

## Case Report

# Laparoscopic resection of a giant adrenal cyst: a case report

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**Received:** 30 April 2025

**Accepted:** 06 May 2025

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### ABSTRACT

Giant adrenal cysts, often discovered incidentally, are rare lesions. This case report details a patient who had many symptoms, including nonspecific abdominal distension. Imaging tests showed a large cystic growth that was closely connected to the left adrenal gland. No abnormalities were found in routine laboratory and endocrine function tests. Laparoscopic surgery was used, and the cystic mass was entirely removed. Upon pathological inspection, an endothelial structure with vascular components was found in the cyst wall. After extensive evaluation, the lesion was determined to be an angiomatous adrenal endothelial cyst, a very uncommon type of adrenal cyst. This case report aimed to increase awareness of this rare condition.

**Keywords:** Adrenal cyst, Endothelial cyst, Diagnosis of adrenal cysts, Laparoscopy

## INTRODUCTION

The incidence rate of adrenal cysts has been reported to be between 0.06 and 0.18%, which is relatively uncommon.<sup>1</sup> In patients who get abdominal or thoracic imaging studies for various causes, the prevalence rises to about 5%. An estimated 15% of cases may be caused by hormonal hyperactivity of the adrenal cortex and medulla, and 7% may be associated with primary or metastatic malignancies. The occurrence of parasitic cysts is thought to be less than 0.5%, making them very rare.<sup>2</sup> Adrenal cysts account for 5.4% to 8.2% of all adrenal pathologies. Since these cysts are asymptomatic, individuals may live with them for years without even realizing it, contributing to their rarity.<sup>3,4</sup> The management of adrenal cysts depends on their size, symptoms, functionality or possible malignancy.<sup>1,5</sup> A safe and minimally invasive treatment for adrenal cysts is laparoscopic surgery.<sup>6</sup>

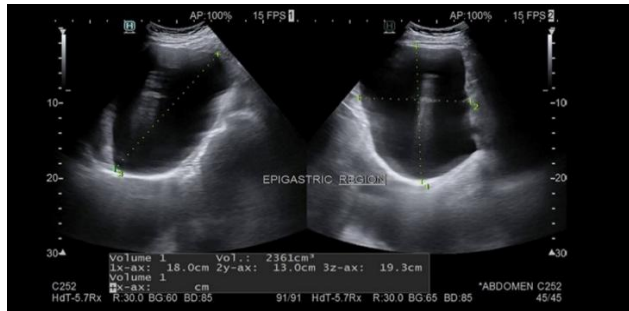
Here, we presented a case of a giant adrenal cyst that underwent successful laparoscopic surgery.

## CASE REPORT

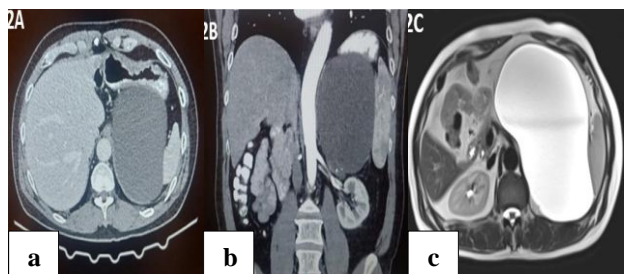
A 50-year-old Filipino man presented with a 7-week history of upper abdominal pain, accompanied by abdominal bloating, a sense of heaviness, and dizziness. He denied any history of alcohol consumption or previous episodes of acute pancreatitis. Upon physical examination, a large, hard mass with a smooth surface and distinct borders was found on the left side of the abdomen. Endocrine function and routine laboratory tests revealed no anomalies.

An abdominal ultrasound revealed a large cystic lesion measuring 19×18×13 cm, with a volume of 2361 cc, located in the epigastric region and extending into the left hypochondrium. The lesion contained focal thin septa and hyperechoic foci (Figure 1). Computed tomography (CT) imaging revealed a large cystic lesion with calcifications in the upper abdomen, located retroperitoneally in the lesser sac, displacing the tail of the pancreas inferiorly (Figures 2a and b). A primarily high signal-intensity lesion was visible on the cystic mass's axial T2-weighted

magnetic resonance imaging (MRI) images. The cystic mass showed a predominantly high signal-intensity lesion (Figure 2c).

