

Metallic Foreign Body Lodged Within the Appendix of 11-Months-Old Girl Case Report and Review of the Literature

Apendiks İçine Metal Cisim Kaçmış 11 Aylık Kız Çocuk Vaka Sunumu ve Literatür Araştırması

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ABSTRACT

Although undigested materials are often swallowed by children, most of them pass through the gastrointestinal tract spontaneously. Rarely, ingested foreign bodies can be trapped inside the appendix and then usually are not able to return to intestinal passage. In these cases, prophylactic appendectomy is recommended to prevent appendicitis and related complications. Here we presented 11-month-old female patient whose examination of abdominal x-ray was revealed metallic foreign body stopped at the right lower quadrant. At laparotomy, the foreign body was found to be lodged inside the appendix and removed by appendectomy.

Keywords: Appendix; foreign body; children; appendectomy.

ÖZET

Çocuklar tarafından sindirilmeyen cisimler sıkça yutulsa da, bunların çoğu gastrointestinal sistemden kendiliğinden geçer. Nadiren, yutulan yabancı cisimler apendiks içinde sıkışabilir ve genellikle tekrar sindirim kanalına geri dönemez. Bu vakalarda, apendisit ve ilgili komplikasyonları önlemek için profilaktik apendektomi önerilir. Burada, direk karın grafisinde sağ alt kadranda metal bir cismin durduğu tespit edilen 11 aylık kız hasta sunulmaktadır. Laparatomide, yabancı cismin apendiks içine sıkıştığı tespit edilerek apendektomi yapıldı.

Anahtar Kelimeler: Apendiks; yabancı cisim; çocuk; apendektomi.

INTRODUCTION

Children have natural tendency to place objects into their mouths, and about 80 % of the patients with gastrointestinal foreign body consist of children. The majority of foreign body ingestions occur between at the ages of six months and three years (1). They can swallow so many things like toys, toy parts, magnets, batteries, safety pins, screws, marbles, bones, and food boluses (2). Although, swallowed nondigestible materials causes frightening experience to parents, the vast majority of them easily pass through the intestinal tract with stool and seldom surgical intervention is inevitable to prevent possible complications (3). Only 10% to 20% of these cases necessitate endoscopic procedure, and less than 1% is required surgical operation (1, 2). Ingested foreign bodies

rarely incarcerated in the appendix vermiformis because few of them are able to enter into the appendix lumen due to commonly larger size of objects than orifice diameter in children. Once they enter into the appendix, obstruction of the lumen more likely occur, leading to inflammation, distention and perforation. Furthermore, pointed or sharp materials have also tendency to perforation (4). Here we presented a small baby with metallic object stopped in the appendix and reviewed clinical management of foreign bodies lodged in the appendix.

CASE PRESENTATION

In an 11-months-old girl, abdominal x-ray revealed a metallic foreign body located at lower right quadrant, which was incidentally detected during examination for respiratory tract infection (Figure I). She was referred to pediatric surgery outpatient clinics and

followed up for 4 weeks. Subsequent abdominal x-rays examined once a week showed no change in the position of the foreign body. Abdominal computed tomography using low dose protocol for pediatric patients was obtained to confirm the exact localization of object but no further data could be achieved. Abdominal computed tomography could not distinguish exact localization of the metallic foreign body by the ways of within or out of the bowel because of the metallic hardening artifact commonly seen around metallic objects. This artifact has a negative effect on image quality and obscured just around the metallic objects (Figure II). Although the patient remained asymptomatic, she was scheduled for an elective explorative laparotomy to define the localization of the metallic object and to prevent foreign body induced complications such as inflammation and perforation. Prior to operation, bowel preparation was done and abdominal radiography showed unchanged position of the object just before the surgery.

