

CASE REPORT

An Open Safety Pin in an 8-month-old Child: A Rare Delayed and Unusual Presentation of This Dangerous Foreign Body

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ABSTRACT

Introduction: Foreign bodies (FBs) are common in young children aged 3 months to 6 years, and FBs in the esophagus can present with a wide variety of symptoms. We present an extremely rare case of chronic open safety pin (SP) in an 8-month-old child who was asymptomatic for 8 weeks and then presented with cough and neck spasms.

Case history: An 8-month-old baby girl presented to us referred from a pediatrician with an incidental finding of open SP in the esophagus when a chest X-ray was performed to diagnose nonresponding cough. Patient had constant neck deviation towards right side without any other symptoms for 8 weeks, when X-ray diagnosed the FB. Flexible and rigid endoscopic removal were unsuccessful since the sharp end of the pin was buried in the luminal wall with granulation tissue surrounding it. Open neck exploration with esophagostomy and extraction of the SP under general anesthesia had to be done. The child is now asymptomatic with normal neck posture postprocedure.

Conclusion: Open SP can have delayed presentation, and a high index of suspicion is required to diagnose the presence of an FB. Chronic FBs can penetrate the luminal wall of the esophagus resulting in granulation tissue, and this further leads to fixation of the FB making it extremely difficult to remove endoscopically. We advocate open neck exploration and esophagostomy for safe removal of chronic sharp FB like open SP.

Keywords: Child, Esophagoscopy, Esophagus, Foreign body esophagus, Neck, Unusual presentation, X-ray neck.

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INTRODUCTION

Foreign bodies (FBs) are common in young children aged 3 months to 6 years.^{1,2} FB in the esophagus can present with a wide variety of symptoms.³ The diagnosis can sometimes be delayed when the ingestion goes unnoticed and child is asymptomatic or presents with unusual symptoms that does not arouse suspicion by the treating physician. In this article, we present an extremely rare of chronic open safety pin (SP) in an 8-month-old child who was asymptomatic for 8 weeks and then presented with cough and neck spasms.

CASE HISTORY

An 8-month-old baby girl presented to us referred from a pediatrician with incidental finding of open SP in the esophagus. The child was under the care of the pediatrician for the past 1 week with presentation of dry cough and neck spasm. Since the cough was not responding to routine antibiotics and the patient later developed intermittent fevers, the pediatrician got a routine chest X-ray to rule out LRTI, when to everyone's surprise an open SP was found (Fig. 1). Parents and the grandmother (caretaker) vehemently denied the ingestion and tell that child has been as asymptomatic until 1 week back when she developed dry cough. However, on further questioning, the mother tells us that the child was seen regularly deviating her head and neck to the right since the time the baby was put under grandmother care back at her home 2 months back. Parents consulted a local pediatrician back then who reassured them since the child did not have any symptoms.

The child was taken up for flexible esophagoscopy and bronchoscopy, which showed an open SP in the postcricoid/upper esophagus with the sharp end not being visualized (Fig. 2). The loop end of the SP which was located inferiorly was also partially embedded in the wall of the esophagus with granulation tissue

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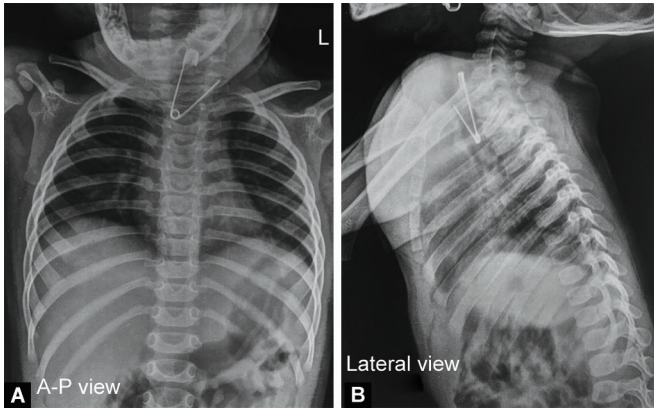
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surrounding it. Two attempts made to remove the FB endoscopically both through rigid and flexible esophagoscopies by mobilizing the pin inferiorly to visualize the sharp end which were unsuccessful as the SP was embedded in the wall firmly. Then, child was shifted to the operating room (OR), and open neck exploration with esophagostomy and extraction of the SP under general anesthesia were done. The child was managed on Ryle's tube feeding for 1 week when a barium swallow then demonstrated the absence of a leak. The parents were advised to resume normal diet orally, and the child is now asymptomatic with normal neck posture, 2 months postprocedure.

