

Retroperitoneal haemorrhage as a consequence of adrenal cyst rupture

Adam Bławat, Janusz Kordasz, Jacek Ołubiec, Jarosław Gluchowski

Department of Urology WSS Słupsk, Poland

KEY WORDS

adrenal cyst ▶ retroperitoneal haemorrhage

ABSTRACT

Since 2004, 613 cases of adrenal cysts, including 85 hemorrhagic pseudocysts, have been reported. The authors present the case of a 16-year-old patient with retroperitoneal haemorrhage (as a consequence of adrenal pseudocyst rupture) treated surgically. The final diagnosis was established after physical examination, additional imaging studies (abdominal ultrasound, abdominal CT scan) and histopathological examination. CT examination should be performed in doubtful cases as a gold diagnostic standard. Because of high percentage of neoplastic cysts (up to 10%) and diagnostic difficulties, surgical excision of adrenal cysts with adrenalectomy remains the only appropriate therapeutic approach.

INTRODUCTION

613 cases of adrenal cysts, including only 85 hemorrhagic pseudocysts, have been reported since 2004 [1]. One of the most accurate classification of adrenal cysts is the histopathological classification from Henschen, according to whom adrenal cysts should be divided into: cystiform parasitic foreign bodies – 7%), true cysts (epithelial – 9%, endothelial – 45%), neoplastic cysts – 7% and pseudocysts – 32% (tuberculous, hemorrhagic) [2, 3, 4, 5, 6].

Hemorrhagic cysts constitute 1/3 of the last group [1]. Neoplastic cysts constitute 7% of all cases [7], 95% of which are of metastatic and 5% of which are of primary character (*pheochromocytoma* – tumor of the medulla of the adrenal glands – 3%, *adrenocortical carcinoma* – 2%) [8]. The prevalence of adrenal cysts in the population of Italy in postmortem studies is 0.064–0.18% [9], 1.4–5.7% in postmortem studies in the population of United States [7], 0.35–4.4% in CT examinations performed due to various reasons in the population of United States. Usually adrenal cysts are present in patients aged 30–60 years [10, 11], 62% of patients are females and 38% are males [10], and they are bilateral in 10% of cases [7].

Non-traumatic causes of adrenal cyst haemorrhage include: infection, asphyxia in newborns, coagulation disorders, perinatal stress, tumors of the adrenal gland, and idiopathic factors [7, 12].

Symptomatic cysts are the most common, constituting 67% of cases (symptoms include abdominal pain in 50%, palpable tumor – 8%, hemorrhagic shock – 8% and other – in 34% of cases) [9]. The symptoms connected with pain do not correlate with the dimensions of a cyst [8].

Ultrasound examination of the abdominal cavity is the primary method in the diagnostics of cysts [12]. Other examinations, such as computer tomography of the abdominal cavity, are characterized by high sensitivity (approximately 100%) for cysts larger than 1 cm [12].

CASE REPORT

Patient G.D. (hospital medical record 20923/07), aged 16, was admitted to the Unit of Surgery (November 2007) because of suspected acute appendicitis. Emergency laparotomy procedure was performed, which revealed 500 ml of bloody fluid in the peritoneal cavity, retroperitoneal haematoma and normal appendix. Redon drains were used. The abdominal cavity was closed with sutures. Ultrasound examination and computer tomography of the abdomen were performed.

The ultrasound examination of the abdominal cavity revealed a solid fluid-containing tumor, of 13 cm in diameter, situated between the superior pole of the right kidney and the liver. The tumor was described in the computer tomography as having a smooth contour, heterogeneous (attenuation coefficient ranging from 22 to 70 Hounsfield units) focal change in the right adrenal gland, 10 cm in diameter, without contrast enhancement, with no features of infiltration, continuous with the inferior pole, with extensive retroperitoneal haematoma on the same side, dimensions: 20 x 5 cm (Fig. 1, 2, 3). The computer tomography examination of the abdominal cavity did not reveal other abnormalities in the kidneys or other organs.

Because of diagnosed tumor of the right adrenal gland with large retroperitoneal hematoma on the right side, the patient was transferred to the Unit of Urology, where during laparotomy the right adrenal gland with the



Fig. 1. CT abdominal examination (a vertical section): the right adrenal tumor (10 cm in dimension) with right huge retroperitoneal hematoma of 20 x 5 cm.

change described above were removed. The final diagnosis (haemorrhagic cyst of the right adrenal gland) was established on the basis of histopathological examination. During the procedure 4 units of red cells concentrate and 5000 ml of Ringer's solution were administered. No complications were observed during the postoperative period. The patient was discharged home in good general condition on the 7th day after the procedure.