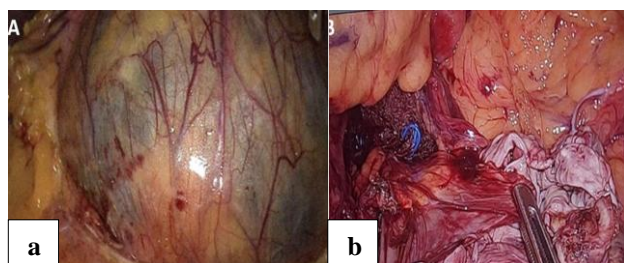


**Figure 1: Ultrasound abdomen depicting a large cystic lesion measuring 19×18×13 cm, volume – 2361 cc seen in the epigastric region extending into left hypochondrium.**



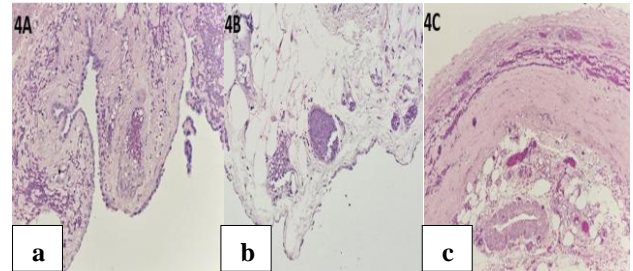
**Figure 2: (a and b) CT showing a huge cystic lesion in the retroperitoneal location in the lesser sac displacing the tail of the pancreas inferiorly, with calcifications, and (c) axial T2-weighted MRI image of the cystic mass demonstrating a predominantly high signal-intensity lesion.**

Intraoperatively, a large cystic swelling measuring approximately 19×18×13 cm was observed in the lesser sac (Figure 3a). The lesser sac was opened, and the cyst was found to be densely adherent to the pancreatic capsule, diaphragm, and splenic artery. The cyst was aspirated in a controlled manner, and the entire cyst was removed while preserving the splenic vasculature (Figure 3b). The remainder of the adrenal gland was preserved.

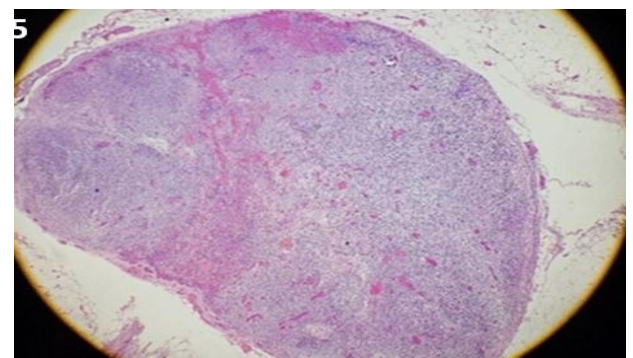


**Figure 3: (a) Intraoperative image of the large cystic swelling seen in the lesser sac measuring approximately 19×18×13 cm, and (b) aspiration of the cyst in a controlled manner saving the splenic vasculature.**

Cytologic analysis revealed no malignant component. Microscopic examination showed that the cystic lesions were composed of focal endothelial lining surrounding fibromuscular and adipose tissues in the wall, with dilated, congested vascular spaces and areas of haemorrhage (Figures 4a-c). Figure 5 displays a single encapsulated reactive lymph node in the soft tissue surrounding the cyst. After thorough analysis, the final diagnosis was a benign adrenal endothelial cyst.



