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Retrieval of Lodged Foreign Body from the Root Canal - A Case Report

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Abstract

Accidental ingestion or aspiration of a variety of foreign bodies is a common endodontic emergency. A foreign body in the tooth, however, is rare. Retrieval of foreign objects from the teeth is a challenging aspect in clinical practice. A detailed case history, including history of habitual placement of the objects, clinical and radiographic examinations are necessary to come to a conclusion about the nature, size, location of the foreign body and the difficulty involved in its retrieval. Sometimes the foreign objects fracture inside the tooth while exploration by the patient. These foreign objects may act as a potential source of infection and may later lead to complications. This paper discusses a case of foreign object impaction in the teeth, the possible aetiology along with its management.

Keywords: Foreign objects, Habitual placement, Non-surgical technique, Source of infection, Trauma

Introduction

Presence of foreign objects in root canal is one of the troublesome incidents in endodontic therapy. The chance of these foreign objects getting impacted into the tooth is more when pulp chamber is open either because of traumatic injury or large carious exposure. These foreign objects can be easily retrieved if they are located within the pulp chamber, but once the object has been pushed apically, their retrieval may be complicated. Apical surgical procedures may sometimes be unavoidable.[1]

The following case describes a foreign object impacted into the apical third of a maxillary central incisor, which was retrieved by simple nonsurgical intracanal means.

Case Report

A 28-year-old Male reported to the Department of Conservative Dentistry and Endodontics with a complaint of pain and also removal of stapler pin in the root canal of maxillary central incisor. Patient admitted

of placing stapler pin inside the root canal to remove food plugs from the teeth. However, the stapler pin got lodged accidentally in the root canal of central incisor. Patient tried to remove the stapler pin with a needle and was unsuccessful.

On examination, the pulp chamber was found to be open to oral cavity but was occluded with food plugs. Radiographic examination revealed the presence of a radio-opaque object in the root canal extending from middle third to the apex of the root [Figure 1]. It was decided to retrieve the stapler pin by nonsurgical technique, and thereafter, complete the routine endodontic treatment in all the two teeth.

Conventional access cavity was refined to facilitate access for instrumentation. An ISO no. 20 K-file (DENTSPLY Maillefer, Ballaigues, Switzerland) was used to bypass the stapler pin. Retrieval was done by attempting to engage the stapler pin between ISO no. 20 H-file (DENTSPLY Maillefer) and canal wall then pulling it out coronally, which was then grasped with tweezers and was retrieved. The retrieved stapler pin was six millimeters in length [Figure 2,3]. The working length was confirmed using an apex locator (Root ZX; J Morita, Tokyo, Japan) as well as radiographically using a stainless-steel K-file no. 15 [Figure-4]. The root canals were cleaned and shaped using Neohybrid rotary file system (Neoendo, Orikam, Health Care Solution, India) in a crown down motion. Three percent sodium hypochlorite (Prime Dental, India), 17% ethylenediamine tetra acetic acid liquid (EDTA) (Dentwash, Prime Dental, India), and isotonic saline was used as irrigants. An intracanal calcium hydroxide medicament was placed [Figure-5].

Patient was recalled after 3 weeks for the follow-up. At subsequent appointment, canal was irrigated with 2.5% NaoCl (Prime Dental, India) and 2% chlorhexidine (Chlor X, Prevest Denpro). The canal was dried with paper points and Biodentin was placed with pluggers until thickness of 6 mm [Figure-6]. A wet cotton pellet was placed in the canal and access cavity was sealed with temporary cement. In next appointment, root canal was obturated with GP using lateral condensation technique using AH plus sealer (Dentsply, Malliefer, Konstanz, Germany) [Figure 7]. Access cavity sealed with glass ionomer cement [Figure-7]. On a follow-up examination after three months, the teeth were asymptomatic.

Discussion

A number of foreign objects were reported to be lodged in the pulp chamber or root canals of the tooth, which ranged from stapler pin[2], pencil leads[3], darning needles[4], metal screws[5], beads[6], plastic chop stick[7], hat pins[8], dress maker pins[9], conical metallic object[11].

During emergency root canal treatment, the patient remains in the office with a draining tooth for an hour or even more and finally ending the appointment by sealing the access cavity[12]. With the access cavity closed, new strains of microorganism systems and foreign bodies can be prevented from entering the root canal[13].

Patient should be well educated regarding the phases of root canal treatment and the importance of completion of treatment, to avoid undue consequences.

A radiograph can be of diagnostic significance especially if the foreign body is radio-opaque. Specialized radiographic techniques[1]. such as Radiovisiography, three-dimensional CAT (Computerized axial tomography) scans can play a pivotal role in the localization of these foreign objects inside the root canal. Foreign objects in root canals can act as focus of infection. Complications can follow if these impacted foci of infection are not eliminated at the right time. Actinomycosis following placement of piece of

jewellery chain into a maxillary central incisor[14], and chronic maxillary sinusitis of dental origin developed due to pushing of foreign bodies into the maxillary sinus[15], has been reported. Hence, prompt attempts at their retrieval should be initiated.

For retrieval of foreign objects lying in the pulp chamber or canal using ultrasonic instruments[16], the Masserann kit [17], modified Castroviejo needle holders[18], the Steglitz forceps[19], have been used. EDTA has been suggested as a useful aid in lubricating the canal when attempting to remove the foreign object [19]. The use of an operating microscope along with ultrasonic[20] provides the clinician to visualize any intraradicular metallic obstructions.

