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CASE REPORT-DENTISTRY

Retrieval of an Unusual Foreign Object with the Help of a Magnet: A Case Report

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ABSTRACT

The patient may accidentally leave certain metallic objects (pins, nails, stapler pins) into the root canal. Retrieval of these intracanal obstructions may be difficult but is essential for non-surgical treatment. **Aim:** to retrieve the foreign object in the canal by non-surgical approach. **Material and methods:** 18 year male patient reported of pain with #36 tooth. The radiograph revealed a metallic pin in the distal canal. Access was gained and canal orifices were located. Pin removal was attempted with H file but to no avail. Pin was loose in the canal, so a magnet was placed over the orifice of the distal canal and due to the magnetic pull, the instrument was retrieved.

Keywords: intracanal foreign object, retrieval, magnet, bicuspidisation

Key messages:-

- Great difficulty is encountered during retrieval of foreign objects in the canal
- Many techniques have been proposed for the retrieval of foreign objects.
- Modifications are required depending upon the type of object and its position in the canal

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Introduction

Intracanal foreign objects impede thorough cleaning and shaping of the root canal system and thus may compromise the outcome of endodontic treatment. These objects range from pencil leads[1], darning needles[2], metal screws[3], beads[4] and paper clips[5] to stapler pins[6]. Grossman reported the retrieval of indelible ink pencil tips, brads, a tooth pick, adsorbent points and tomato seeds from the root canals of anterior teeth which were left open for drainage[7]. Toida et al. have reported a plastic chopstick which was

embedded in an unerupted supernumerary tooth in the pre-maxillary region of a 12-year-old Japanese boy[8]. Such foreign objects are potential sources of pain and focuses of infection for the patient. A detailed patient's history, together with clinical and radiographical examination, is helpful in the evaluation when a foreign object is suspected. However, orthograde removal of separated instruments is usually a significant challenge to the practitioners. There is no standardized procedure and a number of different removal techniques and devices have been described in

literature. In this case report, magnetic force was used to pull the foreign object out of the canal.

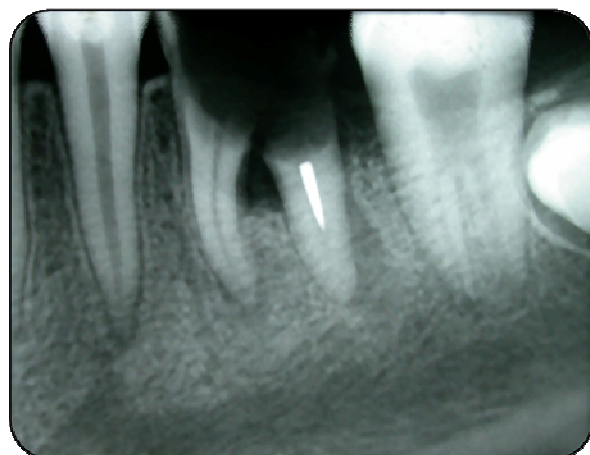
Case Report:

An 18 year old male patient reported to the department with the chief complaint of pain in the left mandibular posterior region. Intra-oral examination revealed grossly decayed #36 [Table/Fig-1].



[Table/ Fig-1]: Grossly decayed #36

The tooth was tender on percussion. IOPA revealed periapical radiolucency in the distal root and what looked like a metallic pin in the distal canal. The radiograph also depicted intra-furcal bone loss, with separation between the mesial and the distal roots [Table/ Fig-2].



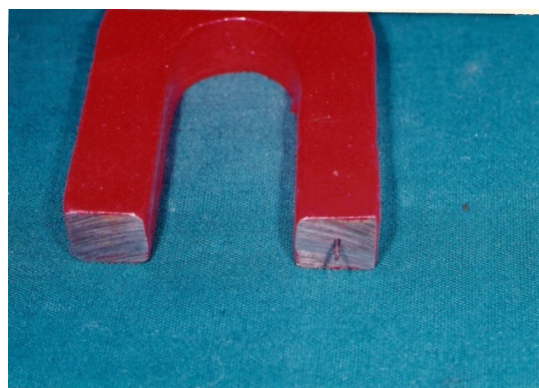
[Table/Fig 2]: IOPA revealing a metallic pin in the distal canal #36

A detailed history from the patient revealed that the patient had the habit of using sharp metallic pins as tooth pics. Considering the age of the

patient, it was decided to carry out endodontic treatment #36 after the removal of the foreign body. Access was gained and the canal orifices were located. Pin removal was attempted with an H file, but to no avail. The pin was loose in the canal, but it was not getting engaged within the file. Finally, it was decided to remove the pin by using a high power magnet. The magnet was placed over the orifice of the distal canal [Table/Fig 3] and due to the magnetic pull, the instrument was retrieved [Table/Fig 4] [Table/Fig 5].



[Table/Fig 3]: Magnet placed onto the tooth



[Table/Fig 4]: Retrieved Metallic Object



[Table/Fig 5]: Radiograph after removal of metallic object

Endodontic treatment of the tooth was carried out [Table/Fig 6].



[Table/Fig 6]: Recording the working length

As there was minimal intrafurcal bone, it was decided to carry out bicuspidization. The mesial root was restored by using a prefabricated screw post and the distal root was restored by using parapost [Table/Fig 7].



[Table/Fig 7] Post and Parapost given in the mesial and distal canals respectively

Composite cores were fabricated over both the mesial and the distal roots and crown preparations were carried out for full coverage cast restorations.

Follow up was carried out in the 3rd, 6th, 9th and 12th months.





[Table/Fig 8] Radiographic and clinical photograph after coronal restoration

Discussion:

Foreign bodies in root canals may act as obstructions for the smooth passage of endodontic instruments. A radiograph can be of diagnostic significance, especially if the foreign body is radio-opaque. Specialized radiographic techniques such as radiovisiography and 3D CAT (computerized axial tomography) scans can play a pivotal role in the localization of the exact position of these foreign objects inside the root canal. The retrieval of foreign objects lying in the pulp chamber or in the canal has been described in the literature which is listed in [Table/Fig 9].

S.No	Year	Author	Technique
1	1965	Grossman	Use of chloroform or xylol to soften the gutta percha which can then be easily removed with a file or a beaded broach.
2	1976	Schulz Gutterman JR.	use of stieglitz plier to remove the silver points
3	1981	Gaffnen JL, Lchman JW, Miles MJ	Ultra sonic scaler[9]
4	1983	Roig-Greene	Use of a device consisting of a disposable 25-gauge dental needle, a segment of thin steel wire and a small mosquito haemostat to remove silver cones from the root canals [10]
5	1983	FORS & BERG	Recommended use of modified Castroviejo needle holders[11]
6	1983	Williams and Bjornidal	The Masserann technique to remove the fractured post [12]
7	1985	Meidinger and Kabes	Use of Cavi-Endo ultrasonic instruments to remove a broken bur tip and amalgam particles from the intracanal spaces
8	2009	Ingle, Balkland & Baumgartner	Micro tube removal systems like Lasso & anchor, Tube & glue, Tap & tread, Endo extractor instrument removal system.

There is also a description about an assembly of a disposable injection needle and thin steel wire loop which was formed by passing the wire through the needle which was being used. This assembly was

used along with a mosquito haemostat to tighten the loop around the object[12]

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.

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