

## Laparoscopic Treatment of the Largest Mesothelial Adrenal Cyst in Literature

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### Abstract

**Introduction:** Adrenal cyst lesions are rare, with varying etiology, with unspecified symptomatic kit and instrumental diagnosis not simple if of large size. The directions for surgical treatment are well defined.

**Clinical Case:** A 28-year-old patient complained of abdominal swelling, slight dyspnea, pain in the right flanking region associated with a lack of weight loss despite voluntary diet. He practices a TC and RM abdomen.

That point out a cystic lesion of 30x21x38 cm but do not clarify the origin. He is subjected to laparoscopic surgical treatment which allows to clarify the peritoneal background of cysts, its drainage and removal. Histological examination confirms the mesothelial nature of cysts. The TC abdominal control at a distance of six months points out the correct localization of the abdominal organs, previously moved to the left, and the right surreal leftover.

**Conclusions:** Surgical treatment allows to clarify diagnostic doubts in case of large cystic lesions and to carry out a radical therapy. The removal of only cysts or the entire adrenal gland is controversial. The laparoscopic approach, if possible, is preferable as it guarantees the same result with faster recovery times and less risk of site infection or surgical wound.

**Keywords:** Giant cysts of adrenal gland, laparoscopic treatment, differential diagnosis with apical cysts.

### Introduction

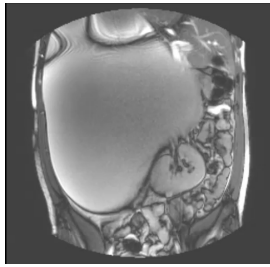
The cystic lesions of the adrenal gland, described for the first time by Greiselius in 1670, are rare. They affect 0.06-0.18% of the population in autopsy studies [1,2]. Cysts account for 5.4 to 6% of all adrenal pathologies [3]. They are often unilateral even if bilateral lesions have been found in 8-15% of cases; they are most common between the third and fifth decades of life and may have dimensions varying from about millimeters to several centimeters in diameter. Symptomatology is unspecific; only two-thirds of the cysts are symptomatic [2]. Small lesions are asymptomatic, while large ones (diameter > 10 cm) are associated with symptoms due to the compression effect on nearby organs or the cyst itself (for example: hemorrhage) [3,4]. They may also present with pain, gastrointestinal symptoms or palpable masses. In one third of the cases the diagnosis is incidental in the course of ultrasound, TC or RM for other diagnostic iter [5]. They come into differential diagnosis with pseudo pancreatic cysts, liver, kidney, spleen, mesenteric and retroperitoneal cysts [6]. It is often difficult to establish, despite image diagnostics, the precise origin of large cysts. Foster classified histamine cyst lesions in four types: endothelial cysts (45%), epithelial cysts (9%), pseudocysts (39%),

and parasitic cysts (7%) [7]. Adrenal cysts represent a clinical entity with a potential for malignancy of about 7% [8].

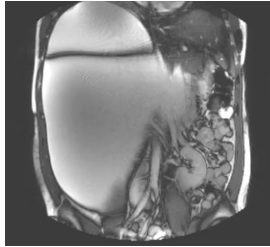
### Clinical case

A 28-year-old male patient arrives at our observation complaining of abdominal swelling, graft pain in the right flank region, dyspepsia and dyspnea after small efforts. He also reports that he has noticed an increase in abdominal circumference therefore begins a voluntary diet but cannot get a weight loss. He practices abdominal ultrasound that highlights cystic volume at the right side of unambiguous interpretation. It performs TC and RM abdomen that exhibit an expanded formation of 30x21x38 cm (total volume 15 liters), with fluid content, bordered by thin and smooth wall, extending from the right subfrequent space to the homolateral iliac ditch, left hypochondria, and mesogastry dislocating controlally the abdominal organs, not infiltrated.

The aforementioned lesion does not show solid chips of pathological impregnation or appears in communication with the bile ducts. Right Adrenal gland not displayed. Right kidney, located in the left and malformed flank. There remains the diagnostic doubt about the liver or mesentery origin of the cysts (**photo n° 1 and 2**).

