ORIGINAL ARTICLE

A Unique Pattern of True Foreign-Body Ingestion: High frequency of sharp foreign body ingestion in Kashmir

Nisar Ahmad Shah[1], Showkat Ahmad Kadla[1], Asif Iqbal Shah[5], Bilal Ahmad Khan[1], Inaam Ul Haq[2], Shabir Ahmad Sheikh, Aijaz Ahmad Malik[3], Shagufta Parveen[4]

[1]Department of Gastroenterology, GMC Srinagar, [2]Department of Social & Preventive Medicine GMC, Srinagar
[3]Minimal Access Surgery, Shifa Hospital, Srinagar, [4]Department of Pharmacology, GMC, Srinagar,
[5]Gastroenterologist SSH Hospital Srinagar

ABSTRACT

Background and Aims: Foreign-body ingestion is common, especially in children. However, in adults, foreign-body ingestion is usually accidental, and mostly ingestion occurs with food, and the impaction is a result of structural abnormalities of the upper gastrointestinal tract (UGIT). However, accidental ingestion of nonfood products is unusual, especially ingestion of pins (scarf or safety pins) and needles is unknown. Nevertheless, we have come across ingestion of these sharp foreign bodies routinely over the past few years.
This study aimed to observe, over one year, the spectrum of nonfood or true foreign-body ingestion in our community and to see the impact of an early endoscopy on the outcome or retrieval of the ingested objects.
Materials and Methods: In a prospective observational study, we studied the profile of foreign-body ingestion in normal individuals of all ages and sexes, excluding individuals with any structural abnormalities of the gut and those with psychiatric ailments.
Results: Of the total 51 patients with true foreign-body ingestion, 42 (82%) were 20 or less than 20 years of age, with females constituting 86.3% of the total and males constituting only 13.7%. Foreign bodies ingested included 38 pins (74.5%), seven coins (13.7%), four needles (7.8%), and one denture and a nail (2%) each. Overall, 26 (51%) foreign bodies were seen in UGIT within reach of retrieval at endoscopy, and all of them were removed. Nineteen (37.3%) patients reported within six hours of ingestion, and the majority of them, 16 (84.2%), had foreign bodies within UGIT, and all of them were removed. Thirty-two (62.7%) of patients who reported beyond six hours, only 10 (31.25%) had foreign bodies in UGIT. As a result, the success rate of removal in these patients was only 32%.
Conclusion: Most of our patients were young females, and the common foreign bodies ingested were sharp, including scarf pins followed by coins and needles. The success rate of retrieval was high in those who reported within six hours of ingestion of a foreign body. The retrieval rate was 100% if a foreign body was found on esophagogastroduodenoscopy.
Hence, we recommend an early endoscopy in these patients and some alternatives to using scarf pins.
Keywords: Endoscopy, foreign bodies, Kashmir, safety pins, sharp foreign bodies
JMS: 2022; 25(3):43-48 DOI: https://doi.org/10.33883/jms.v25i3.1207

INTRODUCTION

Non-nutritious, undesirable, unwanted material or a thing swallowed or aspirated intentionally or unintentionally that may be potentially or seriously harmful to health constitutes the aero digestive true foreign bodies (FBs)[1]. Sharp foreign bodies are pointed at either end or both ends and have a chance of getting impacted or cutting edges that can cause injury to the GI tract. In the US, 1500 people die yearly from swallowing or aspirating FBs[2]. Most of them are children who ingest small toys and coins[3]. Ordinary people are usually not affected but may accidentally ingest FBs if they are careless about the objects, have a cognitive impairment, have poor vision, or are intoxicated[4,5]. The type of FBs depends on the things available and the frequency with which they are used. Adults' most commonly ingested FBs include toothbrushes, nails, and dental prostheses. People with dementia and those having psychiatric ailments are most likely to ingest a FB intentionally; however, patients with bulimia may inadvertently swallow objects while trying to induce vomiting[6,7]. Some people may have a history of recurrent FB ingestion (psychiatric population),

Access this article online

Website: www.jmsskims.org

DOI: https://doi.org/10.33883/jms.v25i3.1207

Correspondence:
Dr. Nisar Ahmad Shah, DM
Prof. Deptt. of Medcine & Gastroenterology, GMC, Srinagar
Email: nisarshah19@gmail.com

How to cite this article: Shah NA, Kadla SA, Shah AI, Khan BA, Haq IU, Sheikh SA, Malik AA, Parveen S. A Unique Pattern of True Foreign-Body Ingestion: High frequency of sharp foreign body ingestion in Kashmir.. JMS 2022: 25 (3) 43-48
Received: 2022-06-30 Accepted: 2022-08-11

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

while others may ingest it for secondary gains (incarcerated criminals, drug traffickers and body packers). In normal population, dementia patients, incarcerated criminals, and people with bulimia may ingest FBs. The type of FBs may vary from community to community depending on the easy availability of objects that are intentionally or unintentionally put in the mouth.

