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Case report

Giant adrenal cyst in a young female patient: A case report



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Abstract

Adrenal cysts are rare cystic masses that arise from the adrenal gland. They are usually non-functional, asymptomatic and less than 10 cm in diameter when discovered incidentally. However, giant adrenal cysts are cysts of the adrenal gland which are larger than 10 cm in diameter. They pose a diagnostic conundrum to the surgeon as localization of the origin of the cyst is very difficult. Indications for surgical intervention include a size exceeding 10 cm in diameter, the presence of symptoms, endocrine abnormalities, intracystic bleeding and suspicion of malignancy. The current treatment of choice is adrenalectomy, either open or laparoscopic. Ultrasound-guided percutaneous drainage is an alternative, especially when there is no doubt regarding the diagnosis. Following, we report on one of the rare cases of a giant adrenal cyst.

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Case report

A 38-year-old lady was referred to our facility with chronic right flank pain of one year's duration. The pain was non radiating and severe enough to disturb her daily activities. There was no his-

tory of passage of urinary stones, no hematuria or fever and no obvious features of an endocrine disorder. Her weight was within the normal range (73 kg with a BMI of 22.4 m²/kg). Her blood pressure at presentation was normal (130/70 mmHg) and remained normal throughout the course of her treatment. She had right angle tenderness at the time of evaluation. Serum electrolytes including potassium (3.7 mmol/L) were within the normal range. Complete blood count, fasting blood sugar, urinalysis and renal functions were all within normal limits. We did not deem it necessary at the time to assay her serum cortisol and urinary catecholamine levels since she had no clinical features indicative of a functional adrenal tumor. Abdominal sonography showed a sonolucent mass sized

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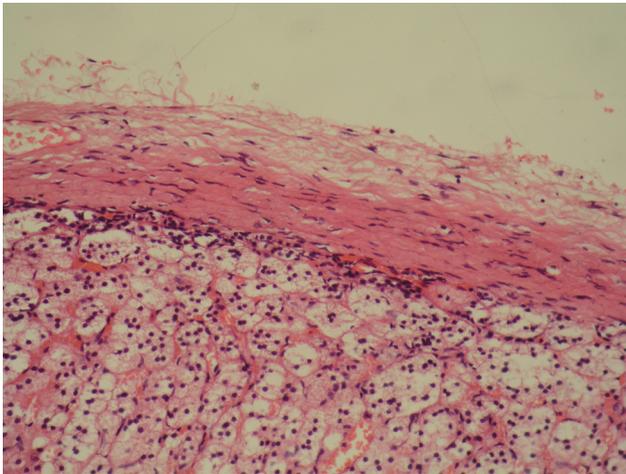


Figure 1 Histologic section of the adrenal cyst showing superficial cortical areas of the adrenal gland. The cortical area is composed of various large cells with vacuolated cytoplasm and darker cells with moderately hyperchromatic cells (H&E $\times 20$).

5.98 cm \times 9.37 cm \times 7.11 cm with 2 mm wall thickness, abutting the upper pole of the right kidney. Both kidneys were sonographically normal in appearance. An intravenous urogram was unremarkable, except that the right kidney was displaced downward by the mass lesion. Computed tomography (CT) of the abdomen revealed a large cystic upper quadrant mass, most likely adrenal in origin, measuring 5.7 cm \times 8.6 cm \times 8.6 cm with 25 Hounsfield units. A portion of the right adrenal gland appeared stretched around the mass. The right kidney was displaced inferiorly by this mass, but it was otherwise unremarkable. Based on this, the patient was diagnosed as probably having a right adrenal cyst.

She was admitted and underwent right flank exploration and complete excision of the right adrenal cyst which had taken up all of the right adrenal gland. Intra-operatively, a large cyst originating from the right adrenal gland was found. It was an oval shaped cyst measuring 20 cm in diameter, and the cut surface revealed about 500 ml of straw-colored fluid. We opted for open surgical excision (right adrenalectomy) instead of ultrasound-guided percutaneous drainage because of the large size of the cyst and also because of the lack of a definitive preoperative diagnosis.

Histological analysis of the adrenal cystic mass showed superficial cortical areas of the adrenal gland and a large locular cyst. The cortical areas were composed of various cells: of large cells with vacuolated cytoplasm and darker pigmented cells with moderately hyperchromatic cells. The cyst was large with a fibrous wall. Histology also revealed focal intra-cystic mature adipose tissue. As there was no evidence of malignancy, a histological diagnosis of adrenal pseudocyst was made.

The patient's postoperative course was uneventful and she was discharged 6 days after the operation. The right hypochondrial pain resolved after removal of the adrenal cyst. The patient did not require any further treatment or specific follow up since histology confirmed an adrenal pseudocyst (Figs. 1 and 2).

