

Removal of Magnetic Bead Stuck to the Mucosa in the Transverse Colon of a 2 Year-Old Girl with Endoscopic Submucosal Resection (ESD)

Xiumin Qin¹, Hui Guo¹,
Yuan Meng¹, Feihong Yu¹,
Dan Zhang² and Jing Zhang¹

- 1 Department of Gastroenterology, Beijing Children's Hospital, Capital Medical University, National Center for Children's Health, Beijing, P.R. China
- 2 Department of Emergency Surgery, Beijing Children's Hospital, Capital Medical University, National Center for Children's Health, Beijing, P.R. China

Abstract

In this report, we describe a 2-year-old female who played with magnetic beads and swallowed five of them. Four were in the stomach and one was in the colon when the parents found the girl swallowed the beads. Four beads in stomach were removed endoscopically. The one in the colon was not discovered in subsequent colonoscopy because of poor bowel preparation. The patient was observed for seven days during which the patient was well without any abdomen symptom, but the magnetic bead remained in the colon, as seen in the abdominal X-ray and computed tomography. We repeated the colonoscopy and found the foreign body stuck to the mucosa which endoscopically did not show any obvious abnormality. We then performed endoscopic submucosal dissection with an IT-Knife, took out the bead, and closed the incision with clips, thereby avoiding open surgery. We advise that parents should pay more attentions to small children who may ingest foreign bodies inadvertently. We conclude that the endoscopic procedures are effective in removing swallowed foreign bodies.

Keywords: Foreign body; Colon; Endoscope; Endoscopic Submucosal Dissection (ESD)

Received: December 20, 2019; **Accepted:** January 07, 2020; **Published:** January 14, 2020

Introduction

Foreign body ingestion is common among children and presents a challenge to pediatric gastroenterologists. As magnetic beads are increasingly being marketed as toys for young children, ingestion of such beads, multiply or with other metallic objects, becomes a common occurrence. While initially asymptomatic, it may present acutely after a period and patients should be closely monitored and clinical management immediately initiated [1]. An index of high suspicion and early referral to a tertiary center with immediate initiation of treatment contributes to a better outcome in such patients.

Case Report

A 2-year-old female presented to the emergency room after having swallowed some magnetic beads. Abdominal X ray and ultrasonogram revealed four beads in the stomach and one in the transverse colon, all tightly adhered together. According to her parents, the girl swallowed one bead the day before, but when the

other balls were swallowed was not clear. The girl had no history of having other diseases and did not present with any symptoms, such as the pain, fever or malaise. On examination, she did not have perforation or other complications (**Figure 1 (A1-A5)**). We performed upper gastrointestinal endoscopy immediately under the general anesthesia with the endotracheal intubation. There were four beads in the stomach with one bead eroding into the submucosa. We used foreign body forceps to retrieve three beads easily but the one that had eroded into the submucosa only with some difficulty (**Figure 1 (A1-A4)**). Subsequently, we performed colonoscopy. but the procedure was not successfully performed because of poor bowel preparation. We decided to observe the patient closely. After seven days of observation, the patient was well and asymptomatic. No metallic bead was passed in the stool during this interval, there was still a bead in the colon, according to the abdomen X-ray and computed tomography (**Figure 1 (B5-B6)**). We performed colonoscopy again and found the bead in

***Corresponding author:** Xiumin Qin

✉ qinxiumin0418@126.com

Department of Gastroenterology, Beijing Children's Hospital, Capital Medical University, National Center for Children's Health, Beijing, P.R. China.

Tel: 0086 13693539776

Citation: Qin X, Guo H, Meng Y, Yu F, Zhang D, et al. (2020) Removal of Magnetic Bead Stuck to the Mucosa in the Transverse Colon of a 2 Year-Old Girl with Endoscopic Submucosal Resection (ESD). *Pediatr Emerg Care Med Open Access* Vol.5 No.1:1

