

Accidental Ingestion and Endoscopic Retrieval of an Endodontic File in a 3 Year Old Child - A Case Report**Wankhade Prajakta S, Rathi Anand¹, Bhondey Ashish¹, Bhayade Shweta S**

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ABSTRACT:

Serious mishaps are exceptional but potentially very detrimental to patients and causes trepidation to the clinician. If an accidental ingestion of an endodontic instrument occurs, dentist should have basic information about the diagnostic methods, difficulties, modes of retrieving the swallowed instrument, as well as the ability to reduce the apprehension and reassure the patient. Foreign body ingestion causes damage to gastric mucosa and can lead to septic abscess, intestinal perforations, airway obstruction, post obstructive pneumonia, respiratory distress, pneumothorax or hemorrhage. The children are at high risk during dental procedures as they tend to be uncooperative due to their lack of maturity to realize the significance of the treatment. This case presents ingestion of endodontic file in 3 year old child and attempts to discuss the management and prevention of such catastrophe.

Keywords: Endodontic file, Endoscopy, Ingestion.

INTRODUCTION

Using rubber dam is advantageous as it provides clear operating field, isolation and prevents accidental foreign body ingestion. Aspiration of endodontic files,¹ irrigation needles, clamps,² burs,³ crowns, inlays, onlays and posts⁴ has been reported resulting during endodontic and prosthodontic procedures without the use of rubber dam. However, 10-20% of cases require non surgical intervention, while 1% require surgery.⁵ According to Grossman the chances of foreign body entering the digestive system and entered respiratory tract 87% and 13%. For the endodontic instruments, the prevalence for aspiration is 0.0009/100,000 root canal treatments and the prevalence for ingestion is 0.08/100,000 root canal treatments. This report presents a case of accidental ingestion of endodontic file with a negative behavior of a 3 year old child and provides the insight and likely complications due to accidental swallowing of instruments and their treatment modalities.

CASE REPORT

A 3-year-old male patient with a chief complaint of decayed tooth and pain in the lower right back region of jaw since 3 days reported to the Department of Paedodontics and Preventive Dentistry. Intra oral examination revealed deep occlusal caries with tooth number 84. On radiographic examination, diagnosis of chronic irreversible pulpitis was made and pulpectomy followed by stainless steel crown restoration was planned with 84. The treatment was explained to the parents and an informed written consent was obtained prior to the treatment. The child had a negative behavior and physical restraining was done to manage his behavior. The child was highly uncooperative, so the rubber dam application was not possible. Access opening was done with 84 under local anesthesia; pulp tissue was extirpated followed by working length determination and zinc oxide eugenol temporary restoration was done. In subsequent visit during coronal flaring with 84 the patients sudden head movement caused

the endodontic file (size 35 H file) to slip from operator's fingers and ingested by the patient. Following this episode, pulpectomy procedure was immediately discontinued and measures were taken to retrieve the file by the operator by inducing vomiting. However, it did not work. Patient was instantaneously shifted to the hospital where he was advised for a PA chest radiograph by the Gastroenterologist. The radiograph confirmed the presence of an endodontic file at the level of L2-L3 (Figure 1), just below the shadow of the diaphragm.



Figure 1: presence of an endodontic file at the level of L2-L3

Parents were thoroughly made aware of the condition and a high risk consent explaining further treatment objectives was obtained from them. Clinically, the patient was free of any respiratory distress, breathlessness, coughing or sneezing. Normal breathing was observed and no tenderness was noted on palpation of the area in which the foreign body was present, yet the patient was kept under observation and on high fibrous diet to permit the rapid transport of the file within the GIT as suggested by Gastroenterologist. PA chest radiograph was repeated at 6 hours post event which demonstrated the presence of the file in the pyloric region of stomach. As the patient was asymptomatic, it was advised to observe the course of the file through alimentary tract for 12 to 24 hours. After 24 hours the position of the object did not change significantly which was confirmed on the radiograph. Hence, an endoscopy procedure was planned under general anesthesia. The file was located by endoscope which was piercing the mucosal

lining of the region of pylorus sphincter (Figure 2) and was retrieved (Figure 3) utilizing special rat tooth forceps uneventfully. The patient was kept under observation for another 24 hours post endoscopy procedure and was later discharged. Two weeks later, pulpectomy procedure was completed.

