

Case Report: Diagnosis and Treatment of a Giant Retroperitoneal Liposarcoma Presenting as an Irreducible Inguinal Hernia

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Case report

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Abstract

Background: Retroperitoneal liposarcoma protrude to the inguinoscrotal area presenting as an irreducible inguinal hernia is extremely rare. For the rare cases and little experience of diagnosis and treatment of this disorder, the clinical guidelines are vacant. We report a successful example for the management of a giant retroperitoneal liposarcoma extending to the inguinoscrotal area.

Case presentation: A 55-year-old male patient was admitted to our hospital in August 2018 with a large left inguinal mass without abdominal pain or digestive symptoms. Preoperative contrast-enhanced computed tomography revealed an abdominopelvic huge mass, and ultrasound guided biopsies showed liposarcoma. The patient also suffered from dilated cardiomyopathy and the left ventricular ejection fraction is only 39%. The left renal pedicle was squeezed by the mass and the left glomerular filtration rate is as low as 29.25ml/min. Intraoperatively, the mass was incarcerated in the inguinal canal and involved the left testis. We performed a radical tumor resection with two incisions, including resection of the retroperitoneal tumor, resection of the scrotal tumor and a tension-free repair of left inguinal hernia. The resected specimen for the retroperitoneal part measured 50*28*9 cm, weighed 13.5 kilograms and the scrotal part measured 16.5*7*4.5 cm, weighed 6.2 kilograms. Pathologically, the tumor was diagnosed as a well-differentiated liposarcoma, and originated from perirenal fat. The patient did not undergo adjuvant therapy post-operation and is completely clinical remission fifteen months after the operation.

Conclusions: Careful distinction for inguinoscrotal mass is essential to minimize complications and improve patient prognosis. The prime principle to treat well differential retroperitoneal liposarcomas is radical resection with protection of vital organs and vessels.

Background

Liposarcoma is a rare malignant tumor derived from adipocyte and it is more often located in the extremities, retroperitoneum or inguinal region ^[1]. Retroperitoneal liposarcoma protrude to the inguinoscrotal area mimicking an inguinal hernia is extremely infrequent with unexpected diagnosis ^[2]. Radical resection is the hallmark to treat the well differential liposarcoma for the insensitivity to radiotherapy and chemotherapy ^[3]. But the operation can be a challenge due to the huge tumor with a wide distribution, and the anatomical adjacent relationship is obviously changed. Patient with organ dysfunction worsens this situation.

Herein, we report a case of a giant retroperitoneal liposarcoma that presented as a giant inguinoscrotal irreducible mass with high risk of operation.

Case Presentation

A 55-year-old male presented to our hospital with a painless growing mass in the left inguinal region. The mass has gradually extended into the scrotum. He had first noticed the mass 4 year prior to the

consultation when he was undergoing medical treatment for heart failure caused by dilated cardiomyopathy in local hospital. The surgeons of the local hospital recommended a stay of operation because of the recent heart failure. Since then, the patient took Bisoprolol, Trimetazidine and Perindopril tert-butylamine to control the heart failure. He suffered from an open fracture of his left tibia and fibula after 3 year of the heart failure and the external fixation did not moved until this visit. There were no special abnormalities in the physical examinations except for the left inguinoscrotal mass (Fig. 1). We diagnosed the inguinal mass as a left irreducible inguinal hernia. Due to the large size of the mass, the patient underwent an abdominal contrast-enhanced computed tomography (CT) to rule out other intraabdominal abnormalities. The contrast-enhanced computed tomography revealed a giant mass of fat density extending below the internal ring orifice and falling into the scrotum (Fig. 2). We suspected the mass to be a liposarcoma, and then the B-ultrasound guided biopsies confirmed our suspicion. Because of the heart failure history, we carefully assessment the heart, lung and kidney function before operation. The left ventricular ejection fraction is only 39%, but the electrocardiogram (ECG), Brain Natriuretic Peptide (BNP) and Troponin I (TNI) are within normal range. The New York Heart Association (NYHA) functional class was II grade assessed by the cardiology physician. The chest CT revealed that the lung has multiple emphysema but the pulmonary function is basically normal. The left renal pedicle was squeezed by retroperitoneal mass and the left glomerular filtration rate is as low as 29.25 ml/min. The operation was performed under the cooperation of the department of anesthesiology, department of cardiology, and the Surgery Intensive Care Unit (SICU). In order to radically resect the giant tumor, we performed the operation with two incisions. One incision is from the xiphoid process to the symphysis pubis and the other is a classic incision of inguinal hernia repair. The whole process including resection of the retroperitoneal tumor, resection of the scrotal tumor and a tension-free repair of left inguinal hernia.

During the operation we found a giant encapsulated mass occupied the left retroperitoneum (Fig. 3). The tumor was derived from peripheral fat tissue of the left kidney and the upper urinary tract including the renal pedicle were tightly wrapped by the tumor. Complete tumor and adjacent abdominal organ resections including left kidney, left ureter, left testicles and epididymis were performed. Then, a hernial patch was put into the preperitoneal space to repair and strengthen the local defect. The operating time was about 300 min with less than 100 ml blood loss and the patient was stable during the whole operation. The resected specimen for the retroperitoneal part measured 50*28*9 cm, weighed 13.5 kilograms and the scrotal part measured 16.5*7*4.5 cm, weighed 6.2 kilograms (Fig. 3). The patient was admitted to the SICU to closely monitored the day after the surgery but transferred to the general ward the next day. There was no postoperative complications and the patient was discharged one week after the surgery. Pathologically, the tumor was diagnosed as a well-differentiated liposarcoma, and originated from retroperitoneum. We did not undergo adjuvant therapy in consideration of the radical resection and the insensitivity to radiotherapy and chemotherapy for the well-differentiated subtype^[1]. The patient is well and shows no evidence of recurrence fifteen months after the operation (supplementary materials, CT scan).