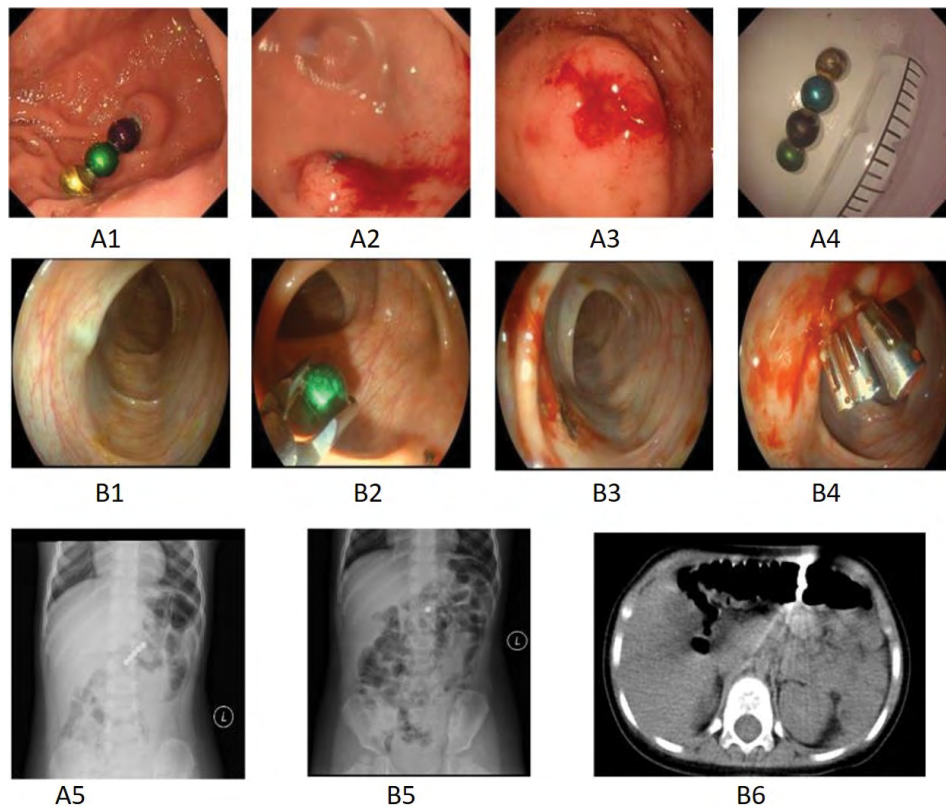


Figure 1 Upper gastrointestinal endoscopy in colon.

the transverse colon without endoscopically noticeable lesions in the surrounding mucosa (**Figure 1 (B1)**). Since the bead was adherent to the underlying mucosa and could not be retrieved with the foreign-body removal forceps, endoscopic submucosal dissection (ESD) was performed and the bead was then retrieved with foreign body removal forceps. The resultant incisional wound was closed with hemostatic clips (**Figure 1 (B2-B4)**). Postoperatively, the child was observed closely for 4 days and there was no complications arising therefrom. We rechecked the ultrasonogram and there was no any perforation and peritonitis. The child was initially put on a fluid diet which was gradually adjusted to normal before discharge a week after ESD.

Discussion

Although ingestion of foreign bodies may occur at any age, it is more frequent in infants who tend to put things they could get hold of into their mouths; and in older children who may ingest objects accidentally [2]. Most foreign bodies ingested leave the body spontaneously after passing the gastrointestinal tract without any mortality or morbidity [3,4]. In the literature, it has been reported that 40% of cases of foreign body ingestion occurs without the recognition of the parents. Therefore, it is thought that the number of cases of ingestion of foreign bodies in childhood is higher than the number reported [2]. In this current patient, when the beads were ingested was unknown. We speculated that the ball in the colon was the first to be swallowed which was attracted to the four that were subsequently swallowed in

the stomach. Only minimal damage to the colonic mucosa, no significant mucosal damage was seen endoscopically. It was reported that up to 80-90% of ingested foreign bodies were retrieved endoscopically in China and Korea [5]. Most of the ingested foreign bodies could be found endoscopically, but there were still other foreign bodies that are difficultly be retrieved, as the magnetic bead in this case. With the advancement of endoscopic techniques, better methods of retrieval have been developed. We used the IT-Knife to dissected the submucosa in order to avoid damage to the nearby tissue. At last the bead was retrieved and the procedure lasted for about 55 minutes.

Conclusion

Foreign body ingestion is a significant public health hazard that is common among children below the age of five years. The endoscope was used for diagnosis and subsequent removal of these foreign bodies, and if employed optimally, it prevents complications and surgical removal may be avoided. The most important measure to prevent this important pediatric healthcare problem is proper parent education: children should be prevented from contacting small objects that could be swallowed, and in this particular case, small objects with magnetic properties should not be bought as toys and young children should not be allowed to play with them.

Acknowledgment

Thanks to Professor Yingkit Leung for polishing the language.

References

- 1 Gurevich Y, Sahn B, Weinstein T (2018) Foreign body ingestion in pediatric patients. *Curr Opin Pediatr* 30: 677-682.
- 2 Wright CC, Closson FT (2013) Updates in pediatric gastrointestinal foreign bodies. *Pediatr Clin North Am* 60: 1221-1239.
- 3 Sugawa C, Ono H, Taleb M, Lucas CE (2014) Endoscopic management of foreign bodies in the upper gastrointestinal tract: A review. *World J Gastrointest Endosc* 6: 475-481.
- 4 Ciftci AO, Bingöl-Koloğlu M, Senocak ME (2003) Bronchoscopy for evaluation of foreign body aspiration in children. *J Pediatr Surg* 38: 1170-1176.
- 5 Arana A, Hauser B, Hachimi-Idrissi S, Vandenplas Y (2001) Management of ingested foreign bodies in childhood and review of the literature. *Eur J Pediatr* 160: 468-472.