CASE REPORT

Laparoscopic-assisted Mini-incision Adrenalectomy for Large Hemorrhagic Adrenal Cyst: A Novel Approach

Rimy Prashad[1], Vivek Aggarwal[2]

Abstract

Adrenal cysts are rare clinical entities, usually diagnosed incidentally. Traditionally classified as epithelial, endothelial, parasitic or pseudocyst, adrenal cyst may cause symptoms due to mass effect or hemorrhage warranting adrenalectomy. The author presents a case of a 64-year-old man presenting with a nonfunctioning large right adrenal hemorrhagic cyst causing mass effect.

We managed the patient with laparoscopic-assisted adrenalectomy that has emerged as a novel technique combining the benefits of open and minimally invasive approach.

Keywords: Adrenal cyst, Endocrine surgery, Hemorrhagic adrenal cyst, Lap-assisted adrenalectomy.

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Introduction

Adrenal cysts are rare clinical entities. They are usually diagnosed incidentally on imaging. Most of the adrenal cysts are clinically silent. Symptoms may arise due to functioning cysts, large size causing mass effect in form of vague abdominal pain, and gastrointestinal symptoms. The rapidly increasing size of the cyst may be due to hemorrhage into the cyst that may lead to hypovolemic shock.[1]

Radiological evaluation by contrast-enhanced CT helps in the localization of adrenal cyst. A complete biochemical workup including serum cortisol levels, 24 hours urinary metanephrines/VMA is essential to rule out a functional cyst or malignancy.

Adrenalectomy is the treatment of choice in symptomatic, rapidly expanding, or asymptomatic large (>5 cm) cyst. The author is presenting a case report of a 64-year-old man with right-sided large hemorrhagic adrenal cyst.

Case Description

A 64-year-old man presented to us with complaints of abdominal mass with right flank pain and back pain for the last 3 to 4 years. The patient was normotensive with no history of jaundice, hematemesis, melena, trauma, or malignancy. Bowel and bladder habits were normal. The patient on examination had the presence of nontender, firm retroperitoneal abdominal mass extending from epigastrium to right lumbar region.

CT scan was suggestive of a right adrenal cyst measuring approximately 20 × 20 cm. The patient was evaluated biochemically with normal serum cortisol, serum DHEAS, and 24 hours urinary metanephrines (Fig. 1).

In view of a large adrenal cyst, total laparoscopic adrenalectomy was not feasible. Open surgery would have required a very large incision for complete dissection around the tumor. So, we decided to combine the two approaches to decrease surgical trauma to the patient. After detailed discussion and consent, the patient underwent laparoscopic-assisted adrenalectomy. Around 80% of the dissection was done laparoscopically. Adrenal vein was identified, clipped, and secured using hemlock. Due to large tumor size and difficult to give traction away from tumor bed, terminal dissection, lateral and posterior to the IVC, was then done by a small incision (Fig. 2) under vision. This also prevented any inadvertent hemorrhage due to further laparoscopic manipulation. The specimen was then delivered after aspirating cystic material through the small incision. Postoperative period was uneventful and the patient was discharged on POD-3. Histopathology report of the specimen was conclusive

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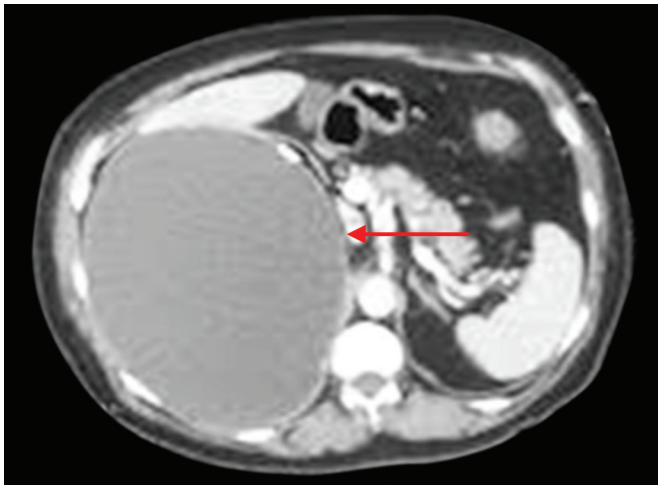

Fig. 1: Computed tomography of abdomen showing homogeneously hypodense mass (red arrow marking adrenal cyst) in the right adrenal gland

