

*Case Report*

Management of an Unusual Foreign Body in a Tooth with Open Apex: A Case Report

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ABSTRACT

Clinicians may encounter bizarre situations when they accidentally discover foreign bodies in the root canals of the teeth. Children have the habit of placing foreign objects in the oral cavity which can cause both hard and soft tissue injuries. At times, these objects can get lodged inside the pulp chamber or root canal of a tooth and may become a potent source of pain and infection for the patient. Therefore, it is very important that an attempt is made to retrieve the foreign object immediately to prevent any untoward consequences. Evaluation of foreign bodies in root canals should be carefully made to determine the nature, position, size and degree of difficulty encountered in retrieving the object. This case report describes the successful retrieval of the foreign object located in the apical portion of an immature root canal by simple non-surgical technique.

Key words: Foreign body, Non-surgical technique, Immature apex.

INTRODUCTION

Root canal treatment can be challenging in children and occasionally clinicians may encounter strange situations that require both skill as well as perseverance. Children often place foreign objects in the oral cavity resulting in soft and hard tissue injuries. At times, these objects can get lodged inside the tooth or root canal system. Objects such as pencil lead, darning needles, metal screws, beads, paper clips, staple pins, tooth pick, etc have been reported in the literature. [1] These foreign objects may become a potent source of pain and infection for the patient. Use of appropriate diagnostic aids is important to ascertain the size, position and type of the

object which help in treatment planning. The following case report describes the retrieval of a foreign object impacted in the apical third and periapical region of an immature permanent maxillary central incisor and its successful management thereafter.

CASE REPORT

A 14 year old male patient reported to the Department of Pedodontics and Preventive Dentistry, with a chief complaint of pain in the upper front tooth since four days. (Figure 1a) Patient gave a history of fall two years back for which he received symptomatic treatment. Intra oral examination revealed full set of permanent teeth with complicated enamel dentine

fracture involving the pulp chamber in relation to 21 (maxillary left central Incisor). On clinical examination the tooth exhibited discoloration, pain on percussion, mobility and vestibular tenderness. Intra oral periapical radiograph (IOPAR) revealed the presence of a linear radio-opaque object in the root canal, extending from the middle third projecting 4 mm beyond the immature root apex with periapical radiolucency. (Figure 1b)

Considering the clinical and radiographic findings it was diagnosed as unusual foreign body in the root canal of a non vital fractured tooth in relation to 21 and root canal treatment was initiated to retrieve the foreign object. A conventional access cavity was prepared with # ---- bur and the pulp chamber was debrided under copious irrigation. Working length determination

was established using a # 40 K-file. Efforts were made to retrieve the object by a simple filing motion for many times which was finally achieved using # 70 H-file by engaging the object between the file and the canal wall (Figure 1c). The retrieved object appeared black in color and measured approximately 17 mm in length which was bent at one end. (Figure 1d) A post-operative radiograph was taken to evaluate for any remnants of the foreign object in the root canal and periapical region. (Figure 1e)

Following retrieval, an intra canal calcium hydroxide medicament was placed. (Figure 1f) Apical closure was achieved in six months and the root canal was obturated by rolled cone technique. ^[2] (Figure 1g) Polycarbonate crown was placed as a post endodontic restoration and the patient is kept under observation. (Figure 1h)

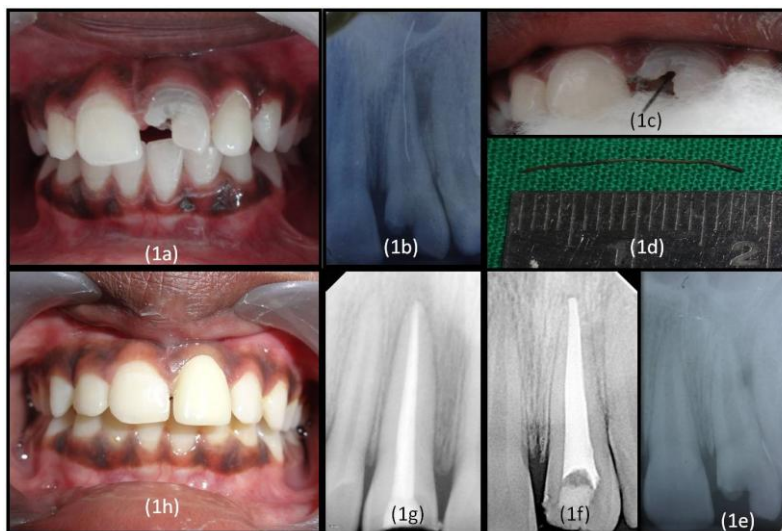


Figure legends:

