

Management of Giant Adrenal Cysts – Our Experience

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Abstract: Adrenal gland cysts are rare and most often found incidentally at radiological imaging or at autopsy with an incidence of 0.06%. Most of the adrenal cysts are small and when larger it very rarely exceeds 10 cm in diameter. Cysts are 2 to 3 times more frequently found in females than male and are bilateral in approximately 10% of cases. In this study we have retrospectively analyze the outcome of surgery in 3 cases of giant adrenal cyst (>10cm) reported to our department. 2 patients were subjected to surgical excision of cysts and 1 was subjected to radical nephroadrenalectomy. On histopathology, 1 was lymphatic cyst, 1 was pseudocyst and 1 was cystic adrenal carcinoma. On follow up, all the 3 patients are symptom free till date.

Keywords: adrenal gland cysts, endothelial lined cysts, pseudocysts.

Introduction

Adrenal gland cysts are rare and most often found incidentally at radiological imaging or at autopsy with an incidence of 0.06%. Most of the adrenal cyst is small and when larger it very rarely exceeds 10 cm in diameter. Cysts are 2 to 3 times more frequently found in females than male and are bilateral in approximately 10% of cases. The types of cyst found in adrenal gland are endothelial (45%), pseudo cysts (40%), epithelial (9%) and parasitic (7%).

Case 1:

A 16 year old male presented with the history of painless, gradually increasing lump on the right side of the abdomen for the last 6 months. USG abdomen revealed a cystic lesion arising from the upper pole of the right kidney. CT scan abdomen was done to confirm the diagnosis which revealed an 11.2 x 7.8 x 8 cm cystic lesion arising from the right adrenal gland.

Case 2:

A 20 year old female presented with the complaint of dull aching, generalized pain abdomen. Patient was evaluated with ultrasonography of the abdomen which revealed a cystic lesion in relation to the upper pole of right kidney. The patient was further evaluated with CT scan abdomen which revealed a 10.4 x 7.8 x 7.2 cm right sided adrenal cyst.

Case 3:

A 25 year old male presented with the complaint of continuous, dull aching pain in the left hypochondrium. Clinical examination did not reveal any abnormality. Ultrasonography of the abdomen suggested a cystic mass with presence of specks of calcification of the cystic wall. Patient was further evaluated with MRI abdomen which revealed a 11 x 8x 6.7 cm left sided cystic adrenal mass and loss of plane between the adrenal gland and the upper pole of the kidney.

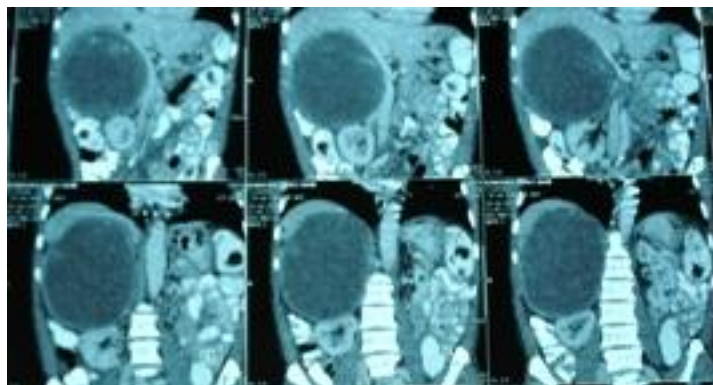


Figure 1: CT scan showing right adrenal cysts compressing upper pole of right kidney



Figure 2: Right sided giant adrenal cyst

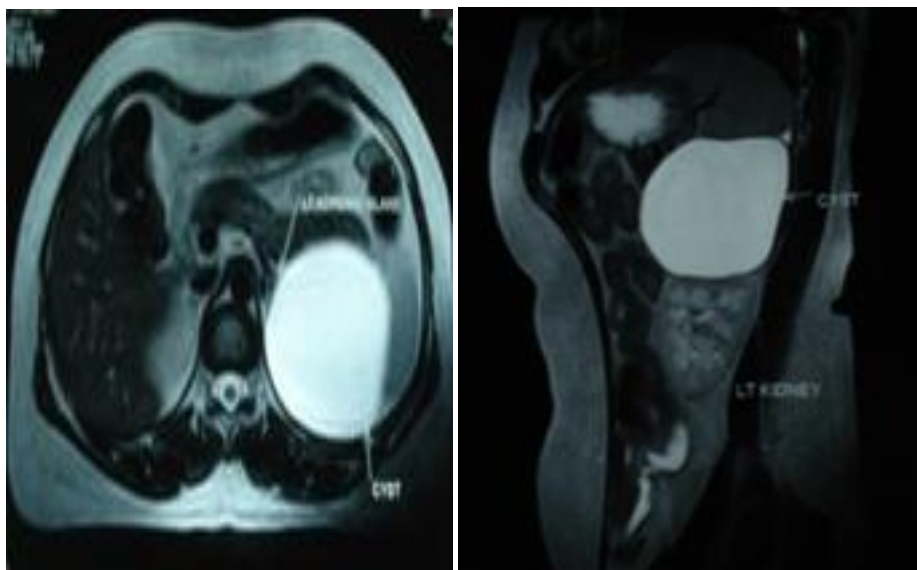
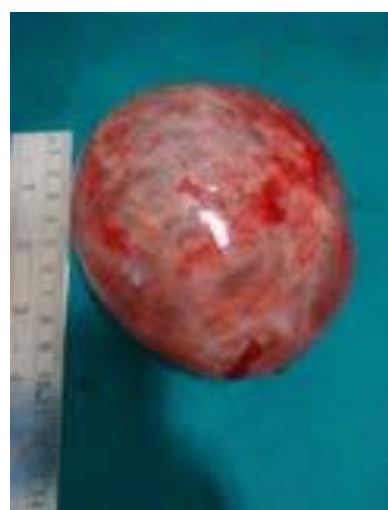