DISCUSSION

The case described in the paper is the only case of adrenal cyst treated in our Unit of Urology. Typical symptoms of retroperitoneal haemorrhage described by Wunderlich (acute pain in the lumbar area, tumor in the vicinity of the kidney, symptoms of internal haemorrhage) were not initially present in the patient. Because of ambiguous results of the ultrasound examination of the abdominal cavity (lack of visible cause of haemorrhage – ambiguous echogenicity) and of the computer tomography (borderline value of attenuation coefficient and trace contrast enhancement, which is not characteristic for a cyst, nor for a neoplasm) it was not possible to establish appropriate diagnosis (cause of retroperitoneal haemorrhage) before surgical procedure. The final diagnosis was established on the basis of histopathological examination.

Non-specificity of symptomatic adrenal cysts induces numerous diagnostic mistakes, made especially if advanced imaging methods are not available. In our opinion differential diagnostics of pain situated in the right side of the middle segment of the abdomen should include its less frequent causes, such as ruptured adrenal cyst. Apart from physical examination and clinical experience, ultrasound examination of the abdominal cavity is a perfect diagnostic tool, although in ambiguous cases computer tomography remains as the golden standard. High percentage (approximately 10%) of neoplastic cysts requires standard of management in diagnostically doubtful cases (surgical removal the adrenal cyst with the



Fig. 3. CT abdominal examination (a cross section): the right adrenal tumor (10 cm in dimension) with huge retroperitoneal hematoma of 20 x 5 cm.

adrenal gland as the first-line procedure), while low frequency of adrenal cysts makes their appropriate diagnosis difficult.

REFERENCES

1. Amarillo HA, Bruzoni M, Loto M et al: *Hemorrhagic adrenal pseudocyst: laparoscopic treatment*. Surg Endosc 2004; 18 (10); 1539. Epub 2004 Aug 24.
2. Bovio S, Porpiglia F, Bollito E et al: *Adrenal pseudocyst mimicking cancer: a case report*. J Endocrinol Invest 2007; 30 (3); 256-258.
3. M'Cosh AJ: *Cysts of suprarenal gland*. Ann Surg 1907; 878-890.
4. Chetty R, Silvester AC, Clark SP: *Pseudocysts of the adrenal gland*. Pathology 1993; 25 (3); 233-235.
5. Arundathi Rao, Bhagirath Majmudar, Harvey Bumpers: *Giant adrenal pseudocyst*. Surgical Rounds 2007; 12 (5); 6-8.
6. Róžański W: *Gruczolak nadnercza prawego*. Urol Pol 1990; 43; 4.
7. Medeiros LJ, Lewandowski KB, Vickery AL Jr: *Adrenal pseudocyst clinical and pathologic study of eight cases*. Hum Pathol 1989; 20 (7); 660-665.
8. Yue CT, Liao A, Huang P, Lowe GT: *A large adrenal pseudocyst mimicking malignant intraabdominal tumor: A Case Report*. Chin Med J (Taipei); 1997; 60; 321-325.
9. Bellantone R, Ferrante A, Raffaelli M et al: *Adrenal cystic lesions: report of 12 surgically treated cases and review of the literature*. J Endocrinol Invest 1998; 21 (2); 109-114.
10. Torres C, Ro JY, Batt MA, Park YW et al: *Vascular adrenal cysts: a clinicopathologic and immunohistochemical study of six cases and a review of the literature*. Mod Pathol 1997; 10 (6); 530-536.
11. Krauze-Balwińska Z, Fryczkowski M, Pietrzyk M, Bargiel J: *Torbiel rzekoma nadnercza lewego współistniejąca z kamicą nerkową*. Urol Pol 1988; 2; 18.
12. Kawashima A, Sandler CM, Ernst RD et al: *Imaging of nontraumatic hemorrhage of the adrenal gland*. Radiographics 1999; 19 (4); 949-963.

Correspondence

Adam Bławat
 Oddział Urologiczny WSS
 76-200 Słupsk, Poland
 ul. Obrońców Wyrzeża 4
 phone: +48 59 842 48 67
 blawatta@wp.pl



Fig. 2. CT abdominal examination (a longitudinal section): the right adrenal tumor (10 cm in dimension) with huge retroperitoneal hematoma of 20 x 5 cm.