DISCUSSION

FB ingestion and FB aspiration commonly affect young children between 6 months and 6 years.^{1,2} A large number of these events remain unwitnessed and asymptomatic, while the swallowed FB traverses the gastrointestinal tract and is passed in the stool.⁴ However, sharp FBs like open SP pose a unique challenge in that



Figs 1A and B: X-ray both A-P and later view showing open SP with sharp tip acutely angulated to the left side. Also noted is the deviation of the neck to the right side because of spasms



Fig. 4: SP that was removed. Note the angulated pin which caused the sharp end to penetrate the muscular layer of the esophageal lumen



Fig. 2: Flexible esophagoscopy shows the SP in the postcricoid/cervical esophageal region and sharp end of the open pin is not visualized as it was embedded on the muscular layer

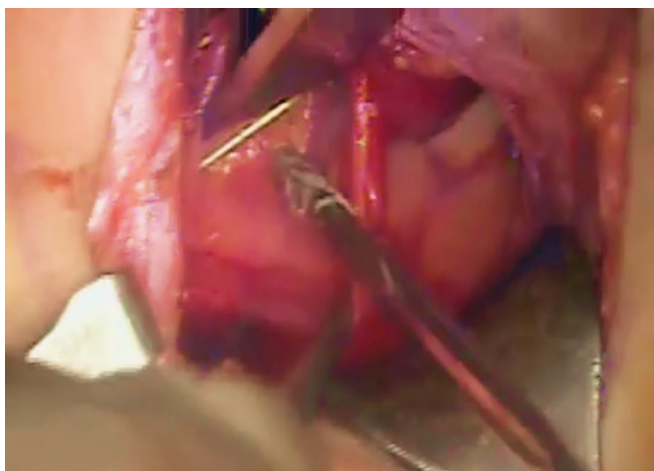


Fig. 3: Picture showing the SP piercing the wall of the esophagus after esophagostomy was done trans cervically

they are rarely passed spontaneously. SPs are ubiquitously used worldwide and pose a challenge especially when an open SP is ingested by children.⁵ The sharp end of the SP can penetrate through the esophageal or tracheal luminal wall and can lead to mediastinitis. Rare complications of the sharp end of the pin penetrating the esophageal luminal wall and then causing fatal carotid injury has also been described.⁶

In most cases, the child often presents with symptoms soon after ingestion and the symptoms can vary from dysphagia, excessive salivation, chest pain to breathing difficulty, and pneumonia.⁷ The child in our case reported unusual presentation as the patient was asymptomatic for 8 weeks since the probable ingestion except for regular neck deviation to the right. As the neck deviation in the child was ignored by the parents due to lack of other serious symptoms, this led to delay in diagnosis. When the child developed dry cough and neck spasms, 8 weeks later which was not responding to antibiotics a chest X-ray ordered to rule out infections revealed the open SP with the sharp end acutely angulated to the left. This probably explains why the child regularly deviated her head to the right as the penetrated sharp end probably resulted in pain on flexion to the left. Flexible endoscopy is often the preferred method to remove an open SP.⁸ In our case, we initially attempted to remove the FB first through flexible endoscopy and later through rigid esophagoscopy and both these attempts were unsuccessful since the sharp end tip was not visible as it was embedded in the mucosa. Extreme mobilization of the FB without visualization of the tip was deemed unsafe, and hence, open neck exploration and esophagostomy were done. The neck was opened on the left side with 3-cm horizontal incision at the anterior end of the sternocleidomastoid muscle. Dissection was done between the carotid sheath and the thyroid with the anterior elevation of the thyroid gland to expose the esophagus. Before making a 2-cm esophagostomy in the lateral wall of the esophagus, the recurrent laryngeal nerve was identified and the position of the SP was confirmed on fluoroscopy again. The SP was visualized inside the lumen of the upper cervical esophagus with areas of mucosal ulceration and granulation tissue surrounds the SP. The sharp end of the pin was embedded inside the luminal muscular layer (Fig. 3). It was carefully mobilized inferiorly grasping the nonsharp upper end of the pin and taken out of the lumen (Fig. 4). The wound was

