

Accessory spleen misdiagnosed as left adrenal tumor causing complications

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Case report

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Abstract

A 58-year-old female patient came to our hospital for physical examination. CT scan: a round, well-defined and isoechoic nodule has been found in the left adrenal with a clear boundary and scaled about 2.0cm × 1.7 cm. She underwent laparoscopic resection, sequentially occurred complications of the pancreas and renal impairment. Discussion: In general, the accessory spleen is asymptomatic and most were found by ultrasonography in physical examination. Usually, accessory spleen located in the helium or inferior pole of the spleen, rarely in the superior pole or other organs like adrenal. Clinically, it can be misdiagnosed or even caused complications in some serious cases.

Instruction

The accessory spleen is a congenital ectopic spleen tissue share similar structures and functions to normal with an incidence of 10%-30%[1]. It can occur anywhere in the abdominal cavity, usually in the splenic hilum or the tail of the pancreas[2, 3]. Most patients have no clinical symptoms, some were found in the physical examination or laparotomy exploration. However, rupture, torsion, and infarction may also occur, leading to acute abdominal disease. In the clinic, it is easy to be misdiagnosed and can lead to complications in severe cases. Under normal circumstances, the accessory spleen has little chance of lesions and has no impact on human health. Hence, clinicians often pay insufficient attention to it. Yet, the accessory spleen misdiagnosed as tumors or other diseases often leads to unnecessary surgical excision and treatment, which will bring pains to patients. Moreover, missed diagnosis may result in a secondary operation during pathological splenectomy.

We experienced a case that an accessory spleen was misdiagnosed as the left adrenal tumor, which caused the impairment of the pancreas and renal.

Case Report

The patient, a 58-year-old female, was admitted to the hospital due to the mass in the left adrenal gland for 1 week after the physical examination. A week ago, the abdominal CT examination showed that the left adrenal gland was occupied with a size of 2.0cm × 1.7 cm, with normal bowel movement and denied the history of hypertension, mouth numbness, periodic numbness, urination frequency, urgency, pain and discomfort. Since the onset of the patients, normal spirit, appetite, sleep and excretion, and no significant weight loss was observed. She had a history of lupus erythematosus for more than 10 years and took 5 mg/ day of oral prednisone, and denied familial-hereditary disease. Specialist examination showed that no tension in the abdominal muscles, no tenderness in the abdomen, no percussion pain in the bilateral kidney area, but tenderness in the bilateral ureteral region. And no uplift in the suprapubic bladder area and normal appearance of the external genitalia.

CT plain scan showed a 17.0 mm sized soft tissue shadow located in the left adrenal(Fig. 1A), while the mass enhanced in the arterial phase (Fig. 1B)and reduced in the venous phase(Fig. 1C). Laboratory data

revealed that the 8 AM blood cortisol was slightly lower(6.66, 6.7–22.6), significantly decreased urinary cortisol(15.69, 58–403) and 4 PM corticotropin(1.30, 7.2–63.3) and normal level of 8 AM corticotropin(20.26,7.2–63.3)and 4 PM blood cortisol(1.66, < 10). Combined with the above results, neoplastic features and impaired adrenal function presented.

During the physical examination, the left adrenal mass has been discovered, then the patient went to the urology department of the local hospital for treatment, did not make further examination and consultation, and underwent the surgeon. After anesthesia, the right side-lying position took, laying routine disinfection towels. A 2 cm incision was made above the midaxillary iliac ridge and separated into the retroperitoneal cavity. Then performed puncture cannulas with a diameter of 5 mm and 10 mm under the anterior and posterior costal margin of the axilla, respectively and the laparoscope was placed after gasbag dilatation. The perirenal fascia is dissociated to the dome diaphragm along the dorsal side of the kidney and then separated from the upper pole to the ventral side of the kidney. The adrenal tissue was found at the upper pole of the kidney. On scrutiny, no obvious mass was observed among the abdominal cavity upper to the diaphragmatic apex, lower to the renal hilum anterior to the parietal peritoneum and posterior to the medial margin of the psoas major. The left adrenal gland and surrounding adipose tissue were completely removed and placed into a specimen bag.