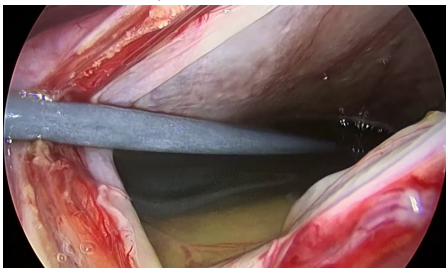


**Photo n° 1:** Pre-operative RM

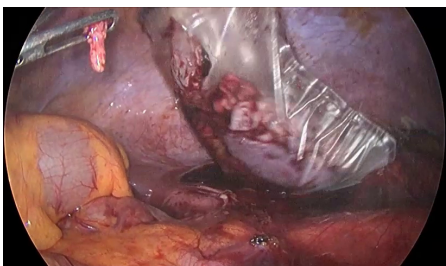


**Photo n° 2:** Pre-operative RM

Hematochemical examinations, 24-hour methanephrine, 17-hydroxycorticosteroid and 17 chetosteroid urine dosing were the norm. It is subjected to laparoscopic surgery to clarify the retroperitoneal origin of cysts. Its drainage is carried out by suction of about 13 liters of serous liquid. The complete removal of the capsule is quite easy, even though it has adherence to the retroperitoneal organs. The origin of the cyst seemed therefore adrenaline. Extraction of the capsule by endobag. (photo n° 3 and 4).



**Photo n° 3:** Laparoscopic drainage



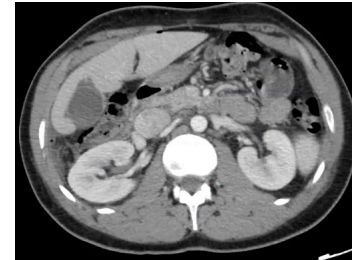
**Photo n° 4:** extraction in endobag

Histological examination refers to: fibrous cystic wall partially coated with cubic epithelium / plate. In the wall of the wall there is a normostructured adrenal parenchyma. Positivity to immunocytochemistry for CK7 and Calretina, negativity for CK20 compatible with a mesothelial (epithelial) origin of cystic lesion. Absence of morphological characters of malignancy. The six-month CT remote abdominal abdomen shows a correct localization of the abdominal organs, previously dislocated to the left, and the right

surreal residue (photo n° 5 and 6).



**Photo n° 5:** Cyst's wall



**Photo n° 6:** TC in follow up (six months)

### Conclusions

Modern imaging diagnostics techniques provide evidence of more frequent cystic lesions of the adrenal gland. They are incidentally diagnosed in TC examinations, with a prevalence of 1%, in a sample of 1049 adrenal lesions [9]. Internal weaving, density, wall thickness, pattern classification, and absence of contrast impregnation should be carefully evaluated in the radiologic studies of surrene cysts.

The pseudocysts are typically unilocular cyst lesions, may appear to be mixed or even solid masses because they are occupied by a recent or organized hematoma [10]. Contrast TC is the primary investigation but a comprehensive study also includes ultrasound and MR. A pseudo-cyst may have a homogeneous appearance to TC or RM (reduced attenuation to TC or hyperinflation in T1 weighted and hyperintense in T2-weighted images). Complex pseudocysts may appear more heterogeneous for the presence of septates, blood and calcifications. The involvement of neighboring tissues and mass effects can be well defined with both, TC and RM. Careful hormonal, morphological, functional and instrumental evaluation is indicated in all adrenal cysts [2]. It is often difficult to establish the precise origin of large cysts. Differential diagnosis is with pancreatic pseudocysts, liver, kidney, spleen, mesenteric and retroperitoneal cysts [6]. Surgical treatment is indicated in case of altered hormonal activity, suspected of malignancy and for the large dimensions that can give a "mass effect". The aspiration of the cysts was indicated by Neri et al. as an alternative treatment if the cyst does not have hormonal activity and there is no suspicion of malignancy and in case of recurrence it recommends re-aspiration by also performing a cytological examination [8]. According to Cavallaro, et al. this technique can be considered as an alternative to surgery only in patients with severe comorbidity or with high ASA high risk of surgery. Surgery of total adrenalectomy is indicated, without breaking the cyst or marsupialisation of the same, in the event of a risk of malignancy, hormone activity, pests and size greater than 4-5 cm [8,11]. The simple enucleation of the

