

Foreign Bodies in the COVID-19 Era Under The Age of 1 Year: A Retrospective Study

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Abstract

Foreign body ingestion in children less than 1 year of age was found to be rare. Here we retrospectively analyzed the foreign body (FB) ingestion in children in less than one year with reporting of two rare cases in the era of COVID-19. Most of the FB ingestion can be managed conservatively, only few required interventions. When intervention required use proper personal protective equipment kit.

Keywords: Children; COVID-19; Foreign Body Ingestion; Infants.

Introduction

In the raising COVID-19 pandemic elective surgical procedures are advised to postpone. But emergency surgeries were taken with proper protection to healthcare workers.¹

Common age group for Foreign body (FB) ingestion was 6 months to 3 years. FB ingestion in infants less than 6 months of age is rare. Infants were found to have swallowed FB given to them mostly by elder sibling. Most of the FBs ingested by children pass spontaneously without requiring any invasive procedures. Younger patients with smaller anatomy may have high chance of complications

like retention, obstruction and perforation.^{2,3} Here we discussed our experience of two foreign bodies with less than 6 months of age and one patient needs operative intervention.

Materials and Methods

FB ingestion in children less than 1 year and their management during the COVID era was studied retrospectively in our Department of paediatric surgery from 1st July 2019 to 30th June, 2020. We have also analyzed the FB ingested during the school shutdown period of 16th March to June 30th (3.5 months). And we described two rare cases of FB ingestion in less than 3 months of age during the same period. Cases included were FB ingestion in less than 13 years of age who were presented or notified to our Department was included in the study. Follow up was done during the hospital visit or via phone call.

Results

Total 99 FB ingestion were reported to our department in the last 1 year. Total 33 FB's were reported during the COVID lockdown period since the schools were shutdown, among them 3 were less than 1 year of age.

23 cases passed the FB without any intervention, 6 patients can't be traced via phone, one patient underwent endoscopic removal of button battery at

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private hospital, and one case operated to remove the FB.

Among these cases, two rare cases were discussed in detail here.

Case 1: 12 day old female baby referred to paediatric surgery department from a peripheral hospital with history of accidental foreign body ingestion, while the mother try to clean the nostril with the closed safety pin which was lost into the nostril and swallowed by the baby. Medico legal case(MLC) register entry was made to rule out homicidal intentions. Vitals of the infant were stable and the X-Ray taken in the referring hospital shows FB at the stomach (Fig.1a). Repeat X - Ray showed the FB at intestines (Fig. 1b). Because of the moving FB and COVID pandemic admission deferred, baby sent home after explaining the warning signs. FB passed in the stools on the 4th day after ingestion.



Fig. 1a: X-ray showing closed safety pin in the stomach area in 12 days old infant.

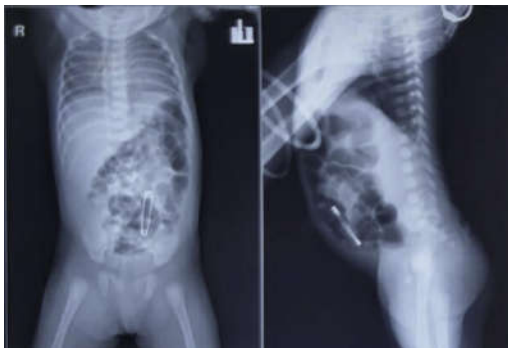


Fig. 1b: X-ray showing safety pin seen in intestines.

Case 2: 3 month old female baby admitted with cough, difficulty in breathing and crepitation in bilateral lung fields for 5 days, was admitted and subsequently put on ventilator. Initial X-ray findings suggested pneumonia by bilateral opacity in the lung fields and a suspected artifact at the stomach region (Fig. 2a). Repeat X-ray confirmed a FB,

open hair clip at stomach (Fig.2b). Further probing revealed the baby was attempted to feed several occasions by her 3-year-old elder sibling. Possibly the elderly sibling fed the child with the FB. MLC entry was made to rule out homicidal intentions. Next day baby developed right pneumothorax (Fig. 2c) for which intercostal drainage (ICD) was done. Bilateral lung signs and symptoms made the suspicion of COVID-19, later tested negative. After the initial stabilization laparotomy was done and the FB was palpated in the upper part of stomach in transverse lie. By gentle manipulation the clip was closed, which helped in avoiding large incision to remove the FB. 4X1 cm hair clip was removed via the small gastrostomy (Fig. 2d and 2e), which was closed by using 3'0 vicryl sutures. During ICD insertion and laparotomy full personal protective equipments (PPE) were used by the treating team as per the COVID-19 protocol.



Fig. 2a: X-ray showing bilateral lung infiltrates with suspected artifact at stomach area.



Fig. 2b: Repeat X-ray showing FB(open hair clip) in stomach with bilateral lung infiltrates.



Fig. 2c: X-ray showing right side pneumothorax with left lung infiltrates and FB in stomach.



Fig. 2d: FB removal through Gastrostomy.



Fig. 2e: 4 X 1 cm FB(hair clip) removed by gastrostomy.

In the last one year total 8 FB's were less than 1 year of age children among the 99 total FB's ingested in less than 13 years in our institution. FB in the less than 1 year age group includes hair clip, safety pin, iron dice, cloth piece, magnet, pencil cap each one and two button batteries. All the FB's passed spontaneously with observation except the one who underwent laparotomy for the removal.