Continue to separate from the dome diaphragm to the ventral side, and carefully investigate. One brown-yellow round mass was observed at the lateral edge of the splenic artery, and about 2.0cm × 1.7 cm. Using a blood vessel clamp at the base for hemostasis, then carefully separated and removed the mass completely from the original incision with an ultrasound knife. The excised tissue was put into a specimen bag, removed, and sent for pathological examination. After thorough hemostasis under laparoscopy, the wound surface was flushed, and no active bleeding was detected. Two drainage tubes were placed, the puncture cannula was pulled out, and the puncture incision was sutured in sequence. After the operation, the patient returned safely to the ward. Postoperatively, the patient is generally normal.

On day 10 after the operation, the fluid was about 100 ml per day, which was considered as lymphatic leakage. CT scan showed the left adrenal mass still existed(Fig. 2A) with a similar CT value with the spleen, and consistent with spleen after enhancement(Fig. 2B). Hence accessory spleen was considered. The patient was discharged with catheters on the same day.

On day 14 after the operation, approximately 500 ml of colorless fluid was expelled from one of the drainage tubes. Pancreatic leakage was considered and readmitted for treatment.

On day 15 after the operation, about 500 ml bright red blood drained out, and bleeding was considered. Acute arteriography revealed splenic artery hemorrhage, then underwent arterial embolization(Fig. 3).

On day 17 after the operation, the patient developed abdominal discomfort. The upper abdominal muscles were found to be slightly tense, tender, and without rebound pain. The local fluid was found on CT examination(Fig. 4), and an emergency laparotomy was performed. Hemoperitoneum around the

retroperitoneal pancreas was observed, following cleared and double cannula and peritoneal drainage were placed.

After the operation, symptomatic treatment was given. The drainage tube was drained with colorless liquid of about 200 ml per day. The drainage fluid decreased and on day 40 after the secondary operation, no hydrops was found on CT examination. Pulled out the tubes and the patient was cured and discharged.

The patients were followed up for half a year without special discomfort. CT showed the formation of a pseudocyst of the pancreas (Fig. 5A) and ischemia of the upper pole of the left kidney (Fig. 5B).

Discussion

The accessory spleen is caused by the fusion failure of the splenic anlage located in the dorsal mesogastrium in the fifth week of fetal life[4] or developed from the deciduous part of the main spleen[5]. The incidence of the accessory spleen is about 10%-35%[6, 7] and the younger the age, the higher the incidence. It mainly occurs in the splenic hilum and the tail of the pancreas (more than 70%), and a few can occur in the gastrosplenic ligament and lienocolic ligament, or the greater omentum, ureter, ovary and pelvic cavity[8, 9]. The accessory spleen can link to the main spleen or form a separate nodule in most cases. The nodule is composed of fibrous tissue with a clear boundary, and its internal structure is similar to that of the normal spleen. Therefore, the same circumstance on their internal echo[10]. Therefore, the accessory spleen may have lesions related to the main spleen, such as infarction, rupture, tumor, cyst, and even pedicle torsion, and its internal echo may change correspondingly[11].

Since the blood supply of the heterotopic accessory spleen comes from the external membranous micro artery or the small branch of the splenic artery, the left liver accessory spleen was misdiagnosed as liver cancer, focal liver hyperplasia and other liver diseases[12, 13]. The accessory spleen on the tail of the pancreas was misdiagnosed as pancreatic cancer[14], islet cell tumor, or solid pseudopapillary of the pancreas[15], which leads to unnecessary surgery. Normally, the accessory spleen has little chance of lesions and acts no impact on human health. However, its related misdiagnosis or miss-diagnosis will cause unnecessary surgery or secondary surgery, which suggests that clinicians should increase their knowledge of the accessory spleen, especially the heterotopic accessory spleen so that to reduce the rate of misdiagnosis and missed diagnosis of the accessory spleen.

Conclusion

The case reported above indicated that the left adrenal mass was found in a physical examination and underwent surgery without a clear diagnosis. During the surgery, the pancreas has been impaired and inadequate post-injury management, which caused serious complications and pains to the patient.