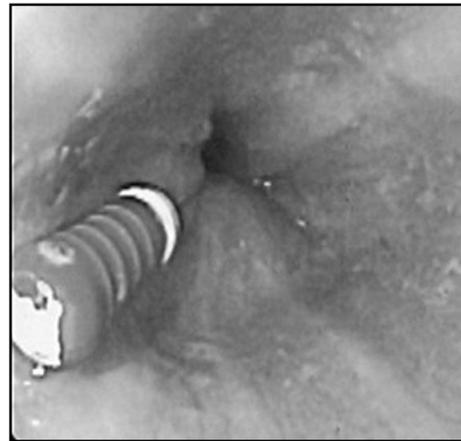


Figure 2: endodontic file piercing the mucosal lining



Figure 3: retrieved endodontic file

DISCUSSION

A decision of removal of an ingested foreign body depends upon the object's type, size, shape and location. Sharp instruments should be removed immediately as there are more chances of perforation. If the swallowed entity does not present any jag surfaces (stainless steel crowns, rubber dam clamps or small prosthesis) they may easily pass through the digestive system in 2 to 5 days.⁵ The most common signs and symptoms of foreign body aspiration include coughing, wheezing and decreased breathing sounds. In the present case, the file was in pylorus region which did not move beyond the stomach even after 12 hours. The normal sites which are prone for impaction of swallowed object are the cricopharyngeal sphincter, constrictions in the esophagus, the gastroesophageal junction, the

pylorus, ligament of Trietz, ileocecal junction and the recto-sigmoid junction.⁶ Foreign body tend to be lodged preferentially in the right bronchial tree because of its anatomical vertical position. The caudal position of the plastic handle of the file plays a vital role in preventing perforation and further movements along the intestinal tract.⁷ Removal should always be under direct endoscopic vision, grasping the head of the swallowed object. Endoscopic retrieval failure is an indication for surgical removal, either by laparoscopy or by open technique. Almost 89% of swallowed object are retrieved uneventfully, approximately 10% call for endoscopic removal while only 1% require surgical intervention.⁶ Perhaps laxative can be used for rapid transport of foreign entity in Gastrointestinal tract.⁸ The unknown entity, in majority of the patients pass through the digestive tract atraumatically and without any complications in 7 to 12 days. The use of laxatives is of no proven use and may actually increase the chances of perforation.⁹ Foreign body ingestion into the respiratory tract is potentially life threatening thus requiring prompt removal as it causes vigorous and spasmodic cough and breathlessness immediately or after a period of one year.

An idyllic dental practice guideline recommends the use of rubber dam all through the intraoral procedures. Other recommended protective methods are the use of gauze throat screens or floss ligatures. Accidental ingestion or aspiration of an instrument, and salivary contamination of the operative field during the procedure can be effectively prevented by applying rubber dam. Though rubber dam aids in the maintenance of a patent working field however, at times it is not possible to apply it because of an intense obstinate behavior of the child. There is no exact data in the literature regarding the patient position to minimize the risk of foreign body aspiration. The patients in a supine position are more or less prevented from swallowing foreign objects according to Neuhauser et al (1997). Barkmeier et al

(1978) stated that supine position increases the risk of swallowing.³

Strategies to prevent aspiration or ingestion of foreign entity' are¹⁰

- ✓ apply rubber dam with flexible frames
- ✓ tying of an endodontic file with dental floss
- ✓ use of a gauze throat pack
- ✓ use of a high-velocity evacuation system
- ✓ use a high-viscosity impression material
- ✓ use a more upright position if possible
- ✓ giving thorough instructions to the patients prior to any procedure

REFERENCES

1. Bains et al. Accidental swallowing of endodontic instrument. *European J of General Dent* 2014;3(3):202-4.
2. El-Ghamrawy AS, Negm SAM, Meabed M. Accidental Swallowing of a Rubber Dam Clamp by a 4.5 Years Old Child: A Case Report. *J Dent Oral Health* 2015;1(2):1-3.
3. Panse A et al. Accidental ingestion in pediatric dental patients. *Journal of Dental & Allied Sciences* 2012;1(2):79-81.
4. Tiwana KK, Morton T, Tiwana P; Aspiration and ingestion in dental practice. A 10 year institutional review. *J Am Dent Assoc* 2004;135:1287-91.
5. Tavargeri et al. Retrieval of endodontic file with gastroscope. *Saudi Endodontic Journal* 2013;3(1):31-3.
6. Bhatnagar S, Das UM, Chandan GD, Prashanth ST, Gowda L, Shiggaon N. Foreign body ingestion in dental practice. *J Indian Soc Pedod Prev Dent* 2011;29:336-8.
7. Mitchellh, Weine D, Coyle K. Endoscopic retrieval of an endodontic file from the duodenum: A case report. *JNJDA* 82(4):27-9.
8. Bondarde P et al. Accidental Ingestion and Uneventful Retrieval of an Endodontic File in a 4 Year Old Child: A Case Report. *Journal of International Oral Health* 2015;7(2):1-3.
9. Mohan R, Rao S, Benjamin M, Bhagavan RK. Accidental ingestion of a barbed wire

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broach and its endoscopic retrieval: Prevention better than cure. Indian J Dent Res 2011;22:839-42.

10. Saraf HP, Nikhade PP, Chandak MG. Accidental Ingestion of Endodontic File: A Case Report in Dentistry. 2012;1-3.

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