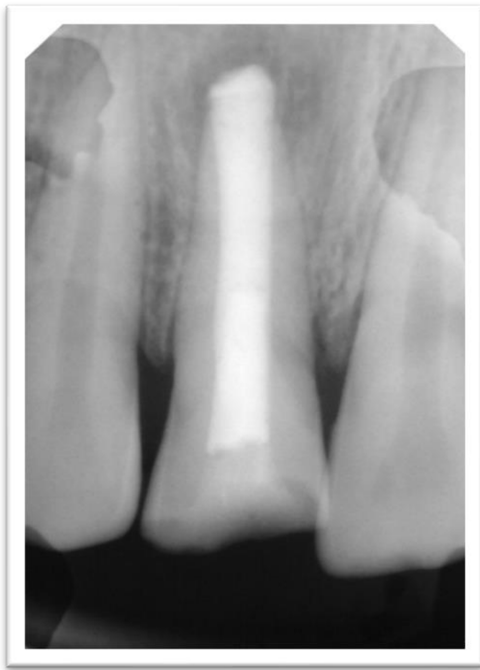

FIG.11: IMMEDIATE POST-OP

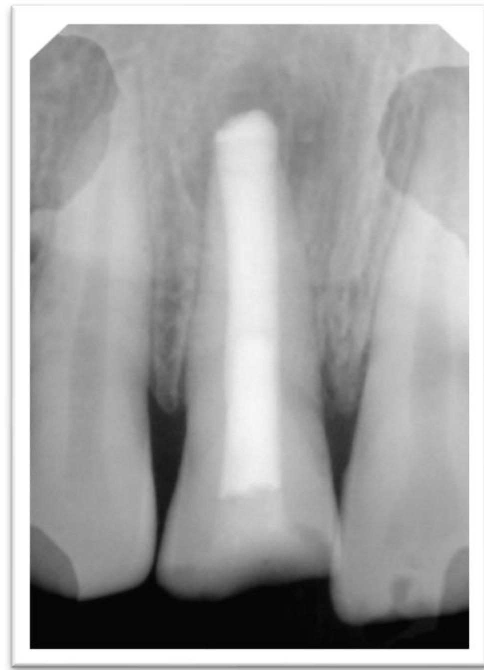

FIG.12: FOLLOW UP 3 MONTHS

The exposed pulp chamber was enlarged with the help of a round bur and the lodged foreign object loosened with the help of ultrasonics, the chamber was irrigated with the help of normal saline to remove the debris. The lodged foreign object was removed in pieces with the help of Shepherd's Hook and Steiglitz Forceps.

After successfully retrieving the lodged foreign object when the attempt to negotiate the canal was made some resistance was felt, with the help of H files and extreme care the other lodged radiolucent objects were retrieved which were identified to be the wooden parts of the incense sticks.

After determining the working length (19mm), the canal was debrided using circumferential filling and copious irrigation using normal saline and 2 percent chlorhexidine (Zodenta, Neelkanth Health Care Pvt Ltd) after which intracanal dressing of calcium hydroxide (Neocal, Orikam Healthcare India Pvt Ltd) was given and the canal sealed with temporary restoration (MD Temp. Meta Biomed™, Korea)

In the next appointment the apexification procedure was performed and the artificial apical plug was made using MTA (Prevest Denpro MTA Plus, Prevest DenPro Limited) and the canal was sealed with a moist cotton pellet to allow proper setting of the mta plug.

After 48 hours the root canal was obturated using Thermoplasticized gutta percha technique (Denjoy Ifill Cordless Gutta Percha Obturator, Denjoy Dental Co., Ltd., China) and the access cavity sealed using resin-modified GIC (Fusion i-Seal, Prevest DenPro Limited, India)

DISCUSSION

Children frequently experience problems from accidentally ingesting foreign objects. As a result, foreign objects may be discovered in their teeth. 6 The majority of these troubling incidents involve kids, especially when a pulp chamber is left open due to caries exposure, traumatic injury, or dislodged restorations. According to a review of the literature, these incidents are more common in children, who have a greater propensity to keep foreign objects in their mouths, especially while studying or watching television. Foreign objects are frequently diagnosed only during routine radiographic examinations due to children's fear of punishment and ignorance.4 Children may put objects into their teeth because of food impaction, which over time develops into a habit. These foreign objects have the potential to be a significant source of infection.6

Several foreign objects have been found lodged in the pulp chambers and root canals of both deciduous and permanent teeth. Root canals have yielded metallic paper clips, metal screws, pencil leads,

stapler pins, darning needles, beads, plastic chopsticks, toothpicks, indelible ink pencil, ink pen tips, brads, tomato seed, crayons, dressmaker pins, two straws, conical metal objects, hat pins, aluminum foil, and other items.7 In the case we reported It was a metallic paper pin and wooden part of multiple incense sticks.

McAuliffe et al. summarized various radiographic methods for localizing a radiopaque foreign object, including parallax views, vertex occlusal views, triangulation techniques, stereo radiography, and tomography.8 The presence of radiolucent foreign objects becomes especially challenging as in our case due to them not being detected on radiograph as in our reported case where along with radio-opaque metallic paper pin there were multiple pieces of radio-lucent wooden incense sticks pieces, so immense care should be taken to prevent accidental dislodgement of these radiolucent objects periapically.

Silver points in the root canal are removed with Steiglitz forceps. A disposable injection needle and a thin steel wire loop formed by passing the wire through the needle being used are described. To tighten the loop around the object, this assembly was used in conjunction with a mosquito hemostat.9

The Masserann kit and modified Castroveijo needle holders have been reported for retrieving foreign objects lying in the pulp chamber or canal using an ultrasonic instrument.8 McCullock proposed that removing a small amount of tooth structure improves access to a foreign object.10 If a foreign object is tightly bound in the canal, it may need to be loosened first and then removed with minimal damage to the internal tooth, according to Walvekar et al. 11

Hedstroem files make it much easier and more convenient to engage any foreign objects in the root canal.4

In our case, we used Ultrasonic scaler, Shepherd's Hook, Steiglitz Forceps and H files. Foreign object removal and calcium hydroxide dressing can both aid in the elimination of chronic peri-apical infection.8

If these infection foci are not removed at the appropriate time, complications may occur. Costa et al. reported chronic maxillary sinusitis of dental origin caused by the insertion of foreign bodies into the maxillary sinus via the root canals.12 To avoid further complications, prompt diagnosis and treatment are required.6

CONCLUSION

Due to self-inflicted harm or iatrogenically, foreign bodies may become trapped or entrenched within the root canal system of a tooth. This is frequently observed in teeth with untreated caries, teeth with restorations that have come loose, and teeth with long-term damage that has not been addressed. As long as the tooth is asymptomatic, many individuals choose not to get treatment. To ensure that dental treatment is given as soon as possible to prevent further issues, proper counselling is necessary.

DECLARATION OF PATIENT CONSENT

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published, and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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