We concluded three lessons in this case:

1. When unidentified mass found in the abdominal cavity, should consider the possibility of the accessory spleen. In this case, if the tumor was found in the CT and there was no abnormality in the general biochemical examination, no further examination was performed, and laparoscopic surgery was performed boldly.
2. If the tumor is not found during laparoscopic surgery, the patient should be transferred to open surgery in time. The wide field of view in open surgery is beneficial to the search for tumors and dealing with complications.
3. Once complications occur during surgery, it must be properly handled. 10 days after the operation, the drainage volume of the patient was still about 200 ml per day, and the patient was discharged with a drainage tube owing to only affirming lymphatic leakage, this is not an appropriate disposition.

All in all, the ectopic accessory spleen could be easily misdiagnosed in the clinic. When unidentified masses appear in the abdominal cavity, the possibility of the accessory spleen should be considered to avoid unnecessary misdiagnosis and complications.

Declarations

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None

Authors' contributions

Study conception and design: Feng Chen.

Acquisition of data: Feng Chen.

Analysis and interpretation of data: Feng Chen, Ke Shi.

Drafting of the manuscript: Feng Chen, Ke Shi.

Critical revision: Feng Chen, Ke Shi, Ming-shi Fu, Hui Sun.

The author(s) read and approved the final manuscript.

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Availability of data and materials

The dataset analyzed during the current study is available from the corresponding author on a reasonable request.

Ethics approval and consent to participate

Shanghai Sixth People's Hospital East Campus Affiliated to Shanghai University of Medicine & Health Sciences approved the present study. All patients provided written informed consent.

Informed consent was obtained from the patient prior to participation in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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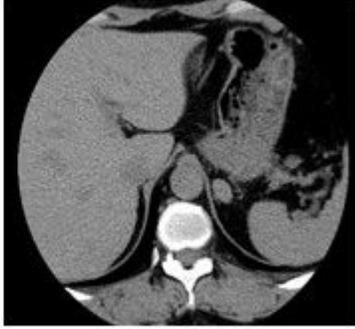
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Figures

A.



B.



C.

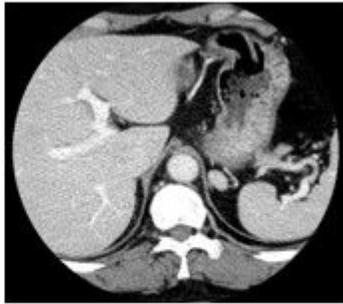


Figure 1

Before the operation, CT examination showed a mass in the left adrenal gland. (A) A 17.0mm sized soft tissue shadow located in the left adrenal has been shown by plain scan, (B) the mass strengthen in the arterial phase, and (C) reduced in the venous phase.

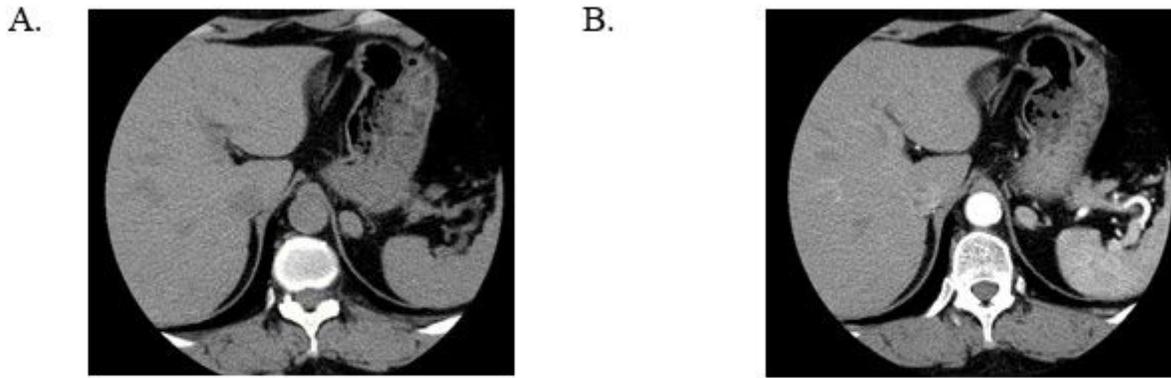


Figure 2

On day 10 after surgery, (A) CT scan showed the left adrenal mass still existed with a similar CT value with the spleen, (B) and consistent with spleen after enhancement.

