Case Report

Impaction of Mandibular Premolar with an Atypical Foreign Object

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Abstract

Children have a habit of inserting different types of foreign objects such as stapler pins, darning needles, toothpicks, and leads of pencil in a carious tooth. Most of the reported cases in literature involve maxillary central incisor. This is an unusual case report of an 11-year-old boy who had a foreign object impacted in the root canal of the mandibular premolar. A sewing needle was inserted in the root canal of the mandibular premolar. Nonsurgical management approach was used to remove the foreign object followed by proper obturation of the involved tooth.

Keywords: Foreign objects, obturation, premolar, sewing needle

Introduction

Children have a common practice of inserting foreign and bizarre objects into their oral cavity. The foreign objects can vary from broomstick, wooden toothpicks,[1-3] paper clip,[4] nail,[5] sewing needle,[6] incense stick,[7] beads,[2] to stapler pins.[8,9] Most commonly, it is done to relieve dental pain and discomfort resulting from food lodgment. Placement of these varieties of foreign objects can result in hard- and soft-tissue injuries. These can act as the causative agents of infection and pain. A large carious lesion resulting in direct access to the pulp chamber can cause these objects to get embedded in the pulp chamber or root canal of the involved tooth, acting as a potent source of infection. A variety of complications can ensue in the absence of timely intervention and proper treatment. Proper management includes thorough case history and clinical and radiological examination to determine the type, size, number, and location of the foreign body.

Location of the foreign object in the tooth helps in determining the level of difficulty faced during its retrieval. Foreign objects located within the pulp chamber are easily retrieved as compared to those pushed apically. The foreign object should be removed with lot of care by proper instrumentation.

This is a case report of an 11-year-old boy who had inserted a sewing needle in the carious left mandibular second premolar. Here, we describe the retrieval of broken sewing needle followed by its successful obturation.

Case Report

An 11-year-old boy reported to the department with a chief complaint of extraoral swelling and pain in the lower left posterior region for 2–3 days [Figure 1]. Clinical examination revealed the presence of extraoral swelling which was hard and tender on palpation. Intraoral examination revealed carious mandibular second premolar which was tender on percussion. Radiographic examination revealed the presence of a radiopaque object in the tooth extending from the middle third of the crown to the apex of the root. There was periapical radiolucency [Figure 2]. There was no history of any dental treatment with the associated tooth. It was decided to retrieve the foreign object by nonsurgical technique and complete the endodontic treatment of the mandibular second premolar.

Conventional access cavity was prepared to facilitate access for instrumentation. A H-file of number 20 was used to bypass and engage the foreign object. It was then grasped with a tweezers

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and was removed from the canal. The foreign object was found to be a broken and rusted sewing needle [Figure 3].

The canal was then irrigated with normal saline and 3% sodium hypochlorite. Working length was established, and biomechanical preparation was done using step-back technique. Calcium hydroxide was used as the intracanal medicament. After the extraoral swelling subsided, obturation of the tooth was done with gutta-percha using lateral condensation technique [Figure 4]. On a follow-up examination after 3 months, the tooth was asymptomatic.

Discussion

Different types of foreign objects are reported to be lodged in the root canals and the pulp chamber ranging from pencil leads,[10] darning needles,[11] and metal screws[12] to beads[2] and stapler pins.[8,9] Harris[13] reported the placement of varied objects within the root canals of maxillary anterior teeth. These included pins, wooden toothpicks, a pencil tip, plastic objects, toothbrush bristles, and crayons. The patients had inserted these objects in the root canal to remove food plugs from the teeth.

Foreign objects lodged in the root canal can be classified into metallic and nonmetallic objects. Because of their radiopaque nature, the metallic objects can be readily identified from routine radiographs. Hunter and Taljanovic[14] summarized various radiographic methods to be followed to localize a radiopaque foreign object as parallax views, vertex occlusal views, triangulation techniques, stereoradiography, and tomography. The visibility of different materials on plain radiographs depends on their ability to attenuate X-rays; foreign bodies may be visualized, depending on their inherent radiodensity and proximity with the tissue in which they are embedded.[12]

McAuliffe *et al*.[15] summarized various radiographic methods such as the parallax views, vertex occlusal view, triangulation techniques, stereoradiography, and tomography to be followed to localize a radiopaque foreign object. The parallax technique involves two radiographs taken at different horizontal angles with the same vertical direction. Due to parallax effect, the objects appear to travel in the same direction as the tube shifts and the object closer to the tube appears to move in the opposite direction (the so-called same-lingual,

Figure 1: Patient with extraoral swelling.

