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**Ileal** **bronchogenic cyst: A case report and review of literature**

Chen HY *et al.*Ileal bronchogenic cyst

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**Abstract**

We herein report a rare case of ileal bronchogenic cyst. It was found in a 39-year-old Chinese male. He had no symptoms and the physical examination was normal. Tumor markers were within normal range. Abdominopelvic enhanced computed tomography showed a mass in the lower abdominal cavity and the tumor had a complete capsule. Exploratory laparotomy was performed. A spheroid mass with complete capsule located at the antimesenteric border of the distal ileum 20 cm from the ileocecal valve, which measured 6.0 cm × 6.0 cm × 5.0 cm. Partial resection of the ileum with the tumor, was performed, followed by side-to-side anastomosis. The tumor was grayred filled with grayish yellow mucus and has no septum.The postoperative pathology revealed that the cystic wall was lined by pseudostratified ciliated columnar epithelium without cellular atypia. And the wall consisted of bronchial mucous glands and smooth muscle fibers,no abnormalities were found in adjacent ileum tissues. So the diagnosis was bronchogenic cyst of ileum.

**Key words:** Ileal neoplasms; Bronchogenic cyst; Epithelium; Laparoscopy; Abdominal cavity; Case report

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**Core tip:** Bronchogenic cyst is related to abnormal embryonic development. The most common site of bronchogenic cyst is mediastinum. Subdiaphragmatic bronchogenic cysts are extremely rare and the bronchogenic cyst of ileum has not been reported in literature. This case may help us to better understand where bronchogenic cysts may occur. And bronchogenic cysts should be considered in the differential diagnosis of ileal masses.

Chen HY, Fu LY, Wang ZJ. Ileal bronchogenic cyst: A case report and review of literature. *World J Clin Cases* 2018; In press

**INTRODUCTION**

Bronchogenic cyst is a rare disease, related to the abnormal embryonic development. It has been reported that bronchogenic cysts may occur in mediastinum[1], lung[2], heart[3], stomach[4] and retroperitoneum[5]. The diagnosis of bronchial cyst depends on pathological examination: the cystic wall is lined by pseudostratified ciliated columnar epithelium and consists of bronchial mucous glands and smooth muscle fibers. We report a rare case of ileal bronchogenic cyst and to the best of our knowledge, it has not been reported.

**CASE REPORT**

A 39-year-old Chinese male was admitted to the hospital for “finding an abdominal mass for 1 wk”. The patient was once accepted computed tomography (CT) examination because of the lumbago. And this was diagnosed as degenerative changes of lumbar spine. There was no history of nausea, vomiting, hematemesis, melena, diarrhea or change of habit of discharge. Physical examination showed no obvious abnormality. Blood routine examination and tumor markers were within normal range. Abdominopelvic enhanced CT showed: A mass of cystic density was detected in the lower abdominal cavity measured 5.2 cm × 4.1 cm with complete capsule. In arterial phase, CT value of the mass was 37 HU. The mass may come from the ileum (Figure 1A). Based on these results, the preoperative diagnosis was tumor of the ileum. During the diagnostic laparoscopy, we found a spheroid mass with complete capsule located at the antimesenteric border of the distal ileum 20 cm from the ileocecal valve, which measured 6.0 cm × 6.0 cm × 5.0 cm. Considering that the malignancy of the tumor cannot be ruled out, and there is a risk of rupture under the laparoscopic surgery. Then the patient was shifted to open surgery. Partial resection of the ileum with the tumor was performed. The resection margin was 3 cm away from the tumor edge. Then side-to-side anastomosis was performed. The patient recovered successfully after the surgery. The surgery went 135 min. And the volume of blood loss was 50 mL. The unilocular cyst was grayred filled with grayish yellow mucus. The capsule was smooth and about 0.4 cm in thickness. Microscopic examination of the tumor and partial ileum together with hematoxylin and eosin staining was conducted. The postoperative pathology revealed that the cystic wall was lined by pseudostratified ciliated columnar epithelium without cellular atypia. And the wall consisted of bronchial mucous glands and smooth muscle fibers,no abnormalities were found in adjacent ileum tissues (Figure 1B and 1C). Thus, the diagnosis was bronchogenic cyst of ileum based on its histological appearance. The patient discharged 8 d after the operation.