Figure 3: MRI showing Left sided giant adrenal pseudocysts



(Intra-operative)



(Post-operative specimen)

Figure 4: Intraoperative right sided large adrenal lymphatic cyst

Aim

Our aim was to retrospectively analyze the outcome of surgery in 3 cases of giant adrenal cyst (>10cm) reported to our department.

Materials and Method

We evaluated 3 cases of large adrenal cyst admitted in the Department of Urology during the period from February 2009 to July 2010. Male to female ratio was 2: 1. Most were right sided (R: L = 2:1). One case presented with palpable mass, 2 presented with non-specific abdominal pain. USG was done in all 3 cases which showed cystic lesion arising from the upper pole of kidney. To confirm, CT scan was done in 2 cases and MRI was done in 1 case. A complete endocrine workup was done in all cases which included estimation of serum cortisol (morning 8am and evening 4pm samples), serum catecholamines and 24 hours urinary catecholamines. However, endocrinologic evaluations failed to detect any hormonal hypersecretion. A prospective diagnosis of adrenal cyst was made. In all the cases, a thoracoabdominal approach was done through the bed of the 10th rib with a tilt of 45 degrees and opening the pleura was opened for accessing the tumor and surgical extirpation of the cyst was done. No complications were encountered.

Results

Two patients were subjected to surgical excision of cysts and 1 was subjected to radical nephroadrenalectomy as intraoperatively the adrenal cyst was found to involve the upper pole and hilum of the kidney and the kidney was not salvageable. On histopathology, case 1 was lymphatic cyst, case 2 was pseudocyst and case 3 was cystic adrenal carcinoma. Post operative recovery was uneventful in all the cases. On follow up, all the 3 patients are symptom free till date. No cystic recurrence, metastasis or endocrine dysfunction noted in the case of cystic adrenal carcinoma till date.

Discussion

Cyst of the adrenal gland is uncommon lesion and represents 80% of cystic adrenal masses [1]. Adrenal cysts may occur at any age, but most of them are found in the 3rd through 4th decades of life [2]. Small adrenal cysts are clinically silent, while cysts of large size can cause displacement and compression of the adjacent organs [4]. Patnaik et al reported a case of giant adrenal pseudocyst that closely mimicked a hepatic cyst at presentation [5]. Smaller cysts are usually incidentally detected and account for just under 6% of all newly discovered incidentalomas during the evaluation for unrelated abdominal conditions [6].

There is no predilection for the right or left gland. Literature review shows 8% incidence of bilateral adrenal cysts. All age groups are affected.

There is a 2:1 female predominance [4]. Traditionally, adrenal cysts have been divided into neoplastic and non-neoplastic groups. Non-neoplastic lesions are of four general categories:

Endothelial lined cysts (45%); pseudocysts (39%); cysts secondary to infectious agents such as echinococci and epithelial-lined or true adrenal cysts (9%) [2].

Of these, endothelial-lined cysts and pseudocysts are most common and comprise approximately 90% of cases. Only 7% of all reported adrenal pseudocysts are malignant or potentially malignant and the risk increases with size, especially if over 6 cm [7].

Epithelial-lined true cysts are rare, and theoretically could be retention cysts (glandular), or arising from adrenal cortical adenoma and embryonal cysts. Epithelial cysts have true epithelial lining, which can be confirmed by special Immunoperoxidase studies with antibodies to keratin [3]. A variety of radiologic modalities like Ultrasonography (US), CT scan abdomen and Magnetic Resonance Imaging (MRI) are used for diagnosis of adrenal cysts.

The ultrasonography appearances of adrenal cysts are unilocular or multilocular cystic lesions similar to those seen elsewhere in the body. Adrenal cysts have pathognomonic CT imaging characteristics such as thin nonenhancing walls and fluid density content. Peripheral calcifications are only seen in the 15% of patients. Higher density values within the cyst denote intracystic hemorrhage [8].

Surgical excision is indicated in presence of symptoms [9], endocrine abnormality (even when subclinical), complications and large size (>5 cm) [10].

In addition, surgical exploration is mandatory when malignancy cannot be ruled out after complete diagnostic workup [11].

Nowadays, various surgical options have been proposed ranging from the traditional open anterior transabdominal or posterior retroperitoneal approach to the laparoscopic and the endoscopic retroperitoneal minimally invasive techniques [12].

