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Surgical Management of Needle Ingestion in a Low-Resource Setting: A Narrative Review and Two Case Reports

Jesu-oboh Precious Akhaine

Abstract

Foreign body ingestion constitutes a significant clinical emergency, particularly among the pediatric age group but also affecting adults, often leading to serious or life-threatening complications. Presentation commonly varies depending on the ingested object's type and location; potential sequelae include mucosal injury, perforation, mediastinitis, and abscess formation. We report two cases of sharp foreign body ingestion with distinct predisposing circumstances: The first case, an 11-year-old boy who ingested a sewing needle following peer provocation. The second case, an 18-year-old female fashion designer who accidentally swallowed a safety pin in the workplace. Both patients presented with neck discomfort and localized tenderness, and plain X-ray confirmed the presence of the foreign bodies in the upper esophagus. Due to the lack of emergency endoscopy services, surgical intervention under general anesthesia was performed successfully in both instances. A transverse cervical approach allowed safe extraction of the foreign bodies without injury to adjacent structures. Postoperative recovery was uneventful in both patients, with satisfactory outcomes following short periods of nil per oral and antibiotic prophylaxis. This report emphasizes the urgent need for timely diagnosis and tailored management approaches in resource-limited settings, where surgical retrieval remains the primary treatment option in the absence of less invasive alternatives.

Key Words: Foreign Body, Ingestion, Surgery, Needle, Occupational Health

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Department of Surgery, Edo Specialist Teaching Hospital, Benin City, Edo State, Nigeria

Corresponding Author:

akhaineprecious@gmail.com

Background

Ingestion of a foreign body is a frequent diagnosis that can lead to serious complications. This condition refers to swallowing of a harmful foreign object, whether deliberate, accidental, or unintentional during daily activities. Cases of foreign body ingestion involving the gastrointestinal tract are commonly encountered in emergency departments, with children being the most frequently affected.[1] Based on the 2021 Annual American Association of Poison Control Center report, FB ingestion in children less than 5 years accounted for approximately 55,000 cases with higher rates observed among boys.[2]

Foreign bodies typically become lodged at the narrowest anatomical constriction of the gastrointestinal tract—namely, the upper esophagus at the level of the cricoid cartilage.[3] Clinical presentation varies depending on the type and location of the FB ingested, however, common symptoms may include drooling, vomiting, dysphagia, and throat or chest pain.[4] Possible complications of Foreign Body ingestion include swelling, bleeding, fistula formation, perforation, cellulitis, mediastinitis, and abscess formation.[5] Prior to the development of modern surgical and endoscopic techniques, the rates of morbidity and mortality associated with the ingestion of sharp objects were reported as 35% and 26%, respectively.[6]

Case 1

History and Examination

An 11-year-old boy was brought to the emergency department within 30 minutes of ingestion of a sewing needle after being dared by his peers to do so. The child was crying due to the pain, however, no history of bleeding from the neck or coughing of blood. General examination revealed a child in distress. Inspection of the neck showed a protruding object on the anterior aspect (Figure 1). Lateral radiograph of the neck was obtained and showed the position of the needle, that was oriented antero-posteriorly (Figure 2).

Figure 1: Photo of 11-year old boy with protruding object in the anterior neck.

Figure 2: Radiograph of the 11-year old boy showing needle lodged antero-posteriorly in the anterior neck.

Management

The guardian signed an informed consent for an emergency surgery, which was done under general anesthesia with an esophageal airway. The surgical site was prepped using alcohol-based chlorhexidine gluconate solution. Under complete aseptic precautions, a 1 cm transverse incision was made on the anterior part of the neck (skin) just below the location of the needle. The incision was developed and extended longitudinally through various tissue layers until the tip of the needle was visible. A 3- inch sewing needle was removed from the upper part of the neck with a tissue holding forceps. There was no damage to the adjacent structures. This was mainly due to the fact that the needle was conveniently trapped by the muscle of the esophagus. The tissues and the skin were closed in layers and via continuous suturing using Vicryl 2.0 along the skin crease. The child made good recovery and was placed on IV 5% D/S and nil per oral for 3 days, before starting oral sips. He was discharged after 4 days with a one week follow-up visit, that was satisfactory.

Case 2

History and Examination

An 18-year-old woman was brought into the Accident and Emergency after 48 hours of ingesting a safety pin. She was a fashion designer who was working and talking whilst the safety pin was in her mouth then she suddenly swallowed the pin. She presented with a feeling of foreign body sensation and sharp pain in her throat which was not radiating, no history of vomiting but she tried inducing one. No dysphagia or odynophagia. No difficulty in breathing, choking spells and hoarseness of voice. She had no significant medical or surgical history except for chronic dyspepsia. Other than generalized neck tenderness, her clinical examination was unremarkable, and her vital signs were within normal limits. lateral Radiograph of the neck was taken, it revealed a safety pin in a transverse position (Figure 3).

Figure 3: Radiograph of the 18-year old lady showing needle in the anterior neck.

