Sewing Needle Obturation of Root Canal: A Rare Case Report

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Discovery of a foreign object in the root canal is unusual and rare. Forceful lodgement or impaction of the foreign object in the pulp chamber or root canal is usually accidental. It is seen more often among children with habits of chewing and placing various objects in the oral cavity. Despite new advances and a large understanding about the root canal morphology, retrieval of foreign objects from the root canal is still a challenging procedure to the endodontists. Exposed pulp chamber due to trauma or tooth left open for drainage after root canal access opening are predisposing factors to foreign body lodgement. The impacted foreign objects in root canals may act as a source in causation of discomfort, pain, infection, and swelling. An attempt to retrieve any foreign body from the root canal may increase the chances of its further apical displacement and firm lodgement in the apical third of the root invariably risking the prognosis of the tooth involved. The present case report describes an inadvertently broken sewing needle in the root canal of the permanent maxillary left central incisor with periapical abscess and its successful retrieval by non-surgical orthograde endodontic treatment.

Keywords: Foreign objects, Non-surgical endodontic treatment, Sewing needle

INTRODUCTION

Discovery of a foreign object embedded in the root canal is unusual and often detected accidentally during routine radiographic examination. Embedment of such foreign object in the pulp chamber or in a root canal is commonly encountered in children who have the habit of placing different objects in the oral cavity.¹ The impacted foreign object may act as a potential source of infection resulting in pain or swelling. Actinomycosis following placement of piece of jewelry pin into a maxillary central incisor has been reported.² While ingestion or aspiration of the foreign object could be frightening and stressful situation.³ Various foreign objects lodged in the pulp chamber and root canal of the tooth have been reported in the literature such as paper clip,⁴ incense stick,⁵ stapler pin,⁶,⁷ pencil leads,⁸ darning needles,⁹ metal screws,¹⁰ beads,¹¹ nail,¹² plastic chop stick,¹³ hat pins,¹⁴ dressing pins,¹⁵ ornament piece,¹⁶ and a conical metallic object.¹⁷ Different techniques have been advised for retrieval of the foreign objects from the root canal.¹⁸

A proper case history, detailed clinical examination and diagnostic X-rays are very important to ascertain the size, position, and type of the object. This also helps in establishing the correct technique for retrieval. The present case report describes a patient with sewing needle embedded in the root canal of the permanent maxillary left central incisor with periapical abscess and its successful conservative management.

CASE REPORT

A 14-year-old male patient reported to Department of Conservative Dentistry and Endodontics with a complaint of broken upper front teeth associated with the history of severe pain for the past 3 days. History of present illness revealed that the patient met with trauma 4 years ago due to an accident. The pain was spontaneous and throbbing in nature. Although at the time of presentation the patient did not exhibit any swelling, the patient did give history of two or three episodes of swelling in past 2 years which were subsided when the patient self medicated himself with a dose of over the counter Analgesic dosage of Paracetamol 500 mg for around 2-3 days each single time. Dull, continuous pain was described by the patient during
the swelling which faded after ingestion of analgesic medications. Patient reported that he did not receive any professional treatment for the same during the mentioned period.

Intraoral examination revealed fractured tooth involving enamel dentin with opening into the pulp chamber of tooth number 21 and 11 (Federation Dentaire Internationale). The pulp chamber was open to the oral cavity. On intraoral examination, following clinical and radiographic features were observed in relation to tooth number 11 and 21. The teeth were discolored, fractured, and showed an incisal opening into the pulp chamber (Figure 1). No intraoral swelling was present in relation to tooth number 11 and 21, but the tooth no 21 exhibited pain on percussion. Furthermore, palpation of gingival tissue in relation to the periapical area of tooth no 21 elicited a painful response in the patient. Vitality test was carried out which revealed, tooth number 11 and 21 were both non vital. Intraoral periapical radiograph revealed a radiopaque object, with a slight conical shape in the middle third portion of the root of tooth no 21 with periapical radiolucency involving both tooth number 11 and 21 (Figure 2). After taking the patient into confidence a careful enquiry of patient, regarding the presence of the foreign objects in the tooth revealed that, the patient frequently used a sewing needle as a toothpick to clean the food lodged from pulp chamber of tooth 11 and 21. 4 months back during one of such attempts, one sewing needle was inadvertently broken in the root canal of tooth 21. Subsequently the patient tried to remove the needle with the help of another sewing needle, but instead the broken needle got further displaced deep within the canal and was more firmly lodged inside. Based on clinical and radiological examination, diagnosis of chronic periapical abscess was established with relation to tooth number 11 and 21. Considering the clinical and radiographic findings, it was decided to do root canal therapy, with an attempt to retrieve the foreign object and thereafter complete the root canal treatment.

