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Accidental aspiration of endodontic file and its management - A case report

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Abstract

Accidental ingestion of dental objects is a common complication occurring during dental procedures. The affected patient may exhibit varying range of symptoms depending on location, type, shape and size of the foreign body aspirated. We report a case of successful management of aspirated endodontic file during dental procedure and methods to prevent such complications.

Keywords: Accidental aspiration, Endodontic file, Ingestion, Coughing.

Introduction

Accidental aspiration or ingestion of a dental object is an unfortunate and a dreaded complication that can occur during any dental procedure. Aspiration of objects is common in children but sometimes it occurs in adults also either accidentally or in psychiatric patients. In dental operatory, the ingested foreign body may include teeth, restorations, restorative materials, instruments, rubber dam clamps, gauze packs, endodontic files etc [1]. Appropriate preventive measures to avoid foreign body aspiration should be practiced as a matter of routine.

However, even under the most ideal circumstances aspiration may still occur. Successful removal depends on several factors, including location of the foreign body, type of material, the physician's dexterity and the patient's cooperation [2, 3]. Grossman determined that 87% of the ingested foreign bodies entered the gastrointestinal tract, and 13% entered the respiratory tract [4]. Most of the foreign bodies that entered the gastrointestinal tract pass spontaneously. Only 10–20% cases require nonsurgical intervention, and 1% or less requires surgical removal [5]. This case report presents accidental management of endodontic file during treatmeny and its management.

Case report

A 17-years-old female patient reported to the Department of Conservative Dentistry and Endodontics with the chief complaint of pain in left mandibular second premolar since one week. There was no relevant medical and dental history. On extraoral examination face was symmetrical with normal TMJ. On clinical examination, the tooth was found carious. Pain was spontaneous, moderate to severe and throbbing in nature. Pain lasted for longer duration even after removal of stimulus. She also gave a history of aggravation of pain on consumption of hot food and relief on cold water. Then we performed a vitality test by heated GP stick, which showed pain response even after removal of stimulus. Radiographic examination revealed distal radiolucency involving enamel, dentin & pulp. Thus, we came to a diagnosis of acute irreversible pulpitis and routine root canal treatment was advised. The informed consent was obtained from the patient.

Rubber dam isolation was not possible because of considerable loss of tooth structure. During biomechanical preparation the patient suddenly got gag reflex and then coughed and moved. During coughing the 30-number K file which was snugly fitting in the root canal slipped on the floor of the mouth and was swallowed by patient unknowingly. The patient complained of excessive gagging with the sensation of something sticking in her throat. Patient was instructed to cough forcefully, but file could not be retrieved. Thorough examination was done using tongue depressor but was not productive. There was no evidence of airway compromise, respiratory distress, or abdominal tenderness. Patient was informed about the accident and was assured. Patient was taken to Radiology Department; a chest and abdominal radiographs were taken. Chest radiograph was clear [Fig.1].