Management

As in Case 1, the surgery was done under General Anesthesia with an oral pharyngeal airway, skin was prepped using alcohol-based chlorhexidine gluconate solution. Under complete aseptic precautions, a transverse incision was made on the anterior part of the neck (skin) just below the location of the needle. The incision was developed longitudinally, taking care not to injure any neurovascular structure, until the safety pin was seen and removed using tissue forceps. The tissues and the skin were closed in layers and via continuous suturing using Vicryl 2.0 along the crease of the skin. She made a good recovery and was placed on IV 5% D/S and nil per oral for 3 days, before starting oral sips. She received Co-amoxiclav 1.2 gms, 12 hourly for 48 hours and Paracetamol 500 mgs 6 hourly for days then PRN. She was discharged after 6 days on admission with a 1 week follow-up visit, that was unremarkable.

Discussion

Most ingested foreign bodies typically pass through the gastrointestinal (GI) tract without causing significant symptoms.[7] Upper GI endoscopy is the preferred initial method for removing foreign bodies lodged at the esophagus and is seen as the safest and most effective approach for both diagnosis and treatment. This minimally invasive technique involves using an endoscope equipped with a camera and instruments to locate and extract the foreign object, without open surgery, as reported by Chaudhari et al.[8] However, the scarcity of

emergency endoscopy services in most hospitals poses a great limitation in rural areas of Africa, including Nigeria, hence the need for surgical intervention as in this report. Similar observations were published by other authors from Northern Nigeria.[9]

Certain foreign bodies, particularly sharp metal objects, fish bones, or chemically reactive items such as batteries, can cause local tissue damage, necrosis, and secondary infection. More severe and potentially life-threatening complications include mediastinitis, esophageal perforation, abscess formation, empyema thoracis, esophago-aortic fistula, and even death.[10]

The two cases presented in this study are notable due to the unique circumstances surrounding their occurrence. Pediatric patients often engage in risk-taking behaviors without full awareness of the potential long-term consequences, which can be severe. In contrast, adolescents and adults may intentionally or unintentionally ingest harmful substances or foreign bodies, influenced by psychiatric conditions, suicidal behavior, drug trafficking, or occupational exposures, as demonstrated in the workplace case described. Regardless of the etiology, early recognition and prompt intervention are critical to prevent severe complications associated with delayed presentation and/or management.

Disclosure Statement
The author has no conflicts of interests to declare.

Human Ethics
Consent was given by all participants in this study.

References

1. Alturkmani, O. G., Al-Badawi, M. M., Alturkmani, S. G., Al-Midani, M. H., & Attar, S. A. (2023). A Case Report of Non-intentional Foreign Body Ingestion in an Elderly Patient. Cureus, 15(4), e37684. doi: 10.7759/cureus.37684
2. Gummin DD,Mowry JB,Beuhler MC,Spyker DA, Rivers LJ, Feld man R. et al. 2021 annual report of the national poison data system© (npds) from america's poison centers: 39th annual report. Clin Toxicol (Phila) 2022;60:1381–643.
3. Dumberger, L. D., & Chao, T. N. (2022). Transoral management of pharyngeal ballistics. American journal of otolaryngology, 43(5), 103490. doi: 10.1016/j.amjoto.2022.103490
4. Kim, S. I., Jung, S. Y., Song, C. E., & Shim, D. B. (2022). Unusual Foreign Body, a Spoon, in the Esophagus of a Middle-Aged Female: A Case Report and Review of the Literature. Ear, nose, & throat journal, 101(1), NP31–NP33. doi: 10.1177/0145561320942680
5. Aishat, M., Irshad, O. M., Shurafa, F. M., & Mohamed, S. (2024). The Ingestion of 62 Magnetic Beads by a Two-Year-Old Child: A Case Report of a Novel Approach for Retrieval. Cureus, 16(7), e64541. doi: 10.7759/cureus.64541
6. Gummin DD, Mowry JB, Spyker DA, Brooks DE, Fraser MO, et al. 2016 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 34th Annual Report. Clin Toxicol (Phila). 2017;55:1072-252. Erratum in: Clin Toxicol (Phila). 2017;55:1256.
7. Pink K. (2022). The Case of the Missing Dentures: A Case Report and Review of Esophageal Foreign Body as a Cause of Chest Pain. Cureus, 14(7), e26898. doi: 10.7759/cureus.26898
8. Chaudhari, S. K. S., & Chaudhary, S. M. (2020). Endoscopic management of foreign bodies in the upper gastrointestinal tract. International Surgery Journal, 7(7), 2226–2230. doi: 10.18203/2349-2902.isj20202826Ofosu
9. Ofosu A, Ramai D, Reddy M. Overtube-assisted foreign body removal: a review of endoscopic management and case illustration. Cureus. 2017 Sep 29;9(9):e1730. doi:10.7759/cureus.1730
10. Yahya H, Umar H, Shekari B, Sani K. Endoscopy for upper gastrointestinal bleeding in a tertiary hospital in Kaduna, North-West Nigeria: Experience and findings. Ann Afr Med 2022;21:262–8. doi: 10.4103/aam.aam_64_21