case report

A retroperitoneal bronchogenic cyst successfully treated by laparoscopic surgery

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Bronchogenic cysts are rare benign congenital anomalies resulting from the maldevelopment of the primitive foregut. They are usually found above the diaphragm, predominantly in the mediastinum. They are extremely rare in the subdiaphragmatic region, especially in the retroperitoneal location. In a thorough search of MEDLINE, only 27 cases were reported in the English literature.[1-5] It occurs in both sexes in equal ratio and a wide age range. Retroperitoneal bronchogenic cyst can be successfully excised by either open or laparoscopic surgery. Laparoscopic excision is a less aggressive approach and can shorten the hospital stay.[4]

CASE

A 55-year-old man was incidentally found to have a left adrenal solid tumor during physical check up. Half a year later, abdominal CT showed a slight enlargement of the solid tumor (Figure 1). Therefore, he was admitted to our hospital for surgical intervention. On physical examination, the patient was a well-developed Taiwanese man with a pulse rate of 78 beats/minute and a blood pressure of 130/90 mm Hg. Complete blood counts, liver enzymes, renal enzymes, and serum electrolyte levels were within normal limits. No clinical symptoms or signs were noted in this patient, and the preoperative level of vanilmandelic acid (VMA) in the urine was 1.98 mg/day (normal range: 1.00-7.50 mg/day). His past medical history was not significant.

Laparoscopic adrenalectomy was performed. During operation, a 4.0-cm cystic mass was discovered adherent to a normal looking adrenal gland. The cyst with adherent adrenal gland was excised from the kidney. The cyst contained thick proteinaceous fluid. The postoperative course was uneventful and the patient was discharged five days later.

Gross examination of the specimen revealed a collapsed, previously bisected, slight grey-to-brown cyst measuring 4.0 x 3.0 cm, with a maximum wall thickness of 0.2 cm. A compressed adrenal gland with an adjacent small amount of soft tissue measuring 4.0 x 2.0 cm was attached to the cyst (Figure 2). The entire cyst and adrenal gland were submitted for microscopic examination.

Histologically, the cyst wall was lined by pseudostratified ciliated columnar epithelium resting on fibrous connective tissue with focal nodules of mature cartilage. No cytological atypia was noted in the lining epithelium or underlying stromal tissue. These findings were consistent with a bronchogenic cyst (Figure 3). The adjacent adrenal gland showed no specific pathological change.

DISCUSSION

Bronchogenic cysts are rare cystic congenital malformations with ciliate pseudostratified columnar epithelium similar to those of the bronchial wall. Most

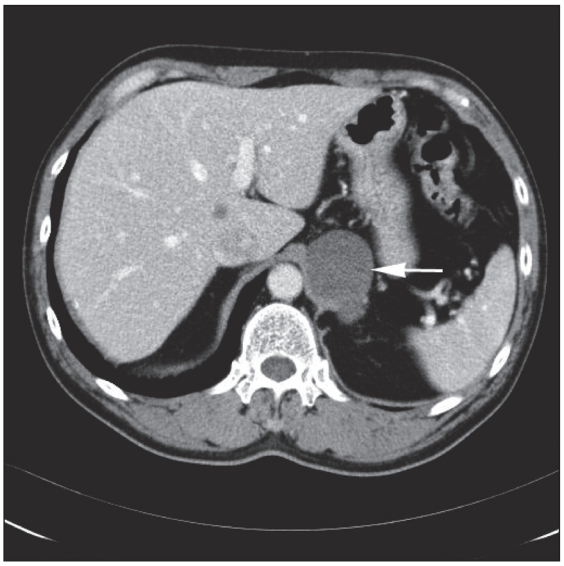

Figure 1. Half a year later, following abdominal contrast enhanced computerized topography reveals slight enlargement of the solid tumor (arrow).

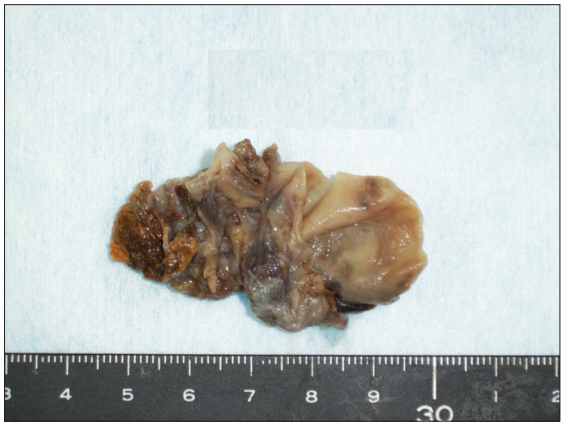

Figure 2. Gross photograph of the retroperitoneal bronchogenic cyst showing para-adrenal location and unilocular cystic lesion.

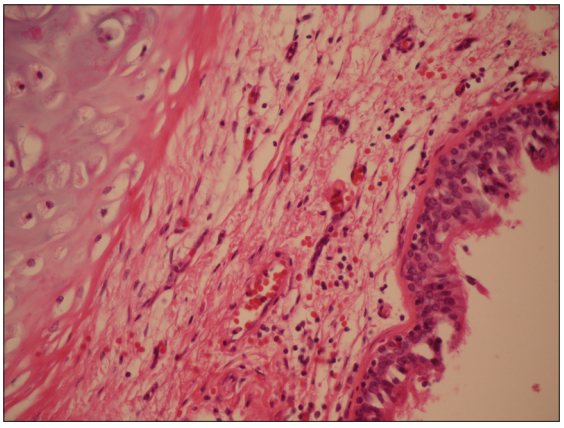

Figure 3. Miscroscopic section of the resection specimen showing a bronchogenic cyst lined with ciliate pseudostratified columnar epithelium. The wall is made up of fibrous connective tissue with a piece of mature cartilage nearby (H&E, original magnification x 400).

bronchogenic cysts originate in the mediastinum; a subdiaphragmatic location is exceptionally rare. Only 27 cases of retroperitoneal bronchial cysts have been reported in the English literature prior to this report. Retroperitoneal bronchogenic cysts occurred in both sexes in equal ratio and a wide age range.

The exact pathogenesis of a retroperitoneal location of a bronchogenic cysts is still unclear. In 1985, Sumiyoshi et al[6] proposed that the tracheobronchial tree may tear off during embryonic migration after fusion of the thoracic and abdominal cavity by the pleuroperitoneal membrane. The tracheobronchial tree, which is pinched off in the retroperitoneal cavity results in a retroperitoneal bronchial cyst.

Preoperative diagnosis of retroperitoneal bronchogenic cyst is very difficult; most of them are diagnosed incidentally. Our case was initially diagnosed as an adrenal solid tumor according to CT images and turned out to be a bronchogenic cyst. The possible explanation for the discordant findings in the image study was the thick proteinaceous fluid content in the cyst. Based on the clinical and radiological information, a differential diagnosis from adrenal cortical or medullary tumors, enteric cysts, pancreatic cyst, bronchopulmonary sequestration, and cystic teratoma, is often elusive. Histopathological examination usually results in an accurate diagnosis. An absence of three different germinal layers in our case precludes the diagnosis of cystic teratoma. Bronchopulmonary sequestration is usually composed of a bronchial component with lung parenchyma and pleural investment, which is absent in our case.

The treatment of choice for retroperitoneal bronchial cysts is surgical excision, which can relieve symptoms, establish a diagnosis and prevent complications, such as infection or malignant transformation.[5] Laparoscopic surgery has become a more common daily practice for surgeons, and therefore, may serve as a less destructive diagnostic and treatment method for retroperitoneal cystic masses.

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