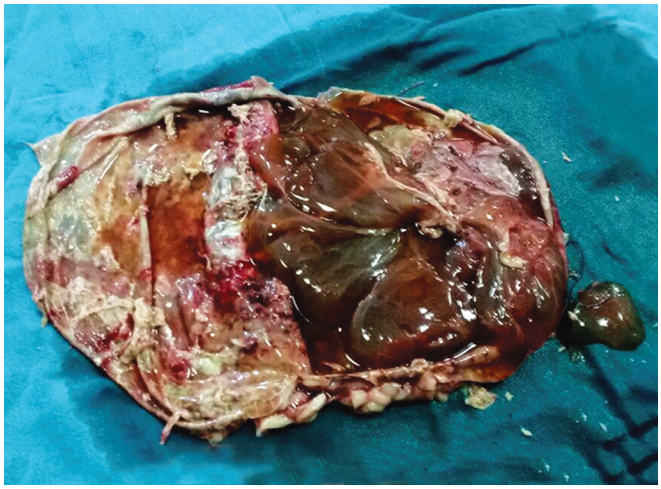

Fig. 2: Surgical specimen showing large adrenal cyst with hemorrhagic fluid

of a hemorrhagic adrenal cyst with calcification and macrophage reaction without any evidence of malignancy.

Discussion

Cystic adrenal lesions are largely incidental findings. They may occur at any age group but most commonly are found in fifth or sixth decade of life. They are often asymptomatic unless hormonally functioning. They might attain significant size (up to 50 cm in diameter[2]) and cause pain, and gastrointestinal is orders, dyspnea, or a palpable mass.

Non-neoplastic adrenal cysts are classified as epithelial, endothelial, parasitic, or pseudocyst.

Up to 7% of the adrenal cyst are found to be malignant mandating careful hormonal evaluation.[3] Malignancy in a cyst should be suspected in case the patient presents with Cushing's syndrome, hyperadrenalism, hirsutism (females), acne and balding spots (males), and hypertension.[4] Malignancy in adrenal cyst may be metastasis(most common) or pheochromocytoma or adrenal cortical carcinoma. Lung, kidney, colon, breast, esophagus, pancreas, and liver serve as the common primary sites from which metastasis may occur.

If a patient presents with acute abdominal findings, intracystic hemorrhage or rupture should be suspected. Hemorrhagic adrenal cysts are mostly pseudocyst[5] which may be traumatic or atraumatic. Atraumatic hemorrhagic adrenal cyst can be due to stress, bleeding diathesis, underlying tumor, or idiopathic disease.[6]

Assessment of any adrenal mass must include biochemical workup in form of serum cortisol levels, dexamethasone suppression test, 24 hours urinary metanephrines/VMA to rule out functioning tumor.

Radiological assessment in form of CECT/MRI helps in the localization of the adrenal mass and characterizes the cystic nature of the adrenal mass. It also helps in the assessment of the size and shows the presence of ongoing hemorrhage, if any. MR imaging is the best modality for visualization of intracystic components, to rule out intracystic hemorrhage. Evolving hemorrhage is graded on MR imaging with acute blood being isointense on T1 and hypointense on T2 weighted images, becoming hyperintense in T1 in the subacute stage and hypointense in both T1, T2 weighted images in case of old hemorrhage.

Management of adrenal cyst is guided by size and presence or absence of symptoms.

The small asymptomatic cyst is managed conservatively with a 6-monthly follow-up.[7]

If cyst size exceeds 5 to 6 cm or if it is hormonally functional, symptomatic, parasitic, or malignant, a more active approach is needed to prevent hemorrhage or any secondary complication. Procedures such as percutaneous needle aspiration or drainage, sclerotherapy, surgical resection, or cyst unroofing can be done.

Surgical excision is the treatment of choice as there is a risk of reaccumulation of fluid after aspiration.

The laparoscopic approach is the gold standard for large adrenal cysts.[8] It causes lesser wound morbidity, shorter hospital stay, and early return to normal activity.[9] Laparoscopic approach is not suitable for a larger cyst (>6–8 cm) due to difficulty in dissection.[10] Larger specimen are difficult to extract and require morcellation or aspiration from the cyst prior to removal of the specimen which can impair histological evaluation and increase the chances of tumor seeding (in case of malignant cyst).[10]

Intraoperative hemorrhage, if occurs, is difficult to control laparoscopically and may warrant conversion to open.

Laparoscopic-assisted adrenalectomy is an alternative to open approach. It provides the advantage of reduced incision size and better hemostasis. Better traction terminally can aid safer dissection close to IVC and posteriorly. Hemostatic compression can be given by the surgeon's hand in cases of bleed. Large specimen can be extracted through the smaller incision like the hand port described in some series.[9] The procedure has a shorter learning curve and can be done even if one does not have a hand-assisted port facility. This is the first reported novel technique of laparoscopic-assisted mini-incision adrenalectomy for large adrenal tumors.

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