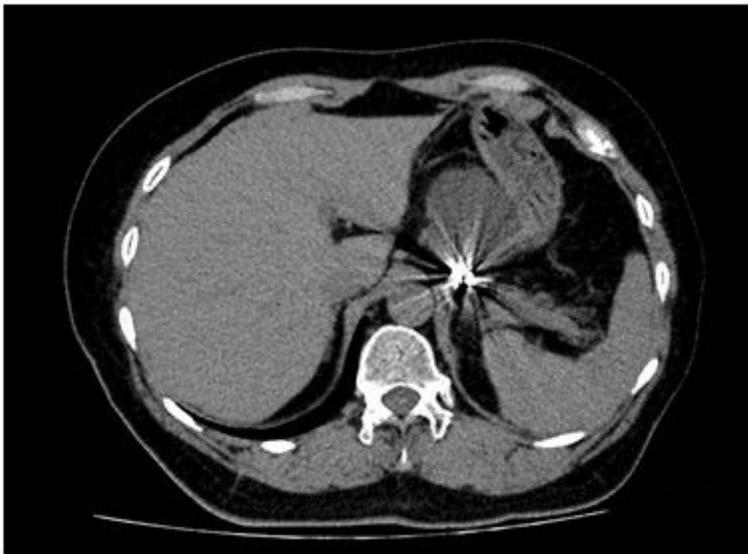


Figure 3

On day 15 after surgery, the patient underwent arterial embolization after diagnosed as splenic artery hemorrhage by acting acute arteriography.

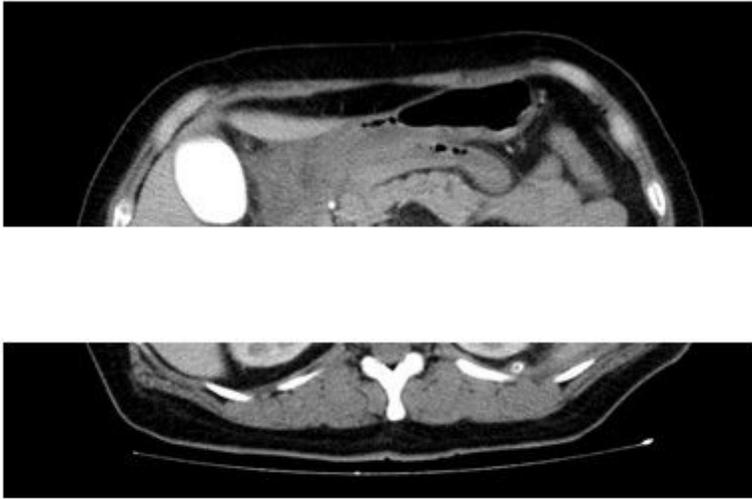


Figure 4

On day 17, the local fluid was found on CT examination.

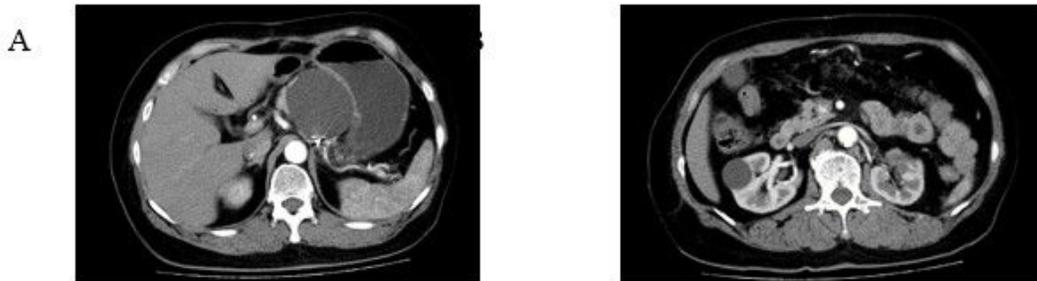


Figure 5

Half a year later, (A) the formation of a pseudocyst of the pancreas and (B) ischemia of the upper pole of the left kidney have been shown by CT examination.