The most commonly seen upper gastrointestinal tract (UGIT) FB in the US in adults is meat bolus and bone chips, and in children, the same includes coins, toys, magnets, and batteries[7]. In some European countries, the commonly ingested FBs are Fishbones, bones, and dentures, in China, it is food bolus, fish bones, dental prostheses, and bones that are commonly ingested, while in the Middle East.

East, the same may include coins, meat boluses, and bones[8-10]. In Africa and the Indian subcontinent, coins, meat boluses, and dentures are the most commonly expected FBs that could be ingested.[11,12] Since the pattern and profile of FB ingestion have not so far been reported anywhere from India, and also the unique pattern of UGIT FBs that was observed in our set up over some time in which there was a predominance of pins and needles compelled us to follow it prospectively.

MATERIALS AND METHODS

This prospective, observational study was conducted in the Department of Gastroenterology, Government Medical College, Srinagar, Jammu and Kashmir, India, from January 2014 to December 2015. After the Institutional Ethical Committee Clearance, patients of all ages and sexes who presented to the department with a history of accidental or intentional ingestion of a true FB were included. The patient's vitals were checked, and a physical examination and radiological examination were done before contemplating FB removal. If FB was not located on a plain radiograph, a computed tomography scan was done for proper localization of FB. If the patient was fasting or had taken clear liquids like water or cool drinks, removal of FB was done immediately under conscious sedation using injectable midazolam. However, in those patients who were not fasting, the procedure was deferred for 4 hours in case of light meals and 6 hours in case of heavy meals. Children under the age of 16 years were given propofol or general anesthesia as per the advice of anesthesia colleagues. They needed to be fasting for a minimum of 6 hours. To keep the study limited to the general population and true FBs , the following patients were excluded from the study:

1. Those with psychiatric ailments
2. Incarcerated criminals
3. People with underlying dysphagia and bulimia
4. Food bolus impaction
5. Those having taken FB for secondary gains.

The accessories used to remove foreign bodies included endoscopic snares, Roth baskets, foreign body removal forceps and occasionally tripod forceps or a basket. The nonmetal topped scarf pins (headed pins) are easily removed with a snare by catching them by the head side and hanging the sharp side down on withdrawal. Nails can also be removed like this. Initially, we used over-tubes to remove pins, but later on, we learned that these FBs could be removed easily by an endoscopic snare. Stitching needles are most challenging to remove because they are sharp on both sides; if drawn with a snare, we always use an "Over-Tube" or a "Keep" which prevents injury on withdrawal. We removed one stitching needle using a therapeutic scope, grasping the one end of the needle by forceps and drawing it into the channel (because of the lack of an over-tube at that time). This may damage the distal end of the scope, which is to be kept in mind.

RESULTS

In this prospective, observational study, we enrolled 51 patients [Table 1], of which 44 (86.3%) were females and seven (13.7%) were males with an average age of 17.18 years (range 6-67 years); 29 (56.36%) were from rural and 22 (43.13%) from an urban background. Most of our patients were young, with 39 (76.47%) being 20 or less than 20 years and only 12 (23.52%) being above20 years of age. The majority (n = 44) of our patients were females.

Out of the total of 51 patients, only 37.3% of patients presented within six h of ingestion of FB, whereas 62.7% presented late. Thirty hours (58.8%) patients were endoscoped during the day, and 21 (41.2%) were endoscoped at odd hours (6 pm to 8 am). A unique pattern was observed [Table 1]. There were 38 (74.5%) pins, seven (13.7%) coins, four (7.8%) needles, and one (2%) nail and one (2%) denture. The sharp FBs outnumber blunt ones.

