

# Foreign Body in a Traumatized Tooth: Identification and Management

Paras Angrish<sup>1</sup>, Sonali Haldar<sup>2</sup>, Subrata Saha<sup>3</sup>, Ashok B SenGupta<sup>4</sup>

1- Post Graduate Student, Department of Pedodontics and Preventive Dentistry. 2- Assistant Professor, Department of Pedodontics and Preventive Dentistry. 3- Head and Professor, Department of Pedodontics and Preventive Dentistry. 4- Associate Professor, Department of Pedodontics and Preventive Dentistry.

Correspondence to:  
Dr. Paras Angrish, Post Graduate Student, Department of  
Pedodontics and Preventive Dentistry.  
Contact Us: www.ijohmr.com

## ABSTRACT

Discovery of foreign bodies in the teeth is a special situation, which is often diagnosed accidentally. Detailed case history, clinical and radiographic examinations are necessary to locate the foreign body, to estimate the size, nature of body and the difficulty involved in its retrieval. Most of these objects are accidentally ingested or even aspirated which can prove to be a frightening and stressful experience. Luckily the presence of foreign objects in the teeth is rare. In this paper management of foreign objects that are embedded in the traumatized maxillary anterior tooth is described.

**KEYWORDS:** Foreign body, Tooth, Root canal, Biodentin

## INTRODUCTION

Umpteen cases have been reported depicting the presence of foreign bodies such as metal screws,<sup>1</sup> staple pins,<sup>2,3</sup> darning needles,<sup>4</sup> pencil leads,<sup>5</sup> and beads<sup>6</sup> lodged in the pulp chambers or root canal of a cariously involved or traumatically injured deciduous and permanent teeth. Mostly, these kind of cases are diagnosed by chance on routine radiographic examination of the tooth associated with infection, pain, swelling or recurrent abscesses as a sequel to the pulpal exposure and lodgment of the foreign body.

Moreover, chances of extrusion of foreign body into periapical area increases when the involved tooth has an open apex. Consequence of child's habit of placing foreign objects into the mouth may cause injury to both the hard and soft tissues. Skill and patience is required for the retrieval of such foreign objects especially in children which is quite challenging to a pediatric dentist.

Foreign object removal from the root canal is a complicated procedure, and these must either be removed from the root canal without changing the canal morphology or be bypassed.<sup>7</sup> Careful instrumentation, irrigation, and floatation are used to remove the obstruction.<sup>8</sup>

A case of foreign object found within the pulp chamber of the permanent central incisor with its management is presented here.

## CASE REPORT

A 12-year-old boy reported to the department with the chief complaint of swelling in the upper front tooth region since 3 weeks. The patient gave history of trauma that had occurred two years back in which his upper tooth got fractured. On intraoral examination, Ellis class III

fracture in relation to maxillary right central incisor was observed. Swelling was present on the labial aspect of maxillary right central incisor along with pus discharge. The maxillary right central incisor showed greyish black discoloration. Intraoral periapical radiograph was taken that revealed two separate radio opaque objects in the root canal of maxillary central incisor. On further asking patient also gave a history of putting sharp things into tooth access to clean the debris confirming some foreign objects in root canal.

The smaller size object was found 0.5-1 mm below the apex of the tooth, whereas other was at the pulp chamber, the intraoral periapical radiograph also revealed an open apex with a periapical radiolucency.(Fig-1)



Fig-1: Iopa Showing Radioopaque Bodies Inside Root Canal

Detailed explanation regarding the treatment plan was explained to the patient and consent was taken. Conservative management of the central incisor was done under antibiotic cover and retrieval of the foreign objects was done by tactile sensation using H-files of size 10-25.

Conventional access cavity was made to facilitate access for instrumentation. An ISO no. 10 K-file (DENTSPLY Maillefer, Ballaigues, Switzerland) was used to bypass the foreign objects. Retrieval was done by attempting to

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engage the objects between ISO no. 15 H-file (DENTSPLY Maillefer) and canal wall then pulling it out coronally, which were then one followed by another grasped with tweezers and retrieved (Fig-4), irrigation was done alternatively with normal saline and 5.2% sodium hypochloride. Radiograph was taken to confirm the absence of foreign body in the root canal and working length was taken (Fig-2). Dressing of calcium hydroxide for 3 weeks was given, Apexification was done with BIODENTIN™ (Septodont, St. Maurdes Fossés, France) (Fig-3) followed by sectional obturation using gutta percha and AH 26 sealer. Thereafter, fiber-reinforced post was placed using dual cure resin cement, and core buildup was done using light cure composite material. (Fig-5) The patient was reviewed after a period of six months. IOPA radiograph revealed resolution of periapical pathology and with bony trabeculae formation. (Fig-6), (Fig-7). After that metal ceramic crown was given to the patient (Fig-8), (Fig-9).



Fig-2: Working Length



Fig-3: Biodentine Placed



Fig-4: Foreign Bodies



Fig-5: Sectional Obturation With Fiber Post Placed



Fig-6: 3 Months Post OP



Fig-7: 6 Months Post OP



Fig-8: Preop Crown Cutting



Fig-9: Crown Placed

## DISCUSSION

The habitual putting of things in the mouth can lead to serious problems which include ingestion of some foreign body or lodgment of these kind of objects in the oral cavity. Impaction of foreign bodies in the teeth can cause pain, bleeding, and infection.<sup>9</sup> More over it can act as a source for infection. Other complication is these foreign objects may act as obstructions for the smooth passage of endodontic instruments. Chronic maxillary sinusitis of dental origin developed due to pushing of foreign bodies into the maxillary sinus<sup>10-12</sup> have been reported. Cases like Actinomycosis<sup>13</sup> following placement of piece of jewelry chain into a maxillary central incisor and pushing of foreign bodies into the maxillary sinus leading to chronic maxillary sinusitis<sup>14</sup> has been reported.

Various radiographic methods has suggested by McAuliffe<sup>3</sup> to be followed to correctly locate a foreign object, such as parallax views, vertex occlusal views, triangulation techniques, stereo radiography, and tomography.

Parallax technique generally involves two radiographs that has to be taken at different horizontal angles with same vertical direction. Parallax technique is also known as Same Lingual Opposite Buccal (SLOB)<sup>15</sup>, in which objects appear to travel in the same direction as tube shifts and the object closer to the tube appears to move in the opposite direction.

For retrieval of foreign objects lying in the pulp chamber or canal using ultrasonic instruments,<sup>16</sup> the Masserann kit,<sup>17</sup> modified Castroviejo needle holders,<sup>18</sup> and the Stieglitz forceps<sup>19</sup> have been used.

Ethylenediaminetetraacetic acid (EDTA) should be used as a lubricant in the canal when attempting to remove the foreign object.<sup>19</sup>

Nonetheless, retrieval of the object may be difficult when it is lodged in periapical region. Periapical surgery or intentional reimplantation<sup>20</sup> should be considered to remove such objects.

## CONCLUSION

In the case discussed above, the foreign object in the root canal was retrieved successfully by a simple, nonsurgical procedure. For complicated cases, when it becomes impossible to retrieve or bypass the object, surgical procedures or extraction of related tooth may be the only alternative to eliminate pain and infection. Timely diagnosis and management of foreign object embedded in the tooth should be done to avoid further complication. This technique sensitive procedure requires patience and carefulness that may be helpful in retrieving foreign bodies and avoiding periapical surgery.

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