

GASTRO-JEJUNAL FISTULA DUE TO MAGNET FOREIGN BODY, A CASE REPORT**Issam Merdan**

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Introduction

Ingestion of foreign bodies is a common complaint in pediatric emergency service. Most cases of foreign body ingestion occur in children aged between six months and three years. More frequently ingested foreign bodies are coins, small toy parts, batteries and, less often, magnetic pieces. The ingested foreign body usually goes to the stomach then it passes the pyloric sphincter, and it descend down the small bowel reaching the ileocecal valve. Once it passes the ileocecal valve, it naturally eliminated with the stool¹. In about 80% of cases, objects are spontaneously eliminated; 20% require endoscopy, and complications occur in less than 1% thus demand surgery².

When the foreign body is in the esophagus or stomach especially if it is long and sharp object, eosophageo-gastro-duodenoscopy is indicated to remove it. Endoscopy also indicated for multiple magnets, small batteries, or foreign bodies that stays in the stomach, regardless of its size³. Surgery is reserved for complicated cases or when the object has not been eliminated spontaneously or removed by endoscopy. Obstruction and perforation of the gastrointestinal tract are the most common complications that could occur.

Magnet foreign body ingestion is still not frequent; however it has distinct

characteristics from other foreign bodies that should be known. The case below describes a rare complication related to ingestion of magnet objects.

CASE REPORT

A 10 year old, mentally retarded boy brought by his parents with history of ingestion of four magnets two weeks ago. These magnets are used as a small toys, the length of each magnet is about 4cm. All magnets were ingested on the same day. The parents missed these toys and they thought that he had swollen them. Parents were worried, but the child was asymptomatic in that period. They watched his stool frequent times and there were no objects eliminated, so they brought him for consultation. He had frequent radiographic monitoring films, all of them revealed a relatively same position of the four magnets as in figure1. Upon physical examination, the abdomen was soft, not tender and bowel sounds were normal.

The last radiograph taken on the day of presentation revealed that artifacts are in the same position in the left upper quadrant. The artifacts were four magnetic objects together with a small nail attached to them (Fig 2). Because the position of the magnets did not change by serial radiographs, thus surgical treatment was chosen.



Fig. 1

Laparotomy was done through an upper midline incision, a small anterior gastrotomy was performed following palpation of the magnets. During a trial to deliver the magnets outside the stomach, there was some difficulty in extraction of all magnets together because they were adherent to the posterior wall of the stomach, so initially two of them were removed together with the attached nail. On the second attempt to deliver the remaining other two objects from the



Fig.2

stomach, they slipped into a well defined opening, which permits just one finger, in the posterior wall of the stomach and this raise the suspicion of a fistula.

On exploration of the posterior wall of the stomach, there was a well defined fistula between the stomach and the upper jejunum, about 20 cm from the duodeno-jejunal flexure (fig 3). The remaining two magnets were just proximal to the fistula, in the jejunal side.



Fig. 3

The fistula was divided and the two magnets delivered outside. Trimming of the fibrosed, thick tissue of the fistula base was done and then closure of both

sides. Drains and naso-gastric tube were left in place. The patient run uneventful postoperative course and he was discharged after few days.



Fig. 4: showing the four magnets

Discussion

Accidental ingestion of magnetic foreign bodies by children occur increasingly more often due to availability of objects and toys containing magnets^{4,5}.

The ingestion of a single magnet, small enough to go through the gastrointestinal tract, poses no additional risk. Also, the ingestion of two or more magnets causing no harmful effect if they are ingested simultaneously and if they adhere to each other. The complications occur when two or more pieces go through separately, in different organs or in different segments of the same organ, and here, one magnet attracts the other when they are close. Compression may lead to ischemia of the gastro-intestinal wall, resulting into perforation and peritonitis⁶, formation of fistula⁷, intestinal obstruction⁸ or small bowel volvulus⁹.

In this case, the probable story is that, the first ingested magnet pass the pyloric sphincter smoothly and when it reached the jejunum, the patient ingested the other three magnets, either simultaneously or a time in between them. Once the second magnet reached the stomach it immediately attracted the first one which was in the jejunum, causing chronic compression of gastric and jejunal wall and eventually made a fistula between them.

Once ingestion is diagnosed, if the objects are no longer in the stomach, patients must be submitted to strict observation, since the radiological differentiation of a single or more magnets can be difficult or impossible to be determined.

Monitoring is made by radiographs when there are no signs of complication like intestinal obstruction or perforation. The radiographic films should be taken after ingestion and repeated 48 to 72 hours later to assess progression of the object. If during monitoring the objects are still in the same position, patients should be submitted to surgery.

Parents should be oriented to prevent such accidents and they must be aware of the potential risks and possible complications of magnet ingestion, which should be treated differently from ingestion of other types of objects due to high associated morbidity. Mentally retarded children and those who are handicapped needs special care from their parents and other family members to prevent ingestion of different harmful foreign bodies.

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