A tetanus vaccine booster dose was administered prior to initiating dental treatment. The tooth no 13, 12, 11, 21, 22, and 23 were isolated under rubber dam (Figure 3) and access cavity was prepared under 3.5 × magnifying loupes. The rubber dam clamp was applied on tooth #11, since tooth #21 had weak and minimal coronal tooth structure to retain the clamp. The debris from pulp chamber was cleaned by copious irrigation with physiologic saline. To prevent the rusting of the metallic objects in root canal, irrigation with 5.2% sodium hypochlorite was initially avoided. Exploration of the root canal was done with No.10 Kerr-file (K-file, Mani Inc. Japan). At first the instrumentation with No. 10 K-file was done to bypass the object from the mesial or distal aspect. However, the foreign object offered a strong resistance for its bypass due to quit firm lodgement in the canal. On repeated attempts, the object was finally bypassed with no 10 K-file from palatal aspect (Figure 4). Then, the root canal was sequentially bypassed with No. 15, No. 20 K-files. A No.20 Hedstrom-files (H-file) was subsequently inserted from palatal aspect of the root canal bypassing the object till the apex. An activated ultrasonic scaler tip was put in contact with the metallic blank of No. 20 H-file to facilitate the loosening of an object. Within few minutes, the object felt slightly loosened. File was rotated and pressed against the facial aspect of the root.

![Figure 1: Pre-operative frontal view (tooth #21)](image1)

![Figure 2: Pre-operative intraoral periapical radiograph showing a foreign object in root canal of tooth #21](image2)

![Figure 3: Isolation under rubber dam with tooth #21](image3)
canal to engage the object and pulled incisally. The object was moved incisally in the pulp chamber. It was retrieved successfully with the tweezer and examined. The object was identified as a sewing needle measuring about 8 mm in length and 1 mm width (Figure 5). Confirmatory radiograph was taken to ensure the retrieval of the sewing needle from the root canal of tooth no 21 (Figure 6).

Following the retrieval of the needle, working length was established (Figure 7). Cleaning and shaping of the root canal were accomplished by conventional technique. Final irrigation of the root canal with 5.25% of sodium hypochlorite using Endo-activator (Dentsply, Tulsa Dental) was performed. Calcium hydroxide was placed as an intracanal medicament in tooth no 21, 11 and a radiograph was taken (Figure 8). After 1-week of Ca(OH)_2 placement, both the teeth were obturated (Figure 9). The patient was kept on follow-up and was asymptomatic. A 6 months follow-up radiograph showed good healing in the periapical area (Figure 10).

DISCUSSION

Patient reporting with a foreign object lodged in the tooth is rare in dental clinics. These cases need combination of skills, immediate investigations, various radiographs and necessary instruments for a successful outcome and every time the dental practitioner may not be prepared to tackle such situation. Retrieval of the foreign object can be done by conservative means or need surgical intervention depending on the position of the foreign object in the root canal and associated complexity in its retrieval.

Various radiographic techniques such as parallax views, triangulation techniques, stereo radiography, and tomography play a vital role in localization of the foreign object, in determining its type, size, and location. For retrieval of the foreign object from root canal, use of ultrasonic instruments Masserann kit, modified Castroviejo needle holder and the dental microscope are reported in the literature. An appropriate treatment...
Removal of the foreign object from the root canal is often a tedious job. In the present case, it becomes more risky procedure as the object was snugly fit in the root canal of the tooth with a periapical lesion. Thus, its removal becomes necessary for complete negotiation of the root canal and eradication of the infection especially from the apical portion of root canal system. To remove such object, reasonable care needs to be taken to prevent its further apical displacement. In present case, sewing needle was successfully retrieved with H-file and indirect ultrasonics causing minimal damage to subjacent root dentin avoiding the need of periapical surgery or intentional reimplantation.

Calcium hydroxide dressing was used as intracanal medicament after removing the foreign object and cleaning the root canal. The use of a root canal dressing has been recommended in teeth with necrotic pulp with or without periapical lesions where infected areas not accessible by instrumentation can be reached.

**CONCLUSION**

This case report describes a non-surgical conservative management of a patient who had accidentally impacted a sewing needle in the root canal of a fractured tooth with a periapical abscess. Finally, it’s the operator skills, the technical aspects, and anatomical factors which determine the ultimate success of retrieving the foreign object from the root canal and further completion of the treatment.

**REFERENCES**


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