**DISCUSSION**

The pathogenesis of bronchogenic cysts remains unclear. A reasonable speculation is that the disease is related to the abnormal embryonic development[6].Bronchogenic cysts are derived from primitive foregut due to the lung bud development malformation during the third to seventh week of embryogenesis. The malformation occurs when the lung bud fail to attach to the trachea or esophagus and then migrate to thoracic or abdominal cavity. Commonly, the migration ends up in the posterior mediastinum. As the mucus in the ectopic lung bud failed to discharge, the lung bud gets increasingly larger, finally becomes bronchogenic cyst. Bronchogenic cysts located in mediastinum, lung and heart have been reported a lot, while subdiaphragmatic bronchogenic cysts such as gastric[4] or retroperitoneal bronchogenic cysts[5] are extremely rare. Among them, bronchogenic cysts in the abdominal cavity are mostly located in the left to the midline adjacent to the pancreas tail, spleen, and left adrenal gland[7]. Only two cases reported the bronchogenic cyst of the ileal mesentery[8,9]. However, ileal bronchogenic cysts have not been reported.

Most of the bronchogenic cysts are asymptomatic, and can only be found during the thoracic or abdominal surgery[9]. The patients with symptomatic bronchogenic cysts often complain of abdominal pain because of the secondary infection or perforation. Generally the bronchogenic cysts appear as well circumscribed cystic lesion accompanied with or without calcification and no significant contrast uptake on CT scan[6,10,11]. On magnetic resonance images, those cysts are found low signal on T1WI but high signal on T2WI[12]. As for the preoperative diagnosis, endoscopic ultrasound together with fine-needle aspiration may be the most effective way[13].

Differential diagnosis of abdominal bronchogenic cysts includes gastrointestinal stromal tumor[14], teratoma[15], Meckel diverticulum[16], Enteric duplication cyst[17], lymphangioma[18] and echinococcosis[19]. In this case, the pseudostratified ciliated columnar epithelium of the cystic wall wasn’t cellular atypia and there was no sign of abnormal in the neighboring ileum tissue. So there is no possibility of malignant change.

Asymptomatic bronchogenic cysts in small size are hard to diagnose. However, as the bronchogenic cysts enlarge, there is the risk of secondary infection, perforation or even malignant change[5,20]. They may conceal a tumor and the malignant progression can happens both in adults and children[20]. Thus, surgical resection is the most suitable choice recommended to treat the bronchogenic cysts when identified[21].

**Article Highlights**

***Case characteristics***

A 39-year-old man presented to the hospital with an asymptomatic abdominal mass which was found by a computed tomography (CT) scan.

***Clinical diagnosis***

The diagnosis of ileal bronchogenic cyst was made by radiological examination and pathological examinations.

***Differential diagnosis***

Differential diagnosis should include other abdominal space-occupying lesions, such as Meckel diverticulum, gastrointestinal stromal tumor, teratoma, lymphangioma, enteric duplication cyst and echinococcosis.

***Laboratory diagnosis***

The total cholesterol and triglyceride of the serum was slightly elevated. The blood routine and coagulation function was in normal range and the fecal occult blood was negative.

***Imaging diagnosis***

The abdominopelvic enhanced CT scan showed a cystic mass measured 5.2 cm × 4.1 cm was located in the lower abdominal cavity. It may originate from the ileum. The imaging diagnosis was ileal tumor.

***Pathological diagnosis***

The postoperative pathology revealed that the mass was ileal bronchogenic cyst.

***Treatment***

The patient received partial ileal resection and anastomosis. No drugs or chemoradiotherapy were taken after the surgery as the pathological examinations confirmed that the lesion was benign.

***Related reports***

Bronchogenic cysts are mostly found in mediastinum, lung and heart, occasionally stomach the retroperitoneal organs. Only two cases reported the bronchogenic cyst of the ileal mesentery. And ileal bronchogenic cyst has never been reported before.

***Term explanation***

Ileal bronchogenic cyst is congenital malformation which can occur at the antimesenteric border of the ileum.

***Experiences and lessons***

Surgical resection should be the most suitable choice to treat the bronchogenic cysts. And we should take the bronchogenic cyst into consideration when the radiological examination shows a cystic lesion.

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**Figure 1 Clinical and pathological results.** A: The abdominopelvic computed tomography scan reveals a cystic mass (red arrow); B: The microscopic findings showed the inner wall of the bronchogenic cystic (red arrow) and the ileal mucosa (yellow arrow) (Original magnification, HE × 20); C: Pseudostratified ciliated columnar epithelium covered with the inner wall of the cystic wall (HE × 200).