Of 51 patients, 27 (52.9%) had no FB within reach of upper GI endoscopy, and of these, 20 (74.07%) FBs passed

spontaneously; whereas 07 (25.91%) got retained in the GI tract, among which 03 pins were recovered from colon [Figure 1], two weeks after ingestion. Another two pins had pierced the GI wall, where one pin was removed from the peritoneum and another from the gastrohepatic ligament [Figure 2] and two patients with the remaining two pins could not be contacted for follow up. On upper GI endoscopy [Table 2], 16 (31.4%) were found in the stomach [Figure 3], 3 (5.9%) in D1, 6 (11.8%) in D2 [Figure 4], and one in the oropharynx. All the FBs found were retrieved using polypectomy snare, Roth basket, or FB retrieval forceps [Table 3]. Nineteen patients reported ingestion within six hours and 16 (84.21%) had FB within the range of retrieval on upper GI endoscopy.

Table1: Demography, type of foreign bodies, and outcome.

Age (yrs.)	Frequency	Percentage
_	39	76.47
>20	12	23.52
Gender		
Female	44	86.3
Male	7	13.7
Residence		
Rural	29	60.4
Urban	22	39.6
Foreign body type		
Pin	38	74.5
Coin	7	13.7
Needle	4	7.8
Denture	1	2.0
Nail	1	2.0
Status		
Found/Retrieved	26	51.0
Not found/retrieved	25	49.0
Time of endoscopy/removal		
Day	30	58.8
Night	21	41.2

Table 2: Location of foreign bodies on UGI Endoscopy

Location	Frequency	Percent	Valid Percent	Cumulative Percent
NOT LOCATED in UGI	25	49.1	49.1	49.1
STOMACH	16	31.4	31.4	80.5
DUODENUM	9	17.6	13.7	94.2
CRICOPHARYNX	1	2.0	2.0	100.0
Total	**51**	**100.0**	**100.0**	

Table3: Status of Foreign bodies with respect to time of ingestion and Type of foreign bodies.

	Status		
Reporting time after ingestion	**Found/Retrieved (n=26)**	**Not found/not retrieved (n=25)**	**p-value**
<6hrs	16	3	<0.001
_	10	22	
Foreign body type			
Pin	20	18	0.910
Coin	3	4	
Needle	2	2	
Denture	0	1	
Nail	1	0	

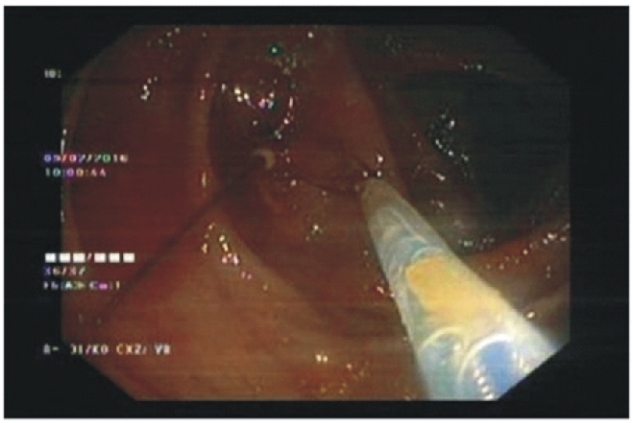


Image 1

Fig. 1: Pin found in Colon.

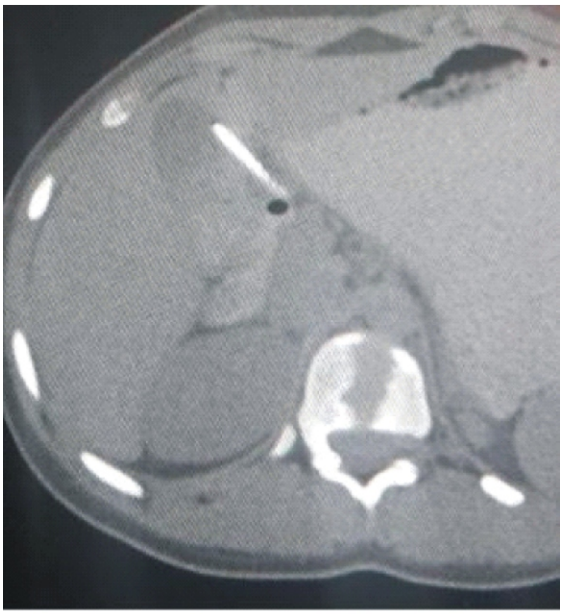


Image 2A

Fig. 2A: CT scan showing foreign body (pin) in Gastro-hepatic ligament.

