

# Laparoscopic approach for removing a coin trapped in Meckel's diverticulum

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## ABSTRACT

Foreign body ingestion is a common problem in children. Most of these foreign bodies spontaneously pass through the gastrointestinal tract. When there is a persistent foreign body in the abdomen, it is impossible to make a diagnosis without exploration. We herein present the case of a child who was admitted to our hospital with a coin trapped in Meckel's diverticulum and our laparoscopic approach in this case. The diagnosis of Meckel's diverticulum should be considered when there is a prolonged lodgment of a foreign body in the right lower quadrant, and the laparoscopic approach is the preferred choice in these cases.

**Keywords:** Child; coin; Meckel's diverticulum.

## INTRODUCTION

Foreign body ingestion is a common problem among children. Most foreign bodies that have passed the esophagus will pass uneventfully through the intestinal tract. Foreign bodies that remain blocked in the narrower segments of the digestive tract (10–20%) require nonsurgical intervention, and ≤1% of them require surgical intervention.<sup>[1,2]</sup> The nature of the foreign body is important for management. Foreign bodies with smooth edges usually do not cause a serious situation, but urgent intervention is required if the foreign body is a sharp object.<sup>[1]</sup> The decision for intervention is difficult in cases with prolonged lodgment.

We herein report the case of an asymptomatic child who presented with a coin trapped in Meckel's diverticulum. To the best of our knowledge, there are no prior reports on coins

trapped in Meckel's diverticulum and the use of the laparoscopic approach for it in the pediatric literature.

## CASE REPORT

A 10-year-old boy was admitted to our hospital for the removal of an intestinal foreign body with 3 months history. There was no history of coin ingestion, but the foreign body appeared to be a coin located in the right lower quadrant in the abdominal X-ray (Fig. 1). The coin was incidentally discovered while evaluating his hip dysplasia. On performing a physical examination, the patient showed no abdominal tenderness. Laboratory data were normal. Colonoscopy was performed by pediatric gastroenterologists to evaluate the foreign body, but the coin was not identified in the colon. The possibility that the coin was located in the distal bowel or lodged in Meckel's diverticulum was considered. Fluoroscopy-guided laparoscopy was performed to locate the coin. The search for the coin was started at the ileocecal valve and continued proximally through the small bowel. Meckel's diverticulum was identified 50 cm proximal to the ileocecal valve. The coin was detected in Meckel's diverticulum by fluoroscopy-guided laparoscopy, and Meckel's diverticulum was moved into the upper abdomen to examine. Segmental resection of the ileum including Meckel's diverticulum and end-to-end anastomosis were performed. An examination of the resected specimen revealed the coin trapped in Meckel's diverticulum (Fig. 2). After the operation, the patient had an uneventful recovery and started enteral feeding within 3 days.

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## DISCUSSION

Foreign body ingestion is a common problem in the pediatric population; its early diagnosis and intervention is essential because some ingested foreign bodies may cause serious complications such as mucosal erosion, airway obstruction, and intestinal perforation.<sup>[1]</sup> Enteroscopy or surgery should be



**Figure 1.** Abdominal radiograph revealing a metallic foreign body in the pelvis.



**Figure 2.** Coin located within Meckel's diverticulum.

considered for the removal of dangerous foreign bodies such as sharp, pointed or long objects, batteries, or magnets that have passed the angle of Treitz. For foreign bodies that have a lower risk of causing perforation such as coins, daily stool observation and X-ray images are required to estimate the progression of foreign bodies through the gastrointestinal tract. However, patient should be aware of the clinical signs of perforation during this period.<sup>[2]</sup> Coins are the most frequently ingested foreign bodies in Western countries in the pediatric population. Although coins impact through the esophagus in 30–40% of cases, children may remain asymptomatic.<sup>[2]</sup> The determination of the exact location of the coin, decision for intervention, and management may be difficult in cases with prolonged lodgment. Locating coins is not easy via X-ray images in such cases. Coins should be differentiated from batteries using the border aspect (smooth or irregular for coins and two concentric circles for batteries).<sup>[2]</sup>

Most foreign bodies that reach the gastrointestinal tract spontaneously pass through it.<sup>[1]</sup> However, foreign bodies can get stuck in congenital intraluminal abnormalities such as windsock anomalies, anatomical structures including Meckel's diverticulum, appendix vermiformis, or previous anastomosis sites.<sup>[3]</sup> Meckel's diverticulum is the most common congenital anomaly in the gastrointestinal tract and is found in 2% of the general population. Meckel's diverticulum can be symptomatic with infection, bleeding, and intestinal obstruction. There are several cases in the pediatric and adult literature reporting on perforation or obstruction of Meckel's diverticulum by button batteries, phytobezoars, fish bones, chicken bones, wood splinters, needle, pins, or liberty bell.<sup>[4–7]</sup>

Entrapment of a coin in Meckel's diverticulum in a child is extremely rare, and to the best of our knowledge, there are no prior reports on this in the US National Library of Medicine National Institutes of Health (PubMed) database. Only one report was found in the EBSCO Database, but the laparoscopic approach was not performed. Purkayastha et al. reported the case of a 19-month-old patient with intermittent bouts of abdominal pain and vomiting. The patient's X-ray revealed a coin in the right lower quadrant; laparotomy was performed and the coin was found in Meckel's diverticulum.<sup>[8]</sup> Halverson et al. reported perforation of Meckel's diverticulum by a coin was ingested by an adult patient.<sup>[9]</sup>

Surgical intervention is indicated in cases of radiographic evidence of the failure of the coin to progress through the gastrointestinal tract. The diagnosis of Meckel's diverticulum should be considered when there is a persistent foreign body in the right lower quadrant. It is impossible to make the diagnosis without exploration of the abdomen. The laparoscopic approach is the preferred noninvasive treatment choice for identifying and managing these cases.

Conflict of interest: None declared.

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## OLGU SUNUMU - ÖZET

## Meckel divertikülü içine hapsolmuş bozuk para olgusuna laparoskopik yaklaşım

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Yabancı cisim yutulması çocukluk çağında sık görülen bir acil durumdur. Bu cisimlerin çođu gastrointestinal sistemden herhangi bir sorun olmadan geçer. Karında devamlı aynı yerde sebat eden bir yabancı cisim olduğunda ise eksplorasyon yapmadan tanıyı koymak imkansızdır. Bu yazıda, kliniđimize başvuran Meckel divertikülünde para hapsolmuş bir olgu ve bu olguya laparoskopik yaklaşımımız sunulmuştur. Sağ alt kadranda uzun süre sebat eden bir yabancı cisim varlığında Meckel divertikülü tanısı ve laparoskopik yaklaşım seçeneđi göz önünde bulundurulmalıdır.

Anahtar sözcükler: Çocuk; Meckel divertikülü; bozuk para.

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