Simple enucleation with preservation of adrenal gland is also a procedure of choice, while marsupialisation is recommended for cysts densely adherent to adjacent organs. Studies have shown aspiration alone frequently resulted in reaccumulation of fluid within the cyst [13]. En bloc adrenalectomy

with cyst resection represents the proper procedure in cases of malignancy.

Laparoscopic approach is advocated in simple, uncomplicated cysts, less than 8 cm in diameter. However, it is contraindicated when a malignant process is Presumed [14, 15].

Some authors chose laparoscopic adrenalectomy in all patients with adrenal cysts while others prefer adrenal-sparing resections except for the functional cysts or when the border between cysts and the adrenal gland were unclear, accompanied with severe adhesion. [16, 17].

The literature on laparoscopic versus open adrenalectomy appears to favor the laparoscopic approach regardless of tumor size [18]. Large size, increased wall thickness or calcification are features of malignant changes in which case excision should be done and followed up for cystic. Recurrence, late metastasis or adrenal endocrine dysfunction. Other lesions that should be considered in the differential diagnosis of cystic adrenal masses are endothelial cyst, lymphangioma, epithelial cyst and parasitic (hydatid) cysts.

Conclusion

Adrenal cyst is a rare entity with female preponderance. Mostly they are of endothelial variety and excision is curable in early stage. In case of large cyst suspicion of malignancy should be kept in mind and stringent follow up is of utmost importance.

References

1. Habra MA, Barry W Feig, Steven G Waguespack.; Adrenal Pseudocyst *The Journal of Clinical Endocrinology and Metabolism*, 2005; 90(5): 3067-68.
2. Balani B, Kumar R, Patwari AK, Anand VK; Bilateral adrenal cysts in a newborn. *Indian Pediatrics* 2000; 37: 1370-1373.
3. Vaughan ED Jr, Blumernfeld JD, Del Pizzo J; *Campbells Urology*, ed. 8, WB Saunders Philadelphia 2002; 3507-3569.
4. Danza FM, De Marinis L, Mancini A, Valentini AL, Summaria V, Conte G, CamaioniM, Fiumara C; Adrenal gland cysts: Our experience. *Minerva Chir* 1993; 48: 1325-30.
5. Patnaik S, Htut A, Wang P, Eisenberg D, Miick R, Feyssa E; All those liver masses are not necessarily from the liver: A case of a giant adrenal pseudocyst mimicking a hepatic cyst. *Am J Case Rep* 2015; 16:333-7.
6. Aloraifi F, G. O'Brien, Broe P; Giant adrenal pseudocyst treated laparoscopically: case

- report and review of the literature. *Open Surg J*, 2008; 2: 39-42.
7. M. Kar, E. Pucci, F. Brody. Laparoscopic resection of an adrenal pseudocyst. *J Laparoendosc Adv Surg Tech A*, 2006; 16: 478-481.
 8. Lockhart ME, Smith JK, Kenney PJ; Imaging of adrenal masses. *Err J Radiol* 2002; 41(2):95-112.
 9. Sezhian N, Rimal D , Suresh G; Adrenal Pseudocyst- Diagnostic Dilema ,*Scottish Medical Journal*, 2005; 45(2): 81
 10. Manuel Suarez, Sheldon Bastacky; Vascular adrenal cyst. *Final Diag. Case- 182*, 2005, Crossed ref. Medline
 11. Schmid H, Mussack T, Wörnle M, Pietrzyk MC, Banas B; Clinical management of large adrenal cystic lesions. *Int Urol Nephrol* 2005; 37(4):767-71.
 12. Walz MK, Peitgen K, Hoermann R; Posterior retroperitoneoscopy as a new minimally invasive approach for adrenalectomy: results of 30 adrenalectomies in 27 patients. *World J Surg* 1996; 20(7):769-74.
 13. Neri LM, Nance FC; Management of adrenal cysts. *Am Surg*. 1999; 65:151-63.
 14. Pillinger SH, Bambach CP, Sidhu S; Laparoscopic adrenalectomy: a 6-year experience of 59 cases. *ANZ J Surg* 2002; 72(7):467-70.
 15. Hallfeldt KK, Mussack T, Trupka A, Hohenbleicher F, Schmidbauer S; Laparoscopic adrenalectomy versus open posterior adrenalectomy for the treatment of benign adrenal tumors. *Surg Endosc* 2003; 17(2):264-7.
 16. Castillo OA, Litvak JP, Kerkebe M, Urena RD; Laparoscopic management of symptomatic and large adrenal cysts. *J Urol*. 2005; 173: 915-7.
 17. Xiao Lyu, Liangren Liu, Lu Yang, Liang Gao, Qiang Wei; Surgical management of adrenal cysts: a single-institution experience. *Int. braz j urol*. vol.40 no.5 Rio de Janeiro Sept. /Oct. 2014.
 18. Sharma R, Ganpule A, Veeramani M, Sabnis RB, Desai M; Laparoscopic management of adrenal lesions larger than 5 cm in diameter. *Urol J*, 2009; 6 (4): 254-259.