www.jcimcr.org

JCIMCR OPEN ACCESS Journal of Clinical Images and Medical Case Reports

ISSN 2766-7820

Case Report

Open Access, Volume 3

Robotic adrenalectomy for adrenal pseudocyst: Case report and review of literature

Lambreton F; Samreen S; Perez A; Walker JP*

Department of Surgery, The University of Texas Medical Branch, 301 University Boulevard, Galveston, TX, USA.

***Corresponding Author: John Patrick Walker**
Department of Surgery, The University of Texas Medical Branch, 301 University Boulevard, Galveston, TX 77555-0527, USA.
Email: jopwalke@utmb.edu

Received: May 02, 2022
Accepted: May 31, 2022
Published: Jun 07, 2022
Archived: www.jcimcr.org

DOI: www.doi.org/10.52768/2766-7820/1874

Abstract

Adrenal cysts are uncommon lesions that are usually benign, with an incidence of 0.06-0.18%. Pseudocysts are the second most common type of adrenal cyst. We present the case of a 57-year-old female whose CT scan of the abdomen incidentally revealed a 7.2 cm right adrenal tumor with peripheral calcifications. Due to its large size and unusual CT findings, resection was indicated. She underwent robotic assisted laparoscopic right adrenalectomy through an abdominal approach. Pathology revealed an adrenal pseudocyst. Only 7% of adrenal pseudocysts are malignant, but the risk is higher in larger ones (>6 cm). Most are diagnosed incidentally and are frequently mistaken for cystic lesions of the adjacent organs (pancreas, spleen, kidney, retroperitoneum, etc). This case exemplifies that adrenal incidentalomas are amenable to a robotic approach in carefully selected and appropriately worked up patients.

Introduction

Adrenal incidentaloma has a reported incidence of 1-4% [1]. Adrenal cysts are uncommon lesions, with an incidence of 0.06-0.18% in autopsy series [2]. Most occur between the ages of 30-60 and are more common in women [3]. Pseudocysts are the second most common type of adrenal cyst, accounting for approximately 40% of these [4]. Adrenal pseudocysts are often mistaken for a lesion arising from a different organ and are only found to be of adrenal origin in postoperative pathology [5].

Case description

This is a 57-year-old woman who presented to our clinic due to an incidentally found adrenal mass. The patient had a past surgical history of gastric bypass and had developed an incisional hernia, for which she was being evaluated with CT scan of the abdomen and pelvis. This scan revealed a 7.2 cm calcified mass in the right adrenal gland (Figure 1). The patient mentioned that a surgeon in the past had mentioned this mass but had recommended no treatment at the time. She was otherwise asymptomatic. Laboratory evaluation revealed that it was a non-functional mass, and the patient was referred to the General Surgery clinic for resection. She was taken to the operating room for a robotic-assisted laparoscopic adrenalectomy. The patient did very well postoperatively and was discharged on postoperative day 1. Pathology of the mass was consistent with adrenal pseudocyst with dystrophic calcification and focal ossification.

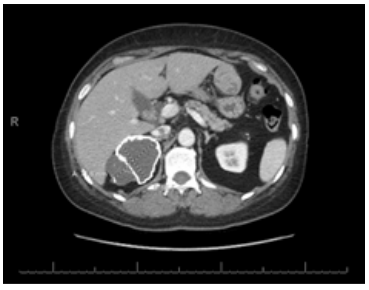

Figure 1: CT scan of the abdomen and pelvis.

Description of technique

The patient was placed in supine position. Trocars were placed in the left upper quadrant, right mid-clavicular line, right anterior axillary line and right periumbilical (Figure 2). The right lobe of the liver was mobilized and retracted with a Nathanson retractor. The peritoneum was then incised to expose the adrenal mass, which was then mobilized off of the lateral abdominal wall, superiorly off of the diaphragm and inferiorly off the kidney. It was then mobilized medially form the inferior vena cava (IVC), and the adrenal vein was identified. This was taken using a laparoscopic stapler. The dissection was then continued posteriorly to the quadratus lumborum muscle and the entire mass and suprarenal tissue was removed en-bloc. The adrenal capsule was intact.

Discussion

Adrenal pseudocysts are usually encountered as an incidental finding on CT, and thus has a wide preoperative differential diagnosis. This includes cystic or solid lesions from surrounding structures such as liver, kidney, spleen, retroperitoneum, etc [8]. They may mimic adrenal tumors, but a small series detected internal hemorrhage in 6 out of 7 adrenal pseudocysts [9,10]. While their etiology has not been definitively established, these lesions could arise from hemorrhage into the adrenal gland or cystic degeneration of adrenal neoplasms [11]. They are characterized by an absence of true epithelium and are frequently surrounded by a fibrous wall, with or without surrounding residual adrenal tissue [8,11]. Clinically they are commonly indolent, until they reach a significant size and exert a mass effect on surrounding tissues [3,12]. In a small number of cases they can also present with complications such as infection, hemorrhage, or rupture [4,13]. There are multiple imaging modalities that can aid in preoperative diagnosis, including CT, MRI, and EUS, but most will be definitively diagnosed on pathology after excision.

Preoperative diagnosis of adrenal pseudocysts is challenging. CT is the most common initial study, often done for work-up of other problems or non-specific symptoms. CT findings for adrenal pseudocyst can vary widely. They can present as a solid, mixed, or cystic mass, with or without calcifications. When present, calcifications of adrenal pseudocysts are usually in the wall or septum, whereas adrenal tumors have more central calcifications. However there are multiple reports of atypical imaging findings [6,7]. Adrenal pseudocysts may be differentiated from other lesions using MRI or EUS, but definitive diagnosis can only be achieved with excision [14].