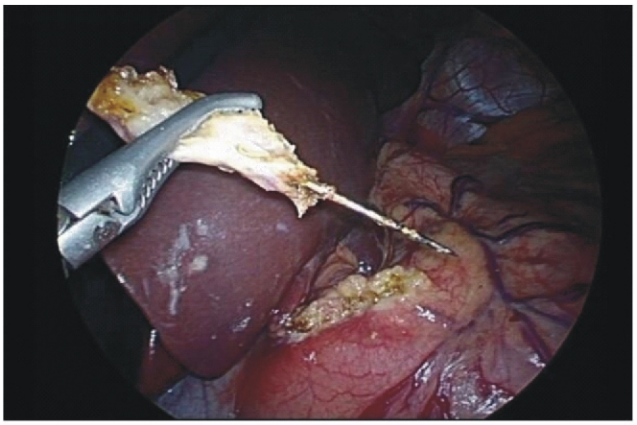


Image 2B

Fig. 2B: Pin being extracted from Gastro-hepatic ligament.

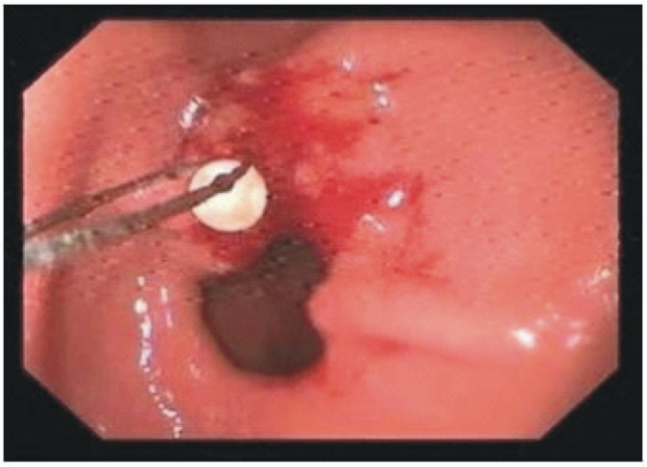


Image 3 A

Fig. 3A: A headed pin pierced in antrum being removed with snare.



Image 3 B

Fig. 3B: Pierced needle at incisura being removed with forceps.

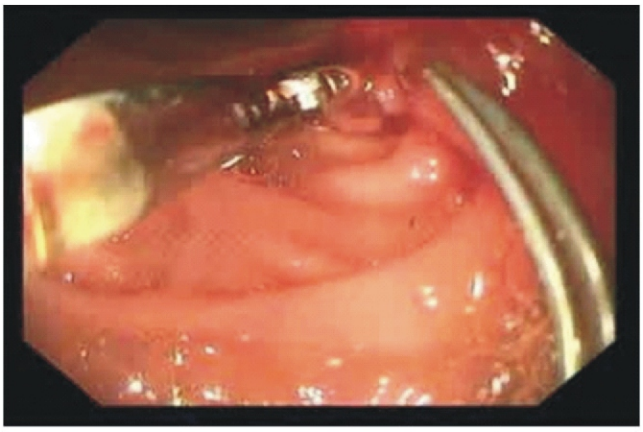


Image 4

Fig. 4: Two pierced pins in Duodenum being removed by forceps.

Of 32 patients who reported late, only 10 (31.2%) had FB accessible for removal on upper GI endoscopy. To our surprise, one among these ten patients had a history of FB ingestion some three months back. Of 38 ingested pins, 20 (52.63%) were retrieved. Three of seven coins were retrieved, whereas four had migrated down, and all passed out uneventfully. Of four stitching needles, two were retrieved while two had migrated down, one got stuck up in the small bowel and needed surgery, and another passed up to the anorectum and was retrieved from the rectum. All patients had accidentally ingested FBs; none had taken them intentionally. Two girls had ingested more than one pin at a time, one of them having ingested three pins.

DISCUSSION

Accidental FB ingestion occurs primarily in children and edentulous or mentally impaired elderly adults. Food bolus impaction at a narrowed part of the oesophagus and ingestion of coins in children are the most common causes of upper GI intervention for FB removal[2].

