Abdom Imaging 28:12–14 (2003)
DOI: 10.1007/s00261-001-0138-0

Abdominal Imaging

Completely isolated enteric duplication cyst: case report

S. K. Kim,[1] **H. K. Lim,**[1] **S. J. Lee,**[1] **C. K. Park**[2]

[1]Department of Radiology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul 135-710, Korea
[2]Department of Diagnostic Pathology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul 135-710, Korea

Abstract
We present a case of a completely isolated enteric duplication cyst in a 28-year-old man. Computed tomography showed a large complex cystic mass with curvilinear and nodular calcifications near the anterior aspect of the left kidney. It had no connection to the pancreas, stomach, small bowel, or large bowel. We found no report describing computed tomographic findings of completely isolated enteric duplication cyst in the English-language literature.

Key words: Mesentery, computed tomography—Mesentery, cyst—Intestine—Duplication cyst.

Enteric duplication cysts are hollow, epithelium-lined, spherical or tubular structures that are tightly attached to some portion of the gastrointestinal tract. They tend to be located on the mesenteric aspect of the alimentary canal and share a common blood supply and muscular coat with the adjacent bowel wall but have a separate mucosal lining [1, 2]. To the best of our knowledge, only one case, in a 7-day-old infant, of a completely isolated enteric duplication cyst hanging on a vascular pedicle with no connection to adjacent alimentary segments has been reported [3]. In this report, we describe computed tomographic (CT) findings of a completely isolated enteric duplication cyst in a 28-year-old man.

Case report

A 28-year-old man presented with an incidentally found abdominal mass. The medical history was unremarkable, and laboratory data on admission were within normal limits. Contrast-enhanced CT of the abdomen showed a large complex cystic mass with curvilinear calcifications near the anterior aspect of the left kidney. The small bowel loops were medially displaced by the mass (Fig. 1A). The superior part of the mass had a lobulated solid portion with irregular dense calcifications (Fig. 1B). Another small round cyst with a thick enhancing wall was noted in the inferior part of the mass (Fig. 1C). The preoperative diagnosis was a solid, papillary epithelial neoplasm arising from the pancreas tail. Laparotomy showed a large lobulated cystic mass hanging from an isolated vascular pedicle that emerged from the mesentery in the vicinity of the Treitz ligament and entered the anteromedial aspect of the wall of the duplication cyst. The vascular pedicle was approximately 5 cm long and composed of fibrous tissue containing blood vessels and nerves. The mass had no connection to the pancreas, stomach, small bowel, or large bowel. The gross specimen showed a large lobulated cystic mass with smooth and red–gray external surface. On cut section, the mass expelled turbid fluid. The inner surface was relatively smooth and the wall of the cyst was thin (0.1 cm). Histopathologic findings showed that the cystic wall had a well-developed smooth muscle layer and a gastric mucous membrane lining (Fig. 1D). The final diagnosis of a completely isolated enteric duplication cyst was made.

Discussion

Enteric duplication cysts are uncommon congenital abnormalities that can occur anywhere along the alimentary tract from the tongue to the anus. By definition, they are located in or adjacent to the wall of part of the gastrointestinal tract, have smooth muscle in their walls, and are lined by mucosa similar to that of some other portion of the alimentary tract. Gastric mucosa, in various