Malignancy is present in approximately 7% of adrenal pseudocysts. High-risk characteristics include large size (4-6 cm), irregular margins, heterogeneity, or invasion of nearby structures. Additionally, malignancy could be suspected in the setting of a hyperfunctioning mass [13]. Once identified on imaging, further work up includes biochemical profiling with urinary and plasma metanephrines, aldosterone and renin activity, and cortisol levels. MIBG can be used to rule out pheochromocytoma [15].

Laparoscopic adrenalectomy has been a viable option for resection of adrenal masses for several decades. However, laparoscopy has several limitations such as rigid instruments, unstable camera, and poor ergonomics. These can be largely overcome with use of the robotic platform [6,7]. Several series have compared robotic and laparoscopic adrenalectomy and found to have similar outcomes including operative time, hospital stay, blood loss, and complication rate [16]. Robotic techniques are not without drawbacks as well, such as increased cost, unavailability of the platform at smaller centers, and less widespread experience [17]. There is controversy in the use of minimally invasive techniques in the setting of malignancy due to the need of en-bloc resection of involved organs, as well as concerns for inferior oncologic results with laparoscopic approaches. However, in carefully selected patients, minimally invasive adrenalectomy seems safe and feasible [18].

Conclusion

We present a rare adrenal tumor that has low malignant potential and can present with unusual CT findings (such as calcifications). Infrequently, these can result in highly morbid complications. This case exemplifies that adrenal incidentalomas are amenable to a robotic approach in carefully selected and appropriately worked up patients.

References

1. Davenport C, Liew A, Doherty B, et al. The prevalence of adrenal incidentaloma in routine clinical practice. Endocrine. 2011; 40(1): 80-83.
2. Papaziogas B, Katsikas B, Psaralexis K, et al. Adrenal Pseudocyst Presenting as Acute Abdomen during Pregnancy. Acta Chir Belg. 2006; 106(6): 722-725.
3. Ujam AB, Peters CJ, Tadrous PJ, Webster JJ, Steer K, Martinez-Isla A. Adrenal pseudocyst: Diagnosis and laparoscopic management – A case report. Int J Surg Case Rep. 2011; 2(8): 306-308.
4. Hsu KL, Chahine AA, Yadav B, DiAngelo CR, Rossi CT, Creamer KM. Infected adrenal pseudocyst mimicking a duodenal duplication cyst. J Pediatr Surg Case Rep. 2020; 53: 101362.
5. Marwah S, Marwah N, Garg S, Mathur SK. Adrenal pseudocyst mimicking cystic neoplasm of pancreatic tail. Clin J Gastroenterol. 2011; 4(4): 262-265.
6. Brandao LF, Autorino R, Zargar H, et al. Robot-assisted Laparoscopic Adrenalectomy: Step-by-Step Technique and Comparative Outcomes. Eur Urol. 2014; 66(5): 898-905.
7. Giulianotti PC, Buchs NC, Addeo P, et al. Robot-assisted adrenalectomy: a technical option for the surgeon? Int J Med Robot. 2011; 7(1): 27-32.
8. Momiyama M, Matsuo K, Yoshida K, et al. A giant adrenal pseudocyst presenting with right hypochondralgia and fever: a case report. J Med Case Reports. 2011; 5(1): 135.
9. Wang L-J, Wong Y-C, Chen C-J, Chu S-H. Imaging spectrum of adrenal pseudocysts on CT. Eur Radiol. 2003; 13(3): 531-535.
10. Sakamoto I, Nakahara N, Fukuda T, Nagayoshi K, Matsunaga N, Hayashi K. Atypical Appearance of Adrenal Pseudocysts. J Urol. 1994; 152(1): 150-152.
11. Medeiros LJ, Lewandrowski KB, Vickery AL. Adrenal pseudocyst: A clinical and pathologic study of eight cases. Hum Pathol. 1989; 20(7): 660-665.
12. Karayiannakis AJ, Polychronidis A, Simopoulos C. Giant adrenal pseudocyst presenting with gastric outlet obstruction and hypertension. Urology. 2002; 59(6): 946.

13. Stimac G, Katusic J, Sucic M, Ledinsky M, Kruslin B, Trnski D. A Giant Hemorrhagic Adrenal Pseudocyst. Med Princ Pract. 2008; 17(5): 419-421.

14. Yokoyama Y, Tajima Y, Matsuda I, et al. Differential diagnosis and laparoscopic resection of an adrenal pseudocyst: A case report. Int J Surg Case Rep. 2020; 72: 178-182.

15. Arnaldi G, Boscaro M. Adrenal incidentaloma. Best Pract Res Clin Endocrinol Metab. 2012;26(4):405-419.

16. Brandao LF, Autorino R, Laydner H, et al. Robotic Versus Laparoscopic Adrenalectomy: A Systematic Review and Meta-analysis. Eur Urol. 2014; 65(6): 1154-1161.

17. Taskin HE, Berber E. Robotic Adrenalectomy. Cancer J. 2013; 19(2): 162-166.

18. Mishra K, Maurice MJ, Bukavina L, Abouassaly R. Comparative Efficacy of Laparoscopic Versus Robotic Adrenalectomy for Adrenal Malignancy. Urology. 2019; 123: 146-150.