INTRODUCTION

Bronchogenic cysts (BCs) are rare foregut congenital malformations that occur due to abnormal budding of the primitive tracheobronchial tube. These lesions are commonly identified in the mediastinum, posterior to the carina. BCs in other locations, such as the peritoneal and retroperitoneal spaces, are exceedingly rare. Preoperative diagnosis of the cyst hystotype is rarely established via endoscopic ultrasound (EUS)-guided fine-needle aspiration, and resection is usually performed due to uncertainty about the origin of the lesion (the pancreas or stomach). Recently, microforceps (Moray™; US Endoscopy, Mentor, OH, USA) that can pass through a standard 19-G EUS needle to obtain histological specimens from the cyst wall have become available. Here, we present a case of an abdominal BC preoperatively diagnosed by EUS-guided through-the-needle biopsy (EUS-TTNB). More over, we highlight cross-sectional imaging and intraoperative findings demonstrating the anatomical relationships of BCs with adjacent structures, which may facilitate diagnosis.

CASE REPORT

A 57-year-old woman was referred to our unit due to epigastric pain and dyspepsia. Her medical history was un-
remarkable, and routine laboratory tests showed normal results, except an increased serum amylase level (119 U/L). On abdominal ultrasound, a peripancreatic-paracardial lesion was detected. On computed tomography (CT), a hypodense, 6 × 4-cm-sized, oval-shaped lesion of uncertain origin was found along the gastric lesser curvature near the esophagogastric junction, extending toward the diaphragmatic pillar, adjacent to the pancreatic body, and close to the left adrenal gland (Fig. 1A). Magnetic resonance imaging (MRI) demonstrated a hyperdense lesion on T2-weighted sequences, consistent with the radiological characteristics of a cystic lesion.

Upper gastrointestinal endoscopy showed normal results. On EUS, the cyst was found between the pancreas, left adrenal gland, posterior gastric wall, and diaphragmatic pillar, filled with a dense fluid with a “starry sky” aspect due to multiple floating hyperechoic spots with the comet-tail artifact (Fig. 1B). Due to the apparent high-density cystic fluid content, a 19-G needle was used to puncture the cyst; however, no fluid could be aspirated. Therefore, TTNB was performed (Fig. 1C), obtaining two macroscopically visible specimens from the cyst wall. No adverse events occurred post-procedure. On histological analysis, the specimens were composed of a fibrous-leiomuscular

![Fig. 1](A) Computed tomography revealing a well-defined, non-infiltrative lesion of uncertain origin with suspected contact with the diaphragmatic crus (white arrow). (B) Endoscopic ultrasound revealing cystic content with a pseudo solid aspect, with a hypoechic internal echo pattern with multiple hyperechoic spots and comet-tail artifacts. (C) Ultrasound view of the Moray™ (US Endoscopy, Mentor, OH, USA) microforceps during sampling of the cystic wall. (D) A through-the-needle biopsy specimen of the cystic wall composed of cellular stroma supporting a monolayer of the covering epithelium (hematoxilin and eosin [H&E], ×4). (E) The epithelium is composed of cylindrical, ciliated cells (black arrows) and interspersed mucinous cells. Elastic fibers beneath the epithelium and fusiform mesenchymal cells compose the stroma wall (H&E, ×40). (F) Immunohistochemical positivity for desmin in leiomuscular cells in the wall (desmin, ×40). (G) Macroscopic examination of the specimen showing a multilocular cystic lesion filled with a dense mucoid fluid. (H) Histological examination showing a cyst wall of the bronchogenic type, with “respiratory-type” epithelium overlying a muscularis propria layer with accessory mucinous glands (H&E, ×4).
of microforceps that can pass “through-the-needle” to enable a cyst wall biopsy, successfully obtaining specimens suitable for histological evaluation, allowing a more accurate diagnosis than that with cystic fluid cytology. A recent meta-analysis of patients who underwent TTNB for the diagnosis of pancreatic cysts showed that a diagnosis of the cyst histotype is achieved in approximately two-thirds of cases, thus, in most cases, the histological diagnosis is available for guiding the decision-making process. Moreover, compared with fine-needle aspiration cytology, TTNB is feasible even when the viscosity of the cyst content makes fluid aspiration impossible, as described in this study.

With regard to the indication for surgery, some concerns exist regarding recommending excision for asymptomatic BCs, especially if a preoperative diagnosis is obtained. However, some authors recommend surgical excision even in the absence of symptoms to address the risk of infection or malignant degeneration. Although a majority of abdominal BCs reported to date have been treated with open surgery, a minimally invasive approach seems feasible and safe, supporting the indication of surgical excision in low-risk patients.

In conclusion, the preoperative diagnosis of abdominal BCs remains difficult. The close contact with diaphragmatic pillars documented on cross-sectional imaging as well as the “starry sky” aspect on EUS could represent important diagnostic features of BCs. In this case, we found that EUS-TTNB can be used to obtain specimens for confirming the diagnosis preoperatively, thus supporting the decision-making process.

Conflicts of Interest The authors have no potential conflicts of interest.

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