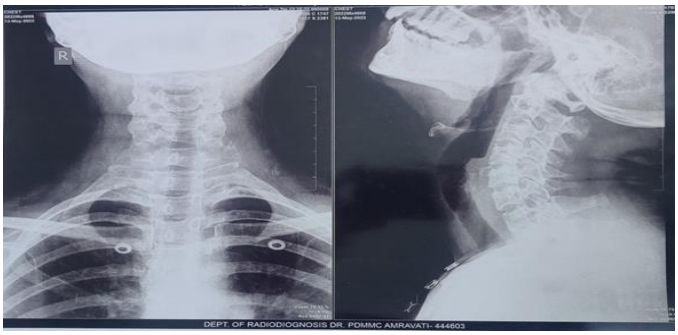

Fig 1: Radiograph showing clear chest

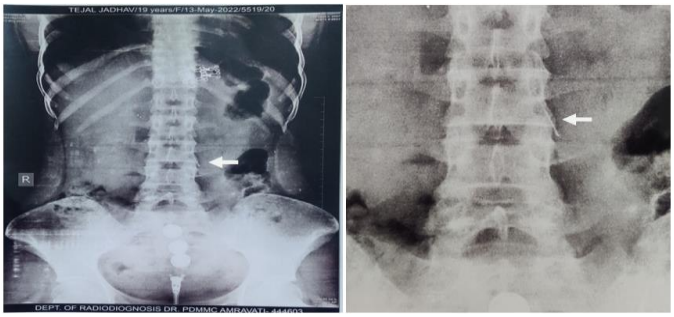

Fig. 2 a: File seen in GIT, Fig. 2b: magnified view

The patient was informed and reassured. A diet high in roughage was prescribed to aid in the passage of instrument through intestinal tract. She was warned of the possible symptoms that might indicate a perforation of the intestine and was told to examine her stools for file at every bowel movement. Patient was kept under close observation. Her progress was followed by abdominal radiograph on the 3rd day. Meanwhile,

patient had no symptoms like blood in stools, and abdominal tenderness. The abdominal radiograph was clear with no evidence of file, suggested that the file passed out which was confirmed by radiologist [Fig. 3]. Patient was reassured, and root canal treatment was completed.

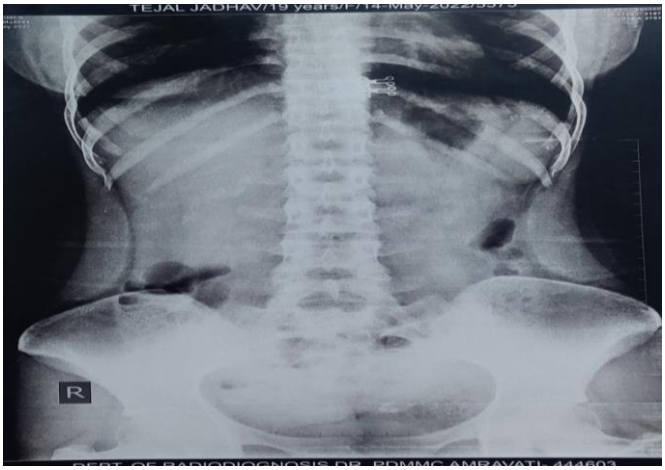

Fig 3: Clear abdominal radiograph suggesting passage of file

Discussion

Accidental aspiration or ingestion of foreign bodies is a complication encountered across all age groups. Swallowed foreign objects can get lodged in the pharynx, esophagus, stomach, intestine or simply pass through the gastrointestinal tract [6]. Aspirated foreign objects can get lodged in the larynx, trachea or bronchus and is more serious situation with the possibility of suffocating [2, 3]. Foreign bodies tend to be lodged preferentially in the right bronchial tree because of its anatomical vertical position. When such cases are not diagnosed or treated appropriately, it may cause serious complications. Owing to the shape and sharpness of the instrument, there are chances of perforation. Once the instrument is lost in the oropharynx, it is very important to determine whether the instrument has entered the digestive tract or respiratory tract. The majority of ingested foreign bodies pass through the gastrointestinal tract without any signs and symptoms. However, coughing, gagging, dysphagia, odynophagia, nausea and vomiting may occur. Radiographic examination with posteroanterior and lateral chest radiograph, abdominal radiograph is mandatory for determining the location, size, and nature of foreign body. Signs and symptoms of aspiration ranges from relatively benign partial obstruction to the immediately life-threatening total airway obstruction. It depends on size and shape of the object and the level where the object becomes impacted. If it is trapped above the vocal cords, an emergency situation in the form of acute respiratory distress can result. In some cases small foreign bodies might have no initial effects and go unrecognized until later, when pulmonary complications such as infection, lung abscess formation, pneumonia, atelectasis or bronchiectasis [7]. Haemoptysis is also of common clinical occurrence.