Nonetheless, retrieval of the object may be difficult when it is lodged in periapical region. Periapical surgery or intentional reimplantation[21] should be considered to remove such objects.

In this case stapler pin was located within the root canal and confirmed by diagnostic radiograph. Access to the foreign body was improved by flaring the canal[22] coronally. Every attempt has to be made to bypass and retrieve the stapler pin by pulling it out coronally.

If foreign objects are found in the root canal, prompt, but cautious attempts should be made to retrieve it first by simple nonsurgical means. Finally, when the foreign object resists all efforts for removal a surgical procedure may be the only viable alternative.

Figure 1: Pre-Operative Radiograph

Figure 2: Retrieval of stapler pin from the canal radiograph

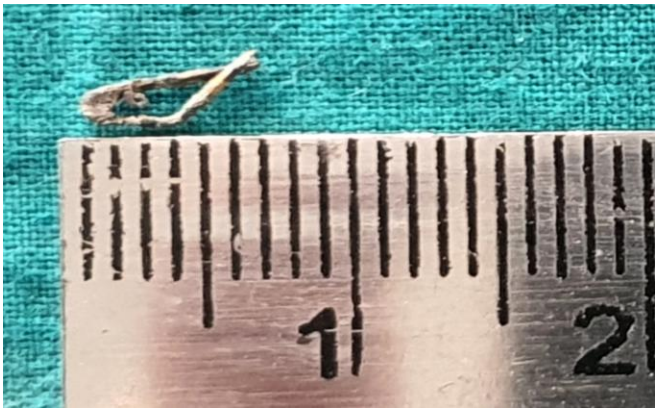

Figure 3: Retrieval of 6mm stapler pin from the canal

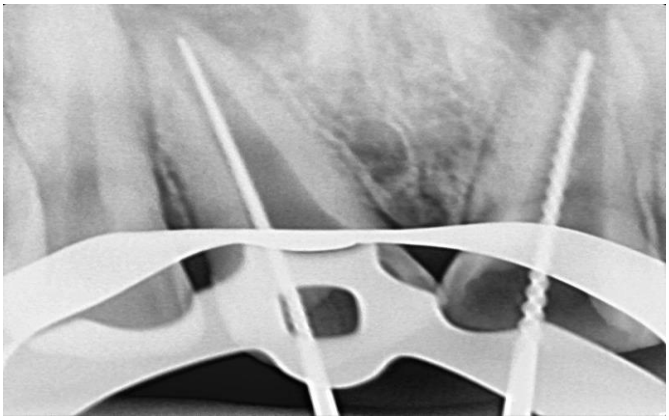

Figure 4: Working length Radiograph

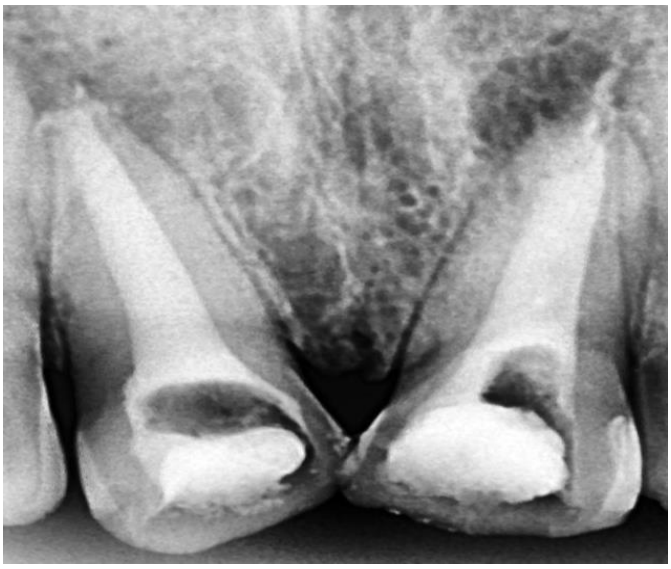

Figure 5: Calcium Hydroxide as an intracanal medicament placed within the canal

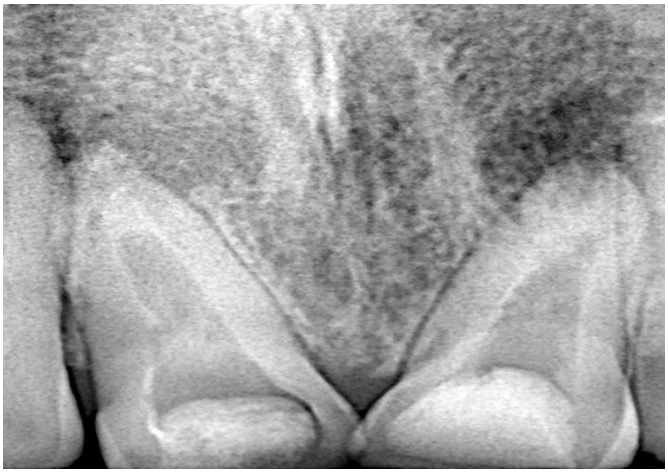

Figure 6: Bio dentin apical plug placed using hand pluggers

Figure 7: Post Obturation Radiograph

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