**Figure 4 (a-c): Histology images showing the cystic lesions comprising of focal endothelial lining, surrounding fibromuscular and adipose tissue in the wall with dilated, congested vascular spaces and interspersed areas of haemorrhage.**



**Figure 5: Single encapsulated reactive lymph node in the soft tissue around the cyst.**

## DISCUSSION

Approximately 1% to 5% of abdominal CT scan series currently have adrenal incidentalomas, which are described as adrenal masses that are occasionally and unexpectedly found during abdominal imaging for non-adrenal-related reasons.<sup>7,8</sup> Adrenal cysts can occur at any age, but their peak frequency is between 50 and 70 years, with a higher prevalence in females.<sup>9</sup>

Adrenal cysts may appear clinically with a variety of symptoms, including bleeding, infection, rupture, and subclinical signs. The bulk effect on nearby organs may cause nonspecific symptoms in cases of giant cysts (>10 cm).<sup>10</sup> In their early stages, adrenal cysts, like other primary retroperitoneal tumors, are frequently clinically asymptomatic due to the wide retroperitoneal space.<sup>11</sup> Clinical symptoms usually appear after mass growth or if any other complications arise, as in this particular case. In

addition to non-specific abdominal distension, one of the most prevalent symptoms is abdominal pain. Clinical symptoms include nausea, vomiting, constipation, postprandial pain, and lower extremity edema might result from compression of the abdominal viscera and blood vessels.<sup>11</sup> Determining if the cyst has aberrant endocrine activity is also essential.<sup>4</sup>

The diagnosis of an adrenal cyst begins with a thorough history and physical examination to assess whether the patient is presenting with symptoms or if the cyst was discovered incidentally. Following a thorough clinical and functional assessment, imaging tests are conducted to assess the size, morphological characteristics, and interactions with neighboring structures.<sup>12</sup> The majority of adrenal cysts are round or oval lesions that seem uniform and have a distinct border.<sup>1</sup> They range in median size from 57.5 to 58 mm.<sup>1,5</sup> Tumor morphology and origin can be effectively confirmed by magnetic resonance imaging (MRI).<sup>12</sup> MRI is more precise than CT scans for giant adrenal cysts. When adrenal cysts are filled with serous fluid, they usually present on MRI as thin-walled, high-intensity lesions on T2-weighted imaging.<sup>13</sup>

Histopathology has historically been used to categorize adrenal cysts into endothelial, pseudocyst, epithelial, and parasite cysts.<sup>14</sup> Endothelial cysts, which are further divided into angiomatous and lymphatic types, compose the majority of adrenal cysts. Very few endothelium cysts are angiomatous.<sup>13</sup> For endothelial cells, CD34, CD31, Factor VIII, and Fli-1 are positive indicators.<sup>15</sup>

The treatment of adrenal cysts depends on factors such as whether the cyst is functional, its size, and the presence of symptoms. As benign lesions, adrenal cysts can often be managed with expectant treatment if they are small and asymptomatic. Functional cysts, as well as malignant or potentially malignant cysts, typically require surgical treatment. Surgery is also recommended for cysts larger than 5 cm or symptomatic cysts less than 5 cm.<sup>5,16</sup>

Seven percent of adrenal cysts are malignant, according to studies, and patients pose the danger of peritoneal spread, if they rupture.<sup>5,17</sup> Thus, achieving total excision while maintaining the mass's integrity to the greatest extent feasible is the fundamental idea. Despite the typically good prognosis for adrenal cysts, even after total excision, recurrence is possible in certain cases. It is advised to follow up for a long time.<sup>18,19</sup>

## CONCLUSION

Within the range of primary adrenal tumours, cystic adrenal lesions are uncommon and can be linked to both benign and malignant adrenal disorders. The first step in evaluation is an endocrine assessment. MRI and CT scans are crucial for detecting adrenal cystic masses. Cysts that are functional, malignant or potentially malignant, symptomatic, or asymptomatic and greater than 5 cm should all be treated surgically.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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**Cite this article as:** Sapra A, Zafar S, Gudivada V, Somani P. Laparoscopic resection of a giant adrenal cyst: a case report. *Int Surg J* 2025;12:1153-6.