At the fluoroscopy guided explorative laparotomy, we discovered the object lodged into the appendix. Appendix was macroscopically normal. Regular appendectomy was performed. When the appendix was opened off the surgical field, quadrangular metallic flat body 1x4x7 mm in size was found in the tip of the appendix. Pathologic examination showed mild inflammation at tip of the appendix. Postoperative course of the patient was normal and she was discharged on post-operative 4th day.

DISCUSSION

Foreign bodies have been implicated in the causes of appendicitis for 200 years because obstruction of appendix lumen was considered as a primary pathophysiology of appendicitis (5). An overall incidence of foreign bodies within the appendix has been estimated as 0,005% in 1970s (6). Collins et al reported that 3% of fecaliths from appendectomies included many kinds of exogenous materials (7). Till now, numerous objects, like pins, vegetable seeds, cherry stones, jewelry, dental prosthetics, bullets, bones, hair, parasitic worms, condom pieces, dice, a match, partial thermometer, and toothbrush bristles, have been obtained from appendectomy specimens (8- 10).

The effect of foreign bodies to the appendix vermiform depends on the size, content and the shape of objects. Although blunt objects are less likely to cause perforated appendicitis, they are still a major

component of foreign body-induced appendicitis. Since spontaneous passages of these objects may take many days or years, they may be a threat for acute appendicitis (11). The true incidence of appendicitis caused by chronically incarcerated blunt objects is not known; however, up to 66% of these patients have been intermittently symptomatic, usually with right iliac fossa pain (12). Occlusion of the appendix lumen by organic or inorganic materials may result in inflammation, distention and eventually perforation (5). Sharp and pointed objects in the appendix seem to be more prone to cause such complication as perforation and periappendicular inflammation (6, 12). Magnetic materials impacted within the appendix have been reported to cause perforation and fistula formation (13). Long term duration of small sized metallic bodies without leading to occlusion may also cause foreign body induced inflammation, erosion and necrosis on the adjacent appendicular wall. In some cases, the delayed presentation may be as a result of gradual accumulation of a hard fecalith coating until obstruction occurs (5). So if the objects remains lodged within the appendix, prophylactic appendectomy is recommended. When should we schedule the operation? Pointed objects may be more harmful so appendectomy should not be delayed. However smooth bodies are relatively safety in the appendix, so the operation can be postponed till 4 weeks later and during this time polyethylene glycol enema or bowel washing may provide passage of the foreign material. But we supposed that if we confirm that the object is lodged in the tip of the appendix, escape of this object from this localization is practically impossible, so appendectomy can be performed soon after confirmation of this situation. In the presented case, serial abdominal x-ray showed the stasis of object in the right lower quadrant. After waiting for more than 4 weeks, we decided to perform laparotomy and fluoroscopy assisted exploration. Metallic object was palpated in the appendix and then removed by appendectomy.

The first foreign body induced appendicitis and appendectomy was reported in the third decade of 18th century and since then many cases in different ages have been reported (5, 14). Explorative laparotomy was common before development of minimally invasive surgical techniques. Recently, because of excellent cosmetic results and improved postoperative recovery, laparoscopy is gold standard for removal of foreign bodies lodged in the appendix (4,

15). Because appendix localization may vary greatly, the position of the opacities in the appendix on the abdominal x-ray may also be different from the right iliac fossa. If imaging studies fails to clear this confusion, explorative laparotomy may be necessary (16). In adult patients, endoscopic removal of the object that was impacted in the appendicular orifice was reported (17, 18). In children, we did not find any report on endoscopic harvesting foreign body from the appendix, because feasibility of such endoscopic procedure in children depends on improvement of instrumentations and experience of the endoscopist.

In conclusion, children with gastrointestinal foreign body must be followed-up closely with clinical examination and serial abdominal radiographs. If the anatomical localization of the body remains unchanged and is seen in the right lower quadrant, appendix localization should be confirmed by imaging studies. Foreign materials in the appendix, even if they are asymptomatic, may be removed by appendectomy to prevent such complications as inflammation, obstruction or perforation.

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