Incidental ingestion of FB occurs in psychiatric patients or prison inmates[3,5]. Other standard FBs include fish and chicken bones, medication packaging, dentures, and coins[8]. Most FBs (80%) pass without any intervention[9,10]. Out of those FBs which need removal, 16% may require surgery. Removing sharp, long, and wide objects as early as possible is a trend. Other FBs which need early removal include large button batteries, high-powered magnets, narcotic packages, and super absorbent things[13]. Other than FB characteristics, structural and functional abnormalities of the GI tract may

also increase the risk of impaction[14-17]. These abnormalities include diverticula, webs, rings, strictures, achalasia, tumours, duodenal ulcer sequelae, hernia, and postgastrectomy status[18]. The type of FB ingested depends on readily available and frequently used objects. That is why toothbrushes, dentures, nails, coins, and toys are the most common FBs found worldwide. The type of FB also varies from country to country[7-12]. The pattern must also change from time to time as the readily available things change from time to time and place to place. Such observations are not published and perhaps not studied. Ingestion of true FBs by ordinary people with normal GI tracts has also not been studied. We did not find any study that excluded people who either tend to ingest FBs or have abnormal GIT anatomy. The most common FB in this study was pins, an uncommon finding in other studies[19,20]. The pins and needles were common FBs, especially in young girls, because our young girls routinely use these things to tie their head covers and chain stitching jobs. While tying the head cover, these young girls keep many pins under their teeth. If something untoward happens during this time, such as sneezing, coughing, or someone else pushing from behind or frightening them, there is every chance that these pins may either be swallowed or aspirated. The interval between ingestion of FB and the time patient reaches the hospital is very important as it will decide the success rate of retrieval on UGI endoscopy. We did observe in our study that in those patients who reported early (within six hours), the success rate on UGI endoscopy was much better (84.2%) than those who presented to us beyond six hours in whom the same was only (31.2%). In this study, the most extended interval between ingestion and retrieval was three months, whereas the FB was retrieved from the antrum after it had been impacted over there. Although an early endoscopy is mandatory in sharp and long foreign bodies, a patient who reports late and has a history of ingestion of a sharp foreign body should be subjected to UGI endoscopy because once a foreign body gets impacted at any place in the UGI tract, it stays there for months.

Another problem is that sometimes patients reported early but were not fasting, so the FB had migrated down into the intestine along with food. Finally, the type of FB matters the most. Sharp FBs such as pins and needles can cause severe injuries to the GI tract. If impacted, it can cause aortoesophageal fistula, mediastinitis, pericarditis, cardiac tamponade, recurrent pericardial effusion, and even hemopericardium[21-26].

CONCLUSION

After studying the pattern and type of FB ingestion in our community, the following conclusion can be drawn:

Due to a changing trend of covering the head by females of our community, there has been a considerable change and rise in unique FB ingestion in our set-up since past few years, in which sharp FBs outnumber the blunt ones.

To get better results, an early endoscopy in these cases is recommended. But even if the patient presents late with a history of FB ingestion, they should be subjected to a UGI endoscopy.

An alternate method of fixing the head cover is recommended like blunt plastic clips, stretchable bands, Velcro or superficial cloth knots

Conflict of Interest: NONE

Funding: Nil

Written Informed consent: Taken

REFERENCES

1. Choichi Sugawa, Hiromi Ono, Mona Taleb, Charles E Lucas. Endoscopic management of foreign bodies in the upper gastrointestinal tract: A review. World J Gastrointest Endosc 2014 October 16; 6(10): 475-481.
2. Lazebnik N, Iellin A, Michowitz M. Spontaneous rupture of the normal stomach after sodium bicarbonate ingestion. Journal of clinical gastroenterology. 1986 Aug;8(4):454-6.
3. Webb WA. Management of foreign bodies of the upper gastrointestinal tract: update. Gastrointestinal endoscopy. 1995 Jan 1;41(1):39-51.
4. Henderson CT, Engel J, Schlesinger P. Foreign body ingestion: review and suggested guidelines for management. Endoscopy. 1987 Mar;19(02):68-71.
5. Kirk AD, Bowers BA, Moylan JA, Meyers WC. Toothbrush swallowing. Archives of Surgery. 1988 Mar 1;123(3):382-4.
6. Roark GD, Subramanyam KA, Patterson MA. Ingested foreign material in mentally disturbed patients. Southern medical journal. 1983 Sep;76(9):1125-7.
7. Kaplan DS. Battery ingestion and EKG interference. Gastrointestinal endoscopy. 1990 Mar 1;36(2):162-3.

