

## Case Report

# Dental Neglect Leading to Foreign Body Lodgement in Pulp Chamber

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## Abstract

Foreign object embedded in a tooth is not an uncommon finding, especially in children undergoing root canal therapy or who has experienced trauma leading to teeth fracture. Many children with a habit of placing various objects in the oral cavity eventually end up with foreign body lodgement into the pulp chamber or root canal leading to pain and infection. Parental negligence is responsible to a great extent in such kind of accident as they fail to keep watch on their children and their teeth. A number of foreign objects have been reported to be lodged in the pulp chamber and root canals of both deciduous and permanent teeth. Various instruments and kits have been used on retrieval of foreign objects lying in the pulp chamber or canal.

**Keywords:** Dental neglect, foreign body, metallic pin

## INTRODUCTION

Foreign object embedded in a tooth is not an uncommon finding, especially in children undergoing root canal therapy or who has experienced trauma leading to teeth fracture.<sup>[1]</sup> Many children with a habit of placing various objects in the oral cavity eventually end up with foreign body lodgement into the pulp chamber or root canal leading to pain and infection.<sup>[2]</sup> Parental negligence is responsible to a great extent in such kind of accident as they fail to keep watch on their children and their teeth. This is referred as dental neglect. Detailed case history, clinical and radiographic examinations are necessary to arrive at a conclusion about the nature, size, location of the foreign body and difficulty involved in its retrieval. The present article describes a case of dental neglect leading to foreign body lodgement in the right mandibular central incisor in a 12-year-old male patient and the role of paediatric dental practitioners in guiding children and parents to obtain treatment in the best interest of child.

## CASE REPORT

A 12-year-old boy reported with a chief complaint of discoloured teeth in mandibular arch for 6 months [Figure 1]. On inspection, the right mandibular central incisor

(41 - Federation Dentaire Internationale) was found to be fractured and discoloured. The patient was asymptomatic at the time of visit. Detailed history revealed that the patient had a history of trauma 2 years back while playing cricket which led to fracture of 41. Tooth was non-tender on percussion. Intraoral periapical radiograph revealed the presence of a linear radiopaque foreign body extending from the coronal third to the apex [Figure 2].

After radiographic examination, the diagnosis was given as Ellis Class IV fracture with a metallic foreign body with respect to 41. Past dental history consisted of a visit to a general dentist at the time of injury and had taken symptomatic treatment.

After taking the clinical and radiographic findings into consideration, it was diagnosed as an unusual foreign body in the pulp canal of a non-vital fractured tooth in relation to 41 and decided to initiate the root canal treatment with an attempt to retrieve the foreign object.

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**Figure 1:** Pre-operative intraoral photograph showing fractured mandibular right central incisor.

A conventional access cavity was prepared using 014 round carbide burs and Endo Z burs (Dentsply Maillefer, Ballaigues, Switzerland), and the pulp chamber was cleared of debris under copious irrigation with the saline solution and 2.5% sodium hypochlorite solution. With the use of K-file ISO No. 40 (Dentsply Maillefer, Ballaigues, Switzerland), attempts were made to retrieve the object by a simple filing motion for many times, which was unsuccessful. Decision was made to use a bigger size of K-file ISO No. 70 (Dentsply Maillefer, Ballaigues, Switzerland) and as the canal was wide, attempts were made to engage the object between the file and the canal wall and turned the file in a clockwise direction but it was unsuccessful this time too.

As the simple method failed, it was decided to remove the foreign body with the help of an ultrasonic scaler. A long ultrasonic scaler tip was agitated inside the canal without water at slow speed. The foreign body popped out of the root canal because of the vibrations of the ultrasonic tip which was then removed with the help of tweezers [Figure 3]. Canal was copiously irrigated with saline, hydrogen peroxide and 2.5% sodium hypochlorite. The retrieved objects appeared black and measured approximately 11 mm in length [Figure 4]. It was identified to be ball end pin.

Calcium hydroxide (META BIOMED Co., Ltd.) intracanal medicament was placed following cleaning and shaping of the canal on the second appointment which was subsequently replaced at a week's interval for 2 weeks. Obturation was done with gutta percha (No. 70 Dentsply Maillefer, Ballaigues, Switzerland) using lateral condensation technique at the end of 3<sup>rd</sup> week. Post-obturation restoration was done by placement of full acrylic crown to restore the aesthetics [Figure 5]. The patient was recalled after 6 months and a year after the final restoration and he was found asymptomatic.

