Giant Meckel’s diverticulum containing enteroliths: typical CT imaging findings

Abstract We report a case of a giant Meckel’s diverticulum containing numerous enteroliths. A correct diagnosis was made preoperatively by means of CT, by demonstrating a connection between the diverticulum, containing multiple peripherally calcified stones, and the small intestine.

Keywords Intestine · Diverticulum · Meckel’s diverticulum · Enterolith · CT

Introduction

Because of the rarity of the disorder and its non-specific imaging findings, plain radiography diagnosis of a Meckel’s diverticulum with or without stones has always been a challenge [1]. With CT, as demonstrated in our case, a correct preoperative diagnosis can be attempted when typical features are present. To our knowledge, only two previous reports illustrating the CT findings in Meckel’s diverticulum with numerous enteroliths have been published [2, 3].

In this case we present the characteristic features of a giant Meckel’s diverticulum containing numerous enteroliths as depicted by CT examination: the presence of a thin-walled, low-attenuating collection in the right lower quadrant, containing multiple peripherally calcified stones, and communicating with the distal ileum.

Case report

A 68-year-old female patient with chronic complaints of intermittent lower abdominal pain was admitted because of a recent exacerbation. Prior medical history was unremarkable. On admission, physical examination revealed slight guarding and rebound tenderness in the lower abdomen.
Plain abdominal radiograph in upright position suggested the presence of a well-delineated mass in the right lower quadrant of the abdomen. Within the mass some small peripherally calcified structures with radiolucent center were present (Fig. 1). Ultrasonography showed the presence of a well-delineated fluid collection in the right lower quadrant containing several strong echoes associated with acoustic shadowing, compatible with multiple stones. The collection was well demarcated from the right ovary. Subsequent CT confirmed the presence of a hypo-attenuating collection containing numerous calcified stones (Fig. 2a). The collection, well defined by the presence of a thin wall, showed an air-containing connection with a distal ileal loop (Fig. 2b). Because of these findings, a presumptive diagnosis of a Meckel’s diverticulum containing enteroliths was made.

Elective surgery was performed and revealed a large diverticulum originating approximately 100 cm proximal to the ileo-cecal valve. Pathologically, it represented a giant Meckel’s diverticulum measuring 6 × 5 cm with a broad neck of 3 cm. Twenty calcified enteroliths with various shapes were contained within the diverticulum (Fig. 3). No signs of diverticulitis, perforation, hemorrhage, or volvulus were present. Unfortunately, the patient had no relief of the symptoms after the resection of the Meckel’s diverticulum.

**Discussion**

Meckel’s diverticulum is the most common congenital anomaly of the gastrointestinal tract, with a reported incidence of approximately 2–3% at autopsy [1]. A giant Meckel’s diverticulum, however, defined as a diverticulum measuring more than 5–6 cm in diameter, is rare, with an estimated frequency of less than 0.5% of all vitelline duct remnants [1]. Meckel’s diverticulum represents a persistence of the proximal portion of the embryologic omphalo-mesenteric (vitelline) duct and consists of a blind diverticular pouch arising from the ileum usually 30–100 cm proximal to the ileo-cecal valve [1]. The diverticulum connects with the anti-mesenteric side of the intestine as opposed to congenital enteric duplication cysts, which are mesenteric [1]. It is usually discovered during childhood, with boys being affected more commonly than girls [4]. Most cases are asymptomatic and complications do only occur in approximately 4% of cases [3]. The complications are, in decreasing order of frequency: hemorrhage (usually when ectopic gastric mucosa is present); intussusception; intestinal obstruction; perforation; strangulation; diverticulitis; volvulus; hernia; neoplasm (usually carcinoid); and enterolith formation [1, 3].

In general, enteric opaque lithiasis is very unusual and believed to be formed in situations of stasis of intestinal contents and/or presence of an enteric alkaline environment [5]. These mechanisms explain why stones in Meckel’s diverticulum are rare. It is known that most