- Figure 1a: Pre operative Intra oral photograph
- Figure 1b: Pre operative Intra oral periapical radiograph
- Figure 1c: Retrieval of foreign object
- Figure 1d: Foreign object
- Figure 1e: Post operative Intra oral periapical radiograph
- Figure 1f: Placement of Intra canal calcium hydroxide medicament
- Figure 1g: Post operative radiograph after endodontic therapy
- Figure 1h: Post operative Intra oral photograph

DISCUSSION

Various foreign objects were reported to be lodged in the root canals and

the pulp chamber. Grossman reported retrieval of indelible ink pencil tips, brads, a tooth pick, adsorbent points and even a

tomato seed from the root canals of anterior teeth left open for drainage. [3] Toida reported a plastic chopstick embedded in an unerupted supernumerary tooth in the premaxillary region of a 12-year-old Japanese boy. [4]

A foreign body can act as foci of infection in any part of the living organism. If left untreated it can lead to various complications. Therefore, it is very important that an attempt is made to retrieve the foreign object immediately to prevent any untoward consequences. [5] Foreign objects are usually seen in wide open canals that have been exposed either due to caries or trauma or iatrogenically kept open for draining. According to Cohen and Brownin during emergency root canal procedures some practitioners choose to leave the pulp chamber open, thus increases the risk of foreign body lodgement. [6] However, dislodged restorations are another common cause for the foreign body entrapment.

These foreign bodies can be discovered in routine radiographic examination and may also be suspected when the patient presents with pain or swelling in case fractured teeth involving pulp or discontinued endodontic treatment. In certain conditions localization of the foreign object can be achieved by using advanced radiographic techniques such as radiovisiography, computerized axial tomography (CAT) scan, CBCT etc. [7] In our case, the object was easily traced using a simple IOPAR.

There are various devices developed to retrieve the foreign bodies and fractured instruments in the pulp canal such as ultrasonic instruments, mosquito hemostat, modified Castroviejo's needle holder and Stieglitz forceps used for removal of silver points. [8] Further, many other techniques have also been described in the literature by using instruments such as Masserann kit (Micro-Mega, Besancon,

France), Endo Safety system and Endo Extractor (Brasseler Inc., Savannah, GA). [9] However, sometimes retrieval of the object may become difficult when it is blocked in the periapical region. In such cases periapical surgery, intentional reimplantation, apicectomy or extraction has been suggested. [10-12] In the present case retrieval was performed successfully by a simple non surgical technique.

Literature suggests the use of calcium hydroxide as the choice for intracanal medicament. However, if the infection fails to heal, a triple antibiotic paste can be employed consisting of ciprofloxacin, metronidazole and minocycline which successfully eliminate the endodontic infection. [13] Once the tooth in question is asymptomatic after routine follow-up, the canal is obturated and subsequently rehabilitated. [14]

Therefore, we employed calcium hydroxide as intracanal medicament which proved to be successful in eliminating the infection in subsequent visits. Once the endodontic therapy was completed, composite build up was done followed by polycarbonate crown. During the follow up visits the tooth in question was asymptomatic, proving the endodontic procedure to be successful.

CONCLUSION

This presentation has outlined the management of a case of an unusual foreign body in a tooth which was successfully carried out and esthetically restored with patient's cooperation.

Key learning points:

Parents and the children should be warned against placing the foreign objects into the oral cavity and similar activities which lead to trauma of oral and perioral structures.

The clinician should always consider the benefits and risks associated with leaving

the pulp chamber open for prolonged periods of time during endodontic procedures.

Evaluation of foreign bodies in root canals should be carefully made to determine the nature, position, size and degree of difficulty encountered in retrieving the object.

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