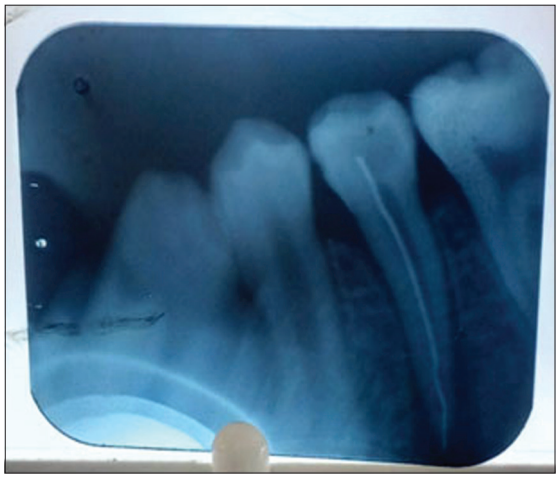

Figure 2: Premolar with radioopaque object.

Figure 3: Rusted sewing needle.

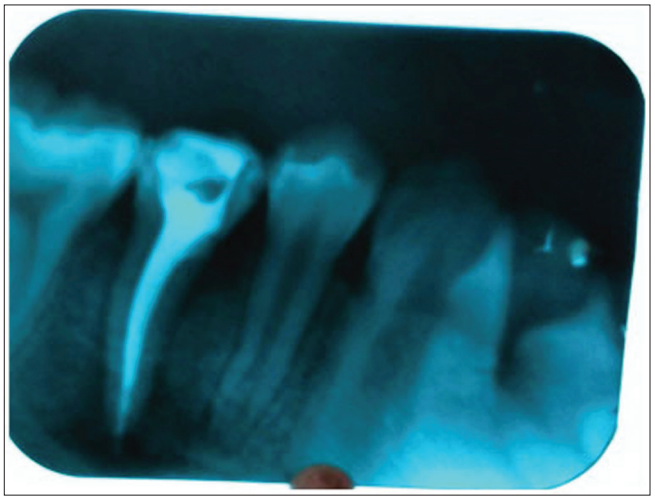

Figure 4: Post obturation radiograph.

opposite-buccal).[16] 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 toward the abdomen. Triangulation is by the use of two views right angle to one another. Interpretation in this technique is difficult because of the superimposition of the other incisor teeth over the root. Stereographic views and tomography were not considered due to the minimal availability of these facilities in the dental operatory. Specialized radiographic techniques such as radiovisiography, three-dimensional computer-assisted tomography scans can play a role in the localization of these foreign objects inside the root canal.[15] However, a radiolucent foreign body lodged inside the root canal will not be revealed radiographically. Hence, upon encountering resistance in the canal that was left open for a long period of time, it is recommended to take proper history about the prevalence of any oral habits and careful instrumentation to prevent apical pushing of the object which can help in their successful retrieval.

For retrieval of foreign objects lying in the pulp chamber or canal using ultrasonic instruments, the Masserann kit and modified Castroveijo needle holders have been used.[3] Ethylenediaminetetraacetic acid has been suggested as a useful aid in lubricating the canal when attempting to remove the foreign object. The Stieglitz forceps has also been described for the use of removal of silver points from the root canal.[15] Nehme had recommended the use of operating microscope along with ultrasonic filing to eliminate intracanal obstructions.[17]

In the present case, the boy used a sewing needle to remove the lodged food debris from the carious mandibular second premolar. This sewing needle broke and got inserted into the root canal resulting in periapical infection. The sewing needle was located within the root canal which was confirmed by diagnostic radiograph. It was bypassed and removed nonsurgically followed by proper endodontic treatment.

Conclusion

There are many reported cases of lodgment and insertion of foreign objects in deciduous and permanent teeth. This is a unique case report of a foreign object lodged in the mandibular second premolar. The timely removal and proper treatment plan helped in nonsurgical management.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the parent has given his consent for his child's images and other clinical information to be reported in the journal. The parent understands that his child's name and initial will not be published and due efforts will be made to conceal patient identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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