8. Sugawa C, Ono H, Taleb M, Lucas CE. Endoscopic management of foreign bodies in the upper gastrointestinal tract: a review. World journal of gastrointestinal endoscopy. 2014 Oct 16;6(10):475.
9. Ambe P, Weber SA, Schauer M, Knoefel WT. Swallowed foreign bodies in adults. Deutsches Ärzteblatt International. 2012 Dec;109(50):869.
10. Li ZS, Sun ZX, Zou DW, Xu GM, Wu RP, Liao Z. Endoscopic management of foreign bodies in the upper-GI tract: experience with 1088 cases in China. Gastrointestinal endoscopy. 2006 Oct 1;64(4):485-92.
11. Emara MH, Darwiesh EM, Refaey MM, Galal SM. Endoscopic removal of foreign bodies from the upper gastrointestinal tract: 5-year experience. Clinical and experimental gastroenterology. 2014;7:249.
12. Hariga I, Khamassi K, Zribi S, Amor MB, Games ON, Mbarek C, et al. Management of foreign bodies in the aerodigestive tract. Indian J Otolaryngol Head Neck Surg 2014;66:220.4
13. Wahid FI, Rehman HU, Khan IA. Management of foreign bodies of upper digestive tract. Indian Journal of Otolaryngology and Head & Neck Surgery. 2014 Jan 1;66(1):203-6.
14. Schunk JE, Harrison AM, Corneli HM, Nixon GW. Fluoroscopic Foley catheter removal of esophageal foreign bodies in children: experience with 415 episodes. Pediatrics. 1994 Nov 1;94(5):709-14.
15. Ribas Y, Ruiz-Luna D, Garrido M, Bargalló J, Campillo F. Ingested foreign bodies: do we need a specific approach when treating inmates?. The American Surgeon. 2014 Feb 1;80(2):131-7.
16. Wu WT, Chiu CT, Kuo CJ, Lin CJ, Chu YY, Tsou YK, Su MY. Endoscopic management of suspected esophageal foreign body in adults. Diseases of the Esophagus. 2011 Apr 1;24(3):131-7.
17. Pellerin D, Fortier-Beaulieu M, Gueguen J. The fate of swallowed foreign bodies: experience of 1250 instances of subdiaphragmatic foreign bodies in children. Prog Pediatr Radiol. 1969;2(2):286-302.
18. Goh BK, Chow PK, Quah HM, Ong HS, Eu KW, Ooi LL, Wong WK. Perforation of the gastrointestinal tract secondary to ingestion of foreign bodies. World journal of surgery. 2006 Mar 1;30(3):372-7.
19. Sahn B, Mamula P, Ford CA. Review of foreign body ingestion and esophageal food impaction management in adolescents. Journal of Adolescent Health. 2014 Aug 1;55(2):260-6.
20. Li ZS, Sun ZX, Zou DW, Xu GM, Wu RP, Liao Z. Endoscopic management of foreign bodies in the upper-GI tract: experience with 1088 cases in China. Gastrointestinal endoscopy. 2006 Oct 1;64(4):485-92.
21. Sharland MG, McCaughan BC. Perforation of the esophagus by a fish bone leading to cardiac tamponade. The Annals of thoracic surgery. 1993 Oct 1;56(4):969-71.
22. Quandalle P, Pruvot FR, Latreille JP. Aorto-esophageal fistula secondary to a perforation of the esophagus by a foreign body. InAnnales de chirurgie 1984 Mar (Vol. 38, No. 2, p. 159).
23. Pulatov AT, Kim LE, Rofiev RR. An esophageal foreign body in a child causing the development of an esophago-pericardial fistula and suppurative pericarditis. Khirurgiia. 1992(11-12):100-2.
24. Bozer AY, Saylam A, Ersoy Ü. Purulent pericarditis due to perforation of esophagus with foreign body. The Journal of thoracic and cardiovascular surgery. 1974 Apr 1;67(4):590-2.
25. Akdemir R, Gunduz H, Erbilen E, Uyan C. Recurrent pericardial effusion due to retained cardiac pellets: a case report and review of the literature. Heart and vessels. 2003 Feb 1;18(1):57-9.
26. Sugunan S, Krishnan AS, Devakumar VK, Arif AK. Safety-pin Induced Hemopericardium and Cardiac Tamponade in an Infant. Indian pediatrics. 2018 Jun 1;55(6).