## DISCUSSION

Despite knowing the existing problem to tooth as the discolouration of tooth was well evident to the eye, still



**Figure 2:** Intraoral periapical radiograph showing radiopaque foreign material in the pulp chamber.

parents neglected to seek treatment for 2 years post-trauma to the tooth. They consulted dentist only for symptomatic care and failed to follow-up thereafter. As the patient was a local resident of the area and treatment in the institute is free of cost for all the patients, financial or transport constraints to avail treatment were non-bonding. As defined by the American Academy of Pediatric Dentistry, 'Dental neglect is defined as willful failure of parent or guardian to seek and follow through with treatment necessary to ensure a level of oral health essential for adequate function and freedom from pain and infection'.<sup>[3]</sup>

We established this as negligence on parents' part to seek treatment for their child. A problem which might have been treated two years back non-invasively with one the treatment modalities such as indirect pulp capping is now worsened, due to dental neglect, to the extent of becoming non-vital with foreign body lodgement in the root canal.

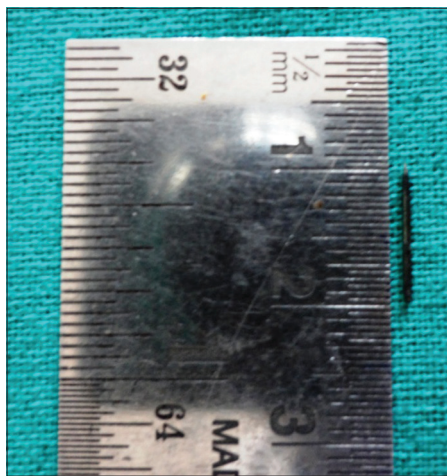
Parents were very well explained about the condition present and possible hazardous outcomes, and counselled as to benefit of treatment for their child's oral and systemic health, facial aesthetics and self-esteem. And after obtaining their consent and willingness for active participation in child's dental treatment, the treatment was initiated.

A number of foreign objects have been reported to be lodged in the pulp chamber and root canals of both deciduous and permanent teeth. Metallic paper clip,<sup>[4]</sup> metal screws,<sup>[5]</sup> pencil lead,<sup>[6]</sup> stapler pins,<sup>[7]</sup> darning needle,<sup>[8]</sup> beads,<sup>[9]</sup> plastic chopsticks,<sup>[10]</sup> toothpicks, indelible ink pencil, ink pen tips, brads, tomato seed, crayons,<sup>[11,12]</sup> dressmaker pins,<sup>[13]</sup> two straws,<sup>[14]</sup> conical metal objects,<sup>[15]</sup> hat pins,<sup>[16]</sup> aluminium foil,<sup>[17]</sup> etc., have been retrieved from root canals.

Various instruments and kits have been used on retrieval of foreign objects lying in the pulp chamber or canal using ultrasonic instruments, modified Castroviejo needle holders,<sup>[18]</sup> the Masserann kit<sup>[19]</sup> and Steglitz forceps.<sup>[20]</sup>



**Figure 3:** Intraoperative photograph during the removal of foreign material.



**Figure 4:** The retrieved foreign material.



**Figure 5:** Post-operative photograph after placement of temporary crown.

We tried retrieving the ball end pin with manual instrumentation initially, but after two failure attempts, ultrasonic scalers were used for the same, and foreign objects were successfully retrieved. Moreover, conventional multiple-visit root canal

treatment was carried out to ensure tooth is well debrided of chronic contaminants and infectants and obturated and restored meticulously. Regular patient follow-up and check-up ensures health of the tooth and brightens smile of the child. Beyond the art and science of dental procedure carried out, through this case report, we would like to highlight the importance of paediatric oral health-care providers to actively guide and reinforce the importance of oral health and its correlation to the general well-being of children and their parents.

## CONCLUSION

As paediatric dentistry is an age-defined speciality, with purview of working in interest of child's dental, systemic and psychological well-being, the success lies in harmony between pedodontists and parents to work for child's best interest as very well guided by Wright's Pedodontic treatment triangle. The act of guiding children and parents to befitting and apt treatment is as benevolent as the treatment itself.

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## Conflicts of interest

There are no conflicts of interest.

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