Correspondence to: H. K. Lim

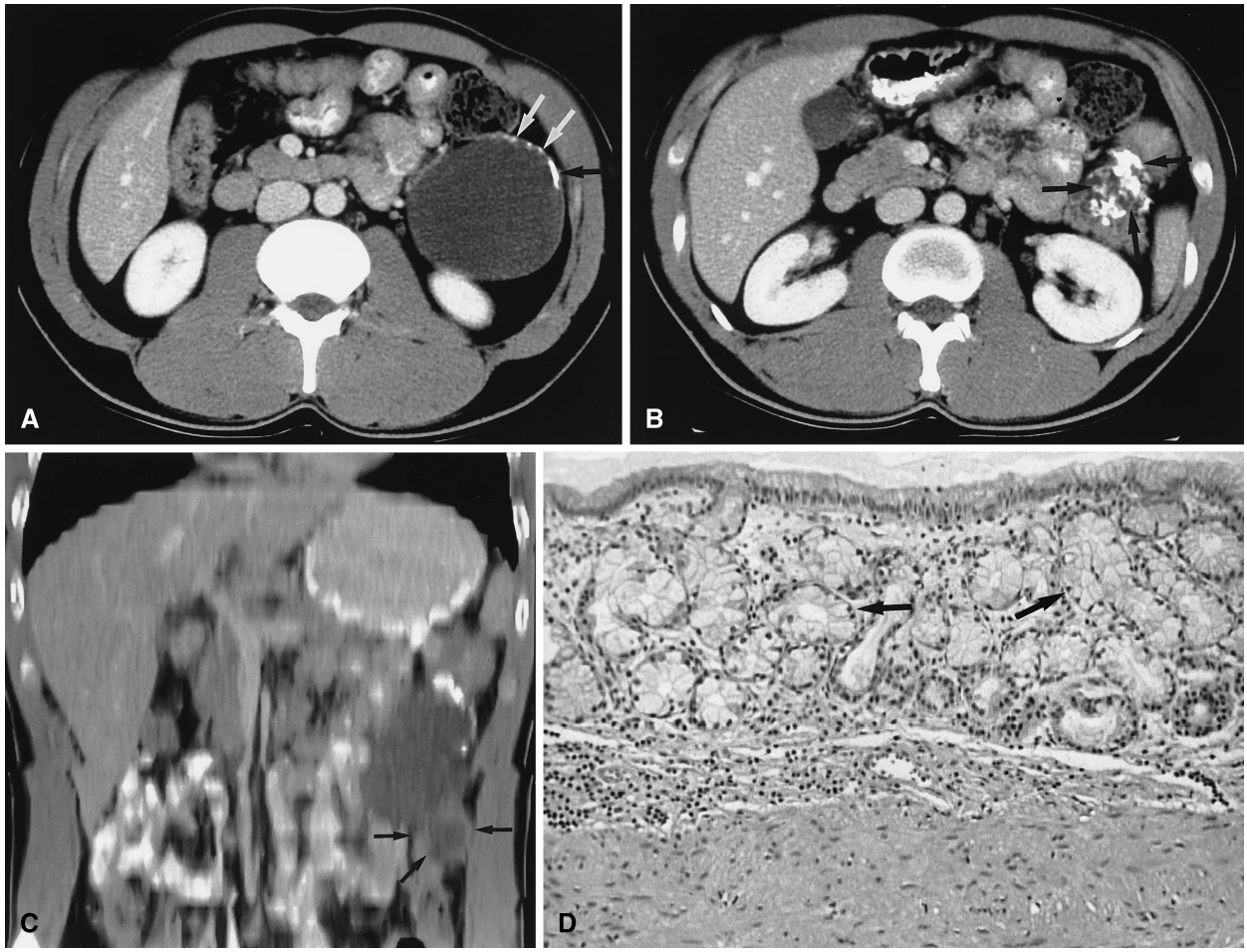

Fig. 1. A 28-year-old man with a completely isolated enteric duplication cyst. **A** Contrast-enhanced CT scan shows a large cystic mass. Note curvilinear calcification (*arrows*) in the anterior wall of the cyst. **B** Contrast-enhanced CT at the level of the superior part of the mass shows lobulated solid components with irregular dense calcifications (*arrows*). **C** The complex cystic mass is better appreciated on this two-dimensional reformatted image. Note another smaller cystic component with a thick enhancing wall (*arrows*) attached to the main mass. **D** Photomicrograph of the resected specimen shows gastric mucous glands of the cystic wall (*arrows*). Hematoxylin and eosin stain; original magnification, 100×.

stages of maturation, can line the wall of duplications, as in our case [1, 2].

Several theories have been proposed to explain the pathogenesis of duplication cyst. The theory of aberrant lumenal recanalization adequately explains duplications in those portions of the gastrointestinal tract that go through the solid stage (e.g., esophagus, small bowel, and colon) [4]. Steiner et al. [3] hypothesized that pathologic events are preceded by torsion or some vascular accident at the proximal end of the diverticulum. Such an event might have detached it from the intestinal wall, and a completely isolated duplication cyst was the result. The intrauterine vascular accident theory suggests that duplications, like small bowel atresia, arise as the result of focal areas of vascular insufficiency secondary to fetal stress and anoxia [5].

Intestinal duplications are usually symptomatic and present within the first year of life with intestinal obstruction or a palpable mass. Adults may experience similar symptoms, with acute presentations attributed to recent hemorrhage from ulceration or malignant transformation within the duplication [1, 2].

Ultrasound and CT may confirm the cystic nature of duplication cyst. Ultrasound shows a hypoechoic mass with strong posterior wall echoes and good through transmission due to clear fluid content or an echogenic mass due to hemorrhage and inspissated material within the duplication. If the typical inner echogenic mucosal and outer hypoechoic muscle layers are seen on ultrasound, the diagnosis of duplication can be established [6, 7]. Duplication cysts can be recognized on CT as smoothly rounded, fluid-filled cysts or tubular structures with thin,

slightly enhancing walls in or adjacent to the wall of part of the alimentary tract [8, 9]. Cystic wall calcifications are rarely reported in gastric and duodenal duplications [10, 11]. Curvilinear and irregular dense calcifications were noted in our case. The differential diagnosis includes all cystic intra-abdominal masses such as mesenteric and omental cysts, pancreatic pseudocysts, and ovarian cysts [1, 2].

References

1. Levine RS. Benign tumor of the stomach and duodenum. In: Gore RM, Levine RS, Laufeur I, eds. *Textbook of gastrointestinal radiology*. Philadelphia: WB Saunders, 2000:595–597
2. Macpherson RI. Gastrointestinal duplications: clinical, pathologic, etiologic, and radiologic considerations. *Radiographics* 1993;13: 1063–1080
3. Steiner Z, Mogilner J. A rare case of completely isolated duplication cyst of the alimentary tract. *J Pediatr Surg* 1999;34:1284–1286
4. Bremer JL. Diverticula and duplications of the intestinal tract. *Arch Pathol* 1944;38:132–140
5. Favara BE, Franciosi RA, Akers DR. Enteric duplications: thirty-seven cases—a vascular theory of pathogenesis. *Am J Dis Child* 1971;122:501–506
6. Kangerloo H, Sample F, Hasen G, et al. Ultrasonic evaluation of abdominal gastrointestinal tract duplication in children. *Radiology* 1979;131:191–194
7. Teele RL, Henshke CI, Tapper D. The radiographic and ultrasonographic evaluation of enteric duplication cysts. *Pediatr Radiol* 1980;10:9–12
8. Bissler, JJ, Klein, RL. Alimentary tract duplications in children. *Clin Pediatr* 1988;27:152–157
9. Ros PR, Olmsted WW, Moser RP Jr, et al. Mesenteric and omental cysts: histologic classification with imaging correlation. *Radiology* 1987;164:327–332
10. Omojola MF, Hood IC, Stevenson GW. Case report. Calcified gastric duplication. *Gastrointest Radiol* 1980;5;235–238
11. Alford BA, Armstrong P, Franken EA Jr, et al. Calcification associated with duodenal duplications in children. *Radiology* 1980;134: 647–648