In the reported case chest and abdomen, radiographs were advised. In this cases chest radiograph was advised as patient was complaining of something sticking in throat. The present case emphasizes basic principles to be followed while providing dental care are prevention of aspiration, early diagnosis and treatment. In this case the ingested file passed out through gastrointestinal tract without any symptoms. Careful monitoring with radiographic evaluation and high fibre diet is generally the preferred management protocol [8]. Fortunately, the present patient had good general health with no history of bowel diseases. If the foreign body that has passed into the stomach and is less than 6 cm in length and 2 cm in diameter, there is 90% chance of passage through pylorus and Ileocaecal valve. With sharp object, the most common sites of perforation are the lower oesophagus and terminal ileum. Abdominal pain and/or a positive stool occult blood test may indicate signs of intestinal perforation, impaction, or obstruction; medical

or surgical intervention for removal is required in such cases.

When the object seems to be aspirated, patient should be positioned in a reclined phase, and encouraged to cough forcibly to ensure a clear airway. If airway is getting compromised with symptoms such as inspiratory stridor, choking, and forced breathing non-invasive procedures for instance Heimlich Maneuver as depicted in the, abdominal or chest thrusts should be carried out to alleviate the obstruction.

Ingestion or aspiration of foreign bodies can be easily prevented by the universal use of rubber dam isolation (Cohen and Schwartz 1987). Flexible rubber dam frames are available, which can facilitate radiographs during treatment without removal of frame. While the rubber dam reduces the risk of aspiration during restorative procedures, it is possible for the dam clamp itself to be aspirated. To reduce this risk, dental floss should be tied to secure rubber dam clamp [9]. Dental floss can also be used to tie the endodontic files. Electronic apex locators can also be useful for working length determination avoiding rubber dam frame removal. A 4 × 4-inch gauze protective barrier can also be used. Dentist should also instruct patients that if an object falls on the tongue, they should try to suppress the swallowing reflex and turn their heads to the side.

Conclusion

Dentists must take proper precautions to minimize any risk of such unforeseen complications of aspiration or ingestion especially in patients that are more prone to such risks. Proper assessment of the patients and the armamentarium used for treatment should be done. Preventive measures such as rubber dam, throat screen etc., should be made mandatory in day-to-day practice which we often neglect. Proper assessment and monitoring of the patient must be done in cases of aspiration or ingestion.

References

1. Holan G, Ram D. Aspiration of an avulsed primary incisor. A case reports. Int J Paediatr Dent. 2000; 10:150-2.
2. Eren S, Balci AE, Dikici B, Doblan M, Eren MN. Foreign body aspiration in children: experience of 1160 cases. Ann Trop Paediatr. 2003; 23:31e37.
3. Cameron SM, Whitlock WL, Tabor MS. Foreign body aspiration in dentistry: a review. J Am Dent Assoc. 1996; 127:1224e1228.
4. L. Grossman, “Prevention in endodontic practice,” The Journal of the American Dental Association, vol. 82, no. 2, pp. 395–396, 1971.
5. W. A. Webb, “Management of foreign bodies of the upper gastrointestinal tract,” Gastroenterology, vol. 94, no. 1, pp. 204– 216, 1988.
6. Eisen GM, Baron TH, Dominitz JA, et al. Guideline for the management of ingested foreign bodies. Gastrointest Endosc. 2002; 55:802e806.
7. Israel HA, Laban SG. Aspiration of an endodontic instrument. J Endod. 1994; 10:452e454.
8. S. C. Kuo and Y. L. Chen, “Accidental swallowing of an endodontic file,” International Endodontic Journal, vol. 41, no. 7, pp. 617–622, 2008
9. S. M. Cameron, W. L. Whitlock, and M. S. Tabor, “Foreign body aspiration in dentistry: a review,” Journal of the American Dental Association, vol. 127, no. 8, pp. 1224–1229, 1996.