closed in layers with a drain. Child was kept on Ryle's tube feeding for a week, and barium swallow on day 7 demonstrated no leak. The child was then put on oral diet and is doing fine for the past 2 months with neck posture being normal since then.

This case emphasizes that even a sharp FB like an open SP can be asymptomatic for a while before presenting with symptoms that arise suspicion. Since FBs are common in children aged 6 months and above, atypical symptoms without any obvious diagnosis should arise the suspicion of an occult FB. Chronic FBs can penetrate the luminal wall of the esophagus resulting in granulation tissue, and this further leads to fixation of the FB making it extremely difficult to remove endoscopically. We feel that endoscopic removal of an open SP should be abandoned if the sharp tip is embedded the luminal wall and is not visible endoscopically. Open esophagostomy with extraction of the FB even in small children is safe though it carries more perioperative morbidity than endoscopic removal.

CONCLUSION

As this case along with one other case mentioned in literature illustrates that an open SP can have delayed presentation and a high index of suspicion is required to diagnose the presence of a FB. Often nonspecific symptoms like neck spasms or cough are attributed to airway disease or gastroesophageal reflux, which further delays definitive diagnosis and management.⁹ In chronic FBs, granulation tissue develops around the object which sometimes leads to penetration of the object into esophageal luminal wall. When this happens and the sharp end of the SP is the one which appears

to imbed in the wall of the lumen on endoscopy, we feel that endoscopic removal should not be attempted and patient should directly take to OR for esophagostomy and FB removal which can be done safely even in very small children.

REFERENCES

1. American Academy of Family Physicians. MC. American family physician. American Academy of Family Physicians. 1970.
2. Chen MK, Beierle EA. Gastrointestinal foreign bodies. *Pediatr Ann* 2001;30(12):736–742. DOI: 10.3928/0090-4481-20011201-08.
3. Yahyaoui S, Jahaouat I, Brini I, et al. Delayed diagnosis of esophageal foreign body: a case report. *Int J Surg Case Rep* 2017;36:179–181. DOI: 10.1016/j.ijscr.2017.05.028.
4. Kodituwakku R, Palmer S, Prosad Paul S. Management of foreign body ingestions in children: button batteries and magnets. *Br J Nurs* 2017;26(8):456–461. DOI: 10.12968/bjon.2017.26.8.456.
5. Gün F, Salman T, Abbasoglu L, et al. Safety-pin ingestion in children: a cultural fact. *Pediatr Surg Int* 2003;19:482–484. DOI: 10.1007/s00383-003-0964-y.
6. Passey JC, Meher R, Agarwal S, et al. Unusual complication of ingestion of a foreign body. *J Laryngol Otol* 2003;117:566–567. DOI: 10.1258/002221503322113049.
7. Sarihan H, Kaklikkaya I, Ozcan F. Pediatric safety pin ingestion. *J Cardiovasc Surg (Torino)* 1998;39(4):515–518. PMID: 9788804.
8. Kalayci A, Tander B, Kocak S, et al. Removal of open safety pins in infants by flexible endoscopy is effective and safe. *J Laparoendosc Adv Surg Tech* 2007;17:242–245. DOI: 0.1089/lap.2006.0060.
9. Mohajeri G, Fakhari S, Ghaffarzadeh Z, et al. A case of the long time presence of a large foreign body in esophagus without complication. *Adv Biomed Res* 2016;5:205. DOI: 10.4103/2277-9175.191001.