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RETRIEVAL OF FOREIGN OBJECT IN THE ROOT CANAL- A NON SURGICAL APPROACH

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ABSTRACT:. The presence of a foreign object embedded within the root canal of a tooth is relatively uncommon finding. These cases are often diagnosed accidentally. This paper describes the successful retrieval of safety pin located in the middle portion of root canal by simple orthograde nonsurgical technique. However, due to failure of apical closure, apex sealed with MTA, and tooth restored with fiber post and composite core.

KEYWORDS: Foreign object, Root canal retrieval , non-surgical technique

INTRODUCTION

Presence of foreign objects in root canal is one of the unwanted incidents in endodontic therapy. The chance of these foreign objects getting embedded 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. These foreign objects may act as a potential source of infection and may later lead to a painful condition. A detailed case history, clinical, and radiographic examination is required to ascertain the size, position, and likely composition of the object, and also difficulty involved in its retrieval. Apical surgical procedures may sometimes be unavoidable.

The following case describes a foreign object impacted in the middle third the root canal of a maxillary central incisor with wide apex, which was retrieved by simple nonsurgical intracanal H-File Braiding technique .

Case report : A male aged 21 yrs has reported to the department of conservative dentistry, with the chief complaint of broken upper front tooth since 5 years . On clinical examination Ellis class III fracture was found in relation to 21. **(Fig.1.)** The tooth was discolored revealing the history of trauma 5 yrs ago. No intra oral swelling or sinus was found. IOPA revealed radio opaque foreign object lodged obliquely in the middle third of the root, also root apex was resorbed. No periapical changes were seen**(Fig.2.)**

A detailed case history from patient revealed that the patient had the habit of using sharp metallic pins as tooth picks. Considering the age of the patient, it was decided to carry out endodontic treatment following the removal of the foreign object nonsurgically.

An access cavity made using no 4 round bur, coronal third of the canal was enlarged using Gates Glidden drills no 2 & no 3. Using no10 k-file the foreign object was bypassed gently than with the no15 k-file and H-file foreign object is loosened in the canal. Three H-files were placed labial, palatal, and distal to the foreign object (as in H-file Braiding technique) and gently retrieved from the canal **(Fig.3)**.

Working length was determined and biomechanical preparation done with the k-files and EDTA. As the root apex was resorbed the apical third of the root sealed with MTA for better seal. Remaining part of the canal left unfilled, wet cotton was placed in the canal and access sealed with IRM. **(Fig.4)**.

Post space is prepared in the next sitting, two fibre posts were cemented using dual cure resin cement and core build up was done, direct composite resin veneer was made as a final restoration

Figure.1. preoperative picture of fractured #21

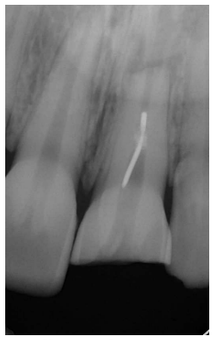

Fig.2. IOPA revealing a foreign object in middle third of the root

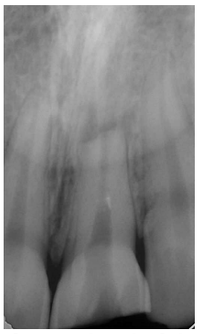

Fig..3. IOPA after retrieval of the metallic pin

Fig.4.showing the retrieved specimen

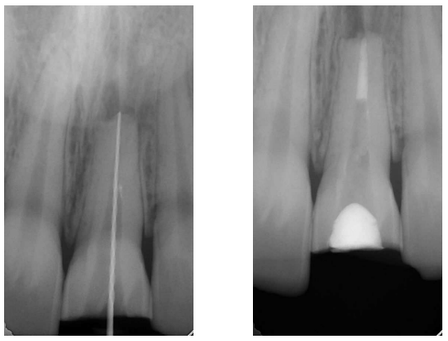

Fig..5. IOPA showing working length determination and apexification with MTA

Fig.6. IOPA showing periapical healing after an year.

Discussion:

Various foreign objects were reported to be lodged in the root canals and the pulp chamber, which ranged from pencil leads [1] , darning needles [2] , metal screws [3] , to beads [4] and stapler pins. [5] Grossman[6] 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. Toida [7] have reported a plastic chopstick embedded in an unerupted supernumerary tooth in the premaxillary region of a 12-year-old Japanese boy.

A radiograph can be of diagnostic significance especially if the foreign body is radioopaque. McAuliffe [5] summarized various radiographic methods to be followed to localize a radioopaque foreign object as Parallax views, Vertex occlusal views, Triangulation techniques, Stereo Radiography and Tomography. Vertex occlusal view is no longer favored because of relatively high radiation exposure to the lens of the eye and because the primary beam is aimed towards the abdomen. Triangulation is by the use of two views right angle to one another. Interpretation is difficult because of the superimposition of the other incisor teeth over the root. Stereographic views and tomography were not considered since the availability of the facilities in a dental operatory is very minimal. Specialized radiographic techniques such as radiovisiography, 3D CT scans can play a pivotal role in localization of these foreign objects inside the root canal.
For retrieval of foreign objects lying in the pulp chamber or canal using ultrasonic instruments[8] , the Masserann kit [9] , modified Castroveijo needle holders[10] have been used. Ethylenediaminetetraacetic acid has been suggested as a useful aid in lubricating the canal when attempting to remove the foreign object. The Stieglitz forceps have also been described for use of removal of silver points from the root canal. There is a description of an assembly of a disposable injection needle and thin steel wire loop formed by passing the wire through the needle being used. This assembly was used along with a mosquito hemostat to tighten the loop around the object.[11] Nehme [12] had recommended the use of operating microscope along with ultrasonic filing to eliminate intra-canal metallic obstructions.

McCullock [13] suggested that access to the foreign object is improved by removal of small amount of tooth structure. According to Walvekar [14] *et al*, if the foreign object is snugly bound in the canal, the object may have to be loosened first; it should then be removed with minimal damage to internal tooth structure to prevent perforation of the root.

Complications can follow if these impacted foci of infection are not eliminated at the right time. Actinomycosis following placement of piece of jewelry chain into a maxillary central incisor has been reported by Goldstein.[23] Chronic maxillary sinusitis of dental origin developed due to pushing of foreign bodies into maxillary sinus through the root canals was reported by Costa[15]

Conclusion:

As a foreign object can act as a source of pain and can cause difficulty in the elimination of infection from the root canal, prompt but cautious attempts should be made to retrieve it first by simple nonsurgical means. If the foreign object resists all efforts for removal and when a strong possibility of failure exists, a surgical procedure may be the only viable alternative to obtain an apical seal.

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