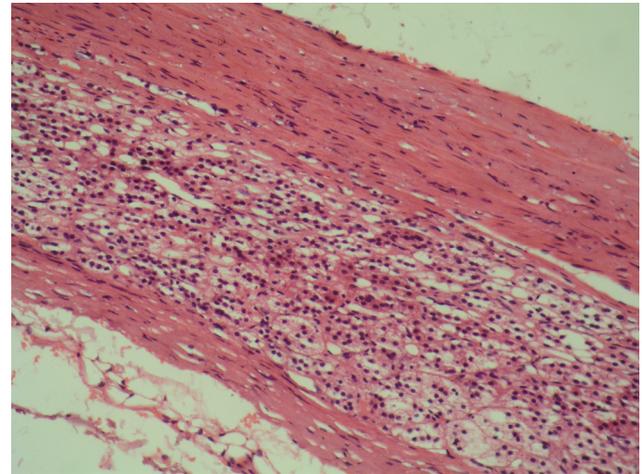


Figure 2 Histologic section showing the wall of the right adrenal cyst which is composed of a fibrous wall with focal intracystic mature adipose tissue (H&E $\times 40$).

Discussion

The first case of an adrenal cyst was reported in 1670 by Greaseless whose patient presented with abdominal pain and a palpable mass [1]. Adrenal cysts are generally rare, and around 600 cases have been reported in the literature so far [2,3]. The incidence of adrenal cysts in autopsy series ranges from 0.06% to 0.18%. They are usually non-functional, asymptomatic and less than 10 cm in diameter when discovered incidentally. However, giant adrenal cysts are cysts of the adrenal gland which are larger than 10 cm in diameter [4,5]. They vary greatly in size and may be as large as 50 cm in diameter and contain many liters of fluid. There is no side predilection for the right or left adrenal gland. Giant adrenal cysts pose a diagnostic conundrum to the surgeon as localization of their origin is very difficult [4-6]. They may occur at any age, but most of them are seen in the 3rd to 4th decades of life with a higher preponderance in females [2-5,7], just like in our patient. In some series, a female preponderance of about 3:1 was noted for unknown reasons [7].

Traditionally, adrenal cysts are divided into neoplastic and non-neoplastic groups. Non-neoplastic adrenal cysts may be further categorized as any of the 4 major types: pseudocyst (39%), epithelial (9%), parasitic (7% generally echinococcal), or endothelial cysts (45%) [4,8,9]. The most common types are endothelial cysts and adrenal pseudocysts which represent the encapsulated remains of adrenal hemorrhage. Amongst the different types of adrenal cystic lesions, adrenal pseudocysts are the most common [10,11]. Adrenal pseudocysts are cystic lesions which arise within the adrenal gland. They are surrounded by a fibrous wall devoid of a recognizable lining layer. They are characterized by the absence of an epithelial lining [2,9,12]. Most endothelial cysts, on the other hand, are either of lymphatic or vascular origin and result from developmental malformations, namely hemangiomas or lymphangiomas [7].

The etiology of adrenal pseudocysts is not known, however several theories have been put forward such as cystic degeneration of a primary adrenal neoplasm, vascular neoplasm and malformation as well as hemorrhage of adrenal veins into the adrenal gland [2,9,12]. Parasitic adrenal cysts, on the other hand, are principally echinococcal in origin and found in settlements endemic for hydatid disease

[13]. In our patient we could not ascertain the possible etiology of the adrenal pseudocyst.

Most adrenal cysts are asymptomatic and less than 10 cm in diameter when detected incidentally. However, symptoms occur when adrenal cysts become large enough to cause pain and gastrointestinal disturbances or when they become palpably enlarged. They may also be a consequence of intracystic bleeding or infection. Less frequent presentations include hypertension or spontaneous rupture of the cyst [12,14].

Management of giant adrenal cysts represents a challenge regarding the peri-operative diagnosis and the surgical procedure of resection or adrenalectomy. Indications for surgical intervention include a size exceeding 10 cm in diameter, the presence of symptoms, endocrine abnormalities, intracystic bleeding and suspicion of malignancy [4,15]. As early as 1908, Doran urged complete excision of the cyst, although marsupialization and incision and drainage were frequently carried out by his contemporaries [1]. Without doubt, complete removal is the current treatment of choice, and laparoscopic adrenalectomy, where available, is the gold standard. Ultrasound-guided percutaneous drainage is a known safe alternative, especially when there is no doubt concerning the diagnosis [16]. Open complete surgical excision (adrenalectomy) is also a valid alternative which we offered to our patient based on the lack of a definitive preoperative diagnosis and the huge size of the cyst. The choice of access may be governed by the surgeon's preference.

Clinically, the differential diagnosis of adrenal cysts is variable and includes any lesion that can present as an upper abdominal mass.

Conclusion

With the increasing use of imaging modalities in patient evaluation, an increase in incidentally detected adrenal cysts is expected. Surgical excision of these cysts is an acceptable method of treatment where the indications are met.

Consent

Oral consent was given by the patient for this case report.

Conflict of interest

The authors have no conflict of interest to declare.

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Authors contributions

Dr Atim Terkaa managed the case including carrying out the surgery. He also did the typesetting for the work. Dr. A. Muhktar performed the pathological analysis of the specimen and prepared the slides for this case report.

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