Discussion

Unlike older children who explore things by putting them in mouth, FB ingestion in infants is rare, particularly in the neonatal period. Few reports are available in neonates even at the age of 4 days of life. FB's ingested were radiolucent ones like fresh grape, button, medicine dropper, cotton buds, stone (pebble) and radiopaque FB's like coin, button battery, finger ring, anklet hangout, pin, screws, nail etc. Most of the ingestions are due to fed by elderly sibling while playing, homicidal (unwelcoming female child) or by accident.^{4,5,6,7,8,9}

Symptoms following FB ingestion may be asymptomatic to obstructive symptoms or respiratory symptoms. FB ingestion in infants might cause serious complications due to their smaller anatomy. Pneumothorax in the ingested FB in our case can't be explained, it may be iatrogenic due to ventilator or piercing by the FB through esophagus. But pneumothorax following ingested FB's reported already, possibly iatrogenic.^{6,10}

Most of the ingested FB's passed out spontaneously, so most advocate the wait and watch policy by simple observation with good counseling to the parents. Few advocate early intervention to avoid complications particularly with button batteries, sharps etc. We had operated one case to remove the FB and the same patient was stabilized with intercostal drain insertion previously for pneumothorax, with proper PPE to avoid COVID 19 infection.^{1,2,11,12} Even though our case was negative for COVID infection, but the result can be false negative one. So better treat all patients with PPE to avoid infection.

In case of radiolucent FB's, its very difficult to diagnose FB ingestion or aspiration. FB aspiration can manifest as emphysema, pneumothorax, pneumomediastinum or subcutaneous emphysema due to high airway pressure. Which requires endoscopy / bronchoscopy to rule out the FB.¹³⁻¹⁵ But in our case of FB ingestion, pneumothorax cannot be explained other than barotrauma due to ventilation or possibility of false negative COVID/ respiratory infection.

Conclusion

FB ingestion can happen in infants also. FB ingestion in infants also managed conservatively if there are no symptoms. When intervention needed in the COVID 19 era, caution should be taken during procedures to avoid infecting health worker and subsequently the health seekers.

References

- Zhou Y, Xu H, Li L, Ren X. Management for patients with pediatric surgical disease during the COVID-19 epidemic. *Pediatr Surg Int*. 2020;36(6):751-752. doi:10.1007/s00383-020-04656-6.
- Lee JH. Foreign Body Ingestion in Children. *Clin Endosc*. 2018;51(2):129-136. doi:10.5946/ce.2018.039.
- Connors GP, Mohseni M. Pediatric Foreign Body Ingestion. In: *StatPearls*. Treasure Island (FL): StatPearls Publishing; 2020.
- Tander B, Baskin D, Mutlu G, Sever N, Bulut M. An unusual foreign body in the bowel lumen causing obstruction in a neonate. *J Pediatr Surg*. 1999;34(8):1289-1290. doi:10.1016/s0022-3468(99)90173-2.
- Singh R, Pandit C, Gupta D, Vajifdar H. Foreign body esophagus in a neonate: Unusual age and unusual presentation. *J Anaesthesiol Clin Pharmacol*. 2012;28(2):258-260. doi:10.4103/0970-9185.94915.
- Patil PS, Kothari P, Gupta A, et al. Pneumothorax in a Neonate after Foreign Body Ingestion. *J Neonatal Surg*. 2016;5(2):23. Published 2016 Apr 10.
- Chowdhury CR, Bricknell MC, MacIver D. Oesophageal foreign body: an unusual cause of respiratory symptoms in a three-week-old baby. *J Laryngol Otol*. 1992;106(6):556-557. doi:10.1017/s0022215100120134.
- Srikanth KP, Thapa BR, Chadha V, Menon J. Trivial and fatal complications of esophageal foreign bodies in neonates. *J Clin Neonatol* 2016;5:109-11.
- Kazi, S I, Habib, M, Afzal, B., Khan, I. Q., Siddiqui, E., Aftab, M. (2015). Nail as a foreign body in a neonate, an unusual presentation at an unusual age. *Journal of Pakistan Medical Association*, 65(3), 315-316.
- <https://www.aafp.org/afp/2005/0715/p287.html>.
- Sink JR, Kitsko DJ, Mehta DK, Georg MW, Simons JP. Diagnosis of Pediatric Foreign Body Ingestion: Clinical Presentation, Physical Examination, and Radiologic Findings. *Ann Otol Rhinol Laryngol*. 2016;125(4):342-350. doi:10.1177/0003489415611128.
- Hemanthkumar B., Karrupasamy N., Jayakumar P et al. " Foreign body ingestion in children and their follow-up in a tertiary care paediatric surgery institution." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 18, no. 8, 2019, pp 33-36.
- Tripuraneni SC, Priyadarshni N, Venkataratnam R, Rajanikanth K, Naveen R. Bilateral Foreign Body Bronchus. *Indian J Otolaryngol Head Neck Surg*. 2019;71(Suppl 1):400-405. doi:10.1007/s12070-018-1325-4.
- Mortellaro VE, Iqbal C, Fu R, Curtis H, Fike FB, St Peter SD. Predictors of radiolucent foreign body aspiration. *J Pediatr Surg*. 2013;48(9):1867-1870. doi:10.1016/j.jpedsurg.2013.03.050.
- Saoji R, Ramchandra C, D'Cruz AJ. Subcutaneous emphysema: an unusual presentation of foreign body in the airway. *J Pediatr Surg*. 1995;30(6):860-862. doi:10.1016/0022-3468(95)90765-3.