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cyst, saving gland, is the procedure of choice in the absence of malignancy or hormonal activity; marsupialisation is recommended when the cyst wall is tenaciously attached to the nearby organs [4]. Recent writing is rich in laparoscopic resections of surrene cysts with gingival savings. It should be borne in mind that almost all cyst resections may partially involve the adrenal tissue, not evident during surgery but confirmed to the histology [12]. The laparoscopic approach is indicated in simple, uncomplicated cysts with a diameter of less than 8cm [13].

In our clinical case, the uncertain origin of the massive cyst has led us to carry out a laparoscopic approach that could conclude the diagnostic iteration. Considering that there were no radiological signs of malignancy and that the patient had no signs and symptoms of altered adrenal hormone secretion, we proceeded to drain and rescue the cyst by preserving the gland. Despite the excessive size of cysts, we managed to carry out all the laparoscopic surgery by ensuring a rapid post-operative recovery to the patient, A lower risk of wound infection and a quick return to normality by rescuing him on the third day.

## References

1. Chien HP, Chang YS, Hsu PS, Lin JD, Wu YC, et al. (2008) Hsueh Adrenal cystic lesions: a clinocopathological analysis of 25 cases with proposed histogenesis and review of the literature. *Endocr Pathol* 19: 274-281.
2. Bellantone R, Ferrante A, Raffaelli M et al. (1998) Adrenal cystic lesions: report of 12 surgically treated cases and review of the literature. *J Endocrinol Invest* 21: 109-114.
3. Pradeep PV, Mishra AK, Aggarwal V, Bhargav PR, Gupta SK, et al. (2006) Adrenal cysts:an institutional experience. *World J Surg* 30: 1817-1820.
4. Tagge DU, baron PL (1997) Giant adrenal cyst: management and review of the literature. *Am Surg* 63: 744-746.
5. Wedmid A, Palese M (2010) Diagnosis and treatment of the adrenal cysts. *Curr Urol Rep* 11: 44-50.
6. Sroujeh AS, Farah GR, Haddad MJ, Abu-Khalaf MM (1990) Adrenal cyst: diagnosis and management. *Br J Urol* 65: 570-575.
7. Foster DG (1966) Adrenal cysts. Review of literature and report of case. *Archives of Surgery* 92: 131-143.
8. Neri LM Nance FC (1999) Management of adrenal cysts. *American Surgeon* 65: 151-163.
9. Song JH, Chaudhry FS Mayo-Smith WW (2008) The incidental adrenal mass on CT: prevalence of adrenal disease in1049 consecutive adrenal masses in patients with no known malignancy. *America Journal of Roentgenology* 190: 1163-1168.
10. Wang LJ, Wong YC, Chen CJ, Chu SH (2003) Imaging spectrum of adrenal pseudocysts on CT. *European Radiology* 13: 531-535.
11. Cavallaro G, Crocetti D, Paliotta A, De Gori A, Tarallo MR, et al. (2015) Cystic adrenal lesions: clinical and surgical management. The experience of a referral centre. *Int J of Surg* 13: 23-26.
12. Kim BS, Joo SH, Choi SI, Song JY (2009) Laparoscopic resection of an adrenal pseudocysts mimicking a retroperitoneal mucinous cystic neoplasm. *World J Gastroenterol* 15: 2923-2926.
13. Hallfeldt KK, Mussack T, Trupka A, Hohenbleicher F, Schmidbauer S (2003) Laparoscopic lateral adrenalectomy versus open posterior adrenalectomy for the treatment of benign adrenal tumors. *Surg Endosc* 17: 264-267.

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