Discussion And Conclusions

Inguinal hernia is a common and prevalent disease mainly presented as inguinal or scrotal mass [4]. It is not complicated to diagnosis an inguinal hernia, but we must pay attention to some special types of inguinal hernia and special hernia contents. For example, sliding hernia that caecum, sigmoid colon or bladder become part of the hernia sac wall, and these organs can be easily damaged when the hernia sac wall is incised without caution [5-6]. Sometimes the hernia contents extending from the abdominal cavity are not part of the normal tissues, but are retroperitoneal or intraperitoneal tumors such as liposarcoma or neurofibroma from the retroperitoneum, and lymphoma from the small intestine [2, 7]. Special hernia content should be considered, if a huge inguinal or scrotal mass is irreducible without signs of abdominal pain or intestinal obstruction. This patient consulted at the outpatient for his football-sized scrotal mass, and we immediately send him to the radiology department for an abdominal CT scan to rule out other abdominal abnormalities. From the reported literatures, three cases were misdiagnosed preoperatively as mere inguinal hernia and needed reoperation [8-10]. Reoperation would increase the mortality and recurrence of those patients. Sometimes, non-inguinal hernia disease presents as an inguinoscrotal mass also should be cautious. These diseases or disorders are testicular or spermatic hydrocele, varicocele, enlarged lymph nodes in the groin, spermatic cord lipoma or liposarcoma, undescended testis, and cold abscess of the psoas muscle et al [11-12]. Hence, potential pitfalls should be avoided when diagnosis of inguinal masses.

Retroperitoneal liposarcoma presenting with inguinal hernia is extremely rare and only eleven cases have been reported in the world up to this point (supplementary table 1). Histologically, the majority of these liposarcoma were well-differentiated. The majority of the cases perform surgical resection and have favorable prognosis. Hence, radical resection remains the mainstay of therapy particularly for the well-differentiated subtype [3]. But the operation can be a big challenge for the huge tumor with a wide distribution, the surrounding organs are compressed and deformed, and the anatomical adjacent relationship is changed. It is important to radical resect the tumor and preserve the vital organs or vessels. Intraoperatively, bilateral ureteral intubation should be first performed to protect the ureter. The pulsation of important blood vessels should always be touched and the tumor should be dissected more than 1 cm away from the arteriopalms, so as to avoid damage to the large blood vessels. Large retroperitoneal tumors often have serious adhesion with surrounding tissues and organs, or even completely wrap around some organ tissues. At this time, the choice of combined resection of the viscera can avoid local residual tumor and the spread of tumor cells, which ensure negative surgical margin [13]. For patients with cardiopulmonary insufficiency, multidisciplinary cooperation must be sought. Serdar Yol et al. successfully cured a patient with dyspnea and cachexia by respiratory support in the early postoperative period [14]. In our case, the massive operation was performed under the escort of cardiologist, anesthetist, and intensive care physician. There are still debates about the postoperative radio-chemotherapy of the well differentiated liposarcomas [15]. We did not undergo adjuvant therapy inconsideration of the radical resection and the low risk of recurrence for the well-differentiated subtype.

In conclusion, careful distinction for inguinoscrotal mass is essential to minimize complications and improve patient prognosis. Further imaging examination is mandatory to screen for other intraabdominal

abnormalities, if a huge inguinal or scrotal mass is irreducible without signs of abdominal pain or intestinal obstruction. The prime principle to treat well differential retroperitoneal liposarcomas is radical resection with protection of vital organs and vessels. Since radical resection is a challenge for a retroperitoneal mass protruding into inguinoscrotal area, interdisciplinary discussion must be considered.

Abbreviations

CT: computerized tomography

ECG: electrocardiogram

BNP: Brain Natriuretic Peptide

TNI: Troponin I

NYHA: New York Heart Association

SICU Surgery Intensive Care Unit

Declarations

Ethics approval and consent to participate

Not applicable. Due to the treatment of a single patient with informed consent for operation, no ethics approval was obtained. The authors thank the patient for informed consent to this publication and the related images.

Consent for publication

The manuscript is approved for publication by all the authors. Written informed consent was obtained from the patient for publication.

Availability of data and materials

The datasets used during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no conflict of interests

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Authors' contributions

Conceived and designed the study: Tao Chen; Acquisition, analysis or interpretation of data: Zhiqing Yuan, Qiwei Li, Wei Zhou; Drafting of the manuscript: Zhiqing Yuan, Qiwei Li. Critical revision of the manuscript: Tao Chen and Jianhua Sun. performed the surgeries: Tao Chen, Zhiqing Yuan and Qiwei Li; All authors have read and approved the manuscript.

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Figures



Figure 1

(A-B) The patient presented with a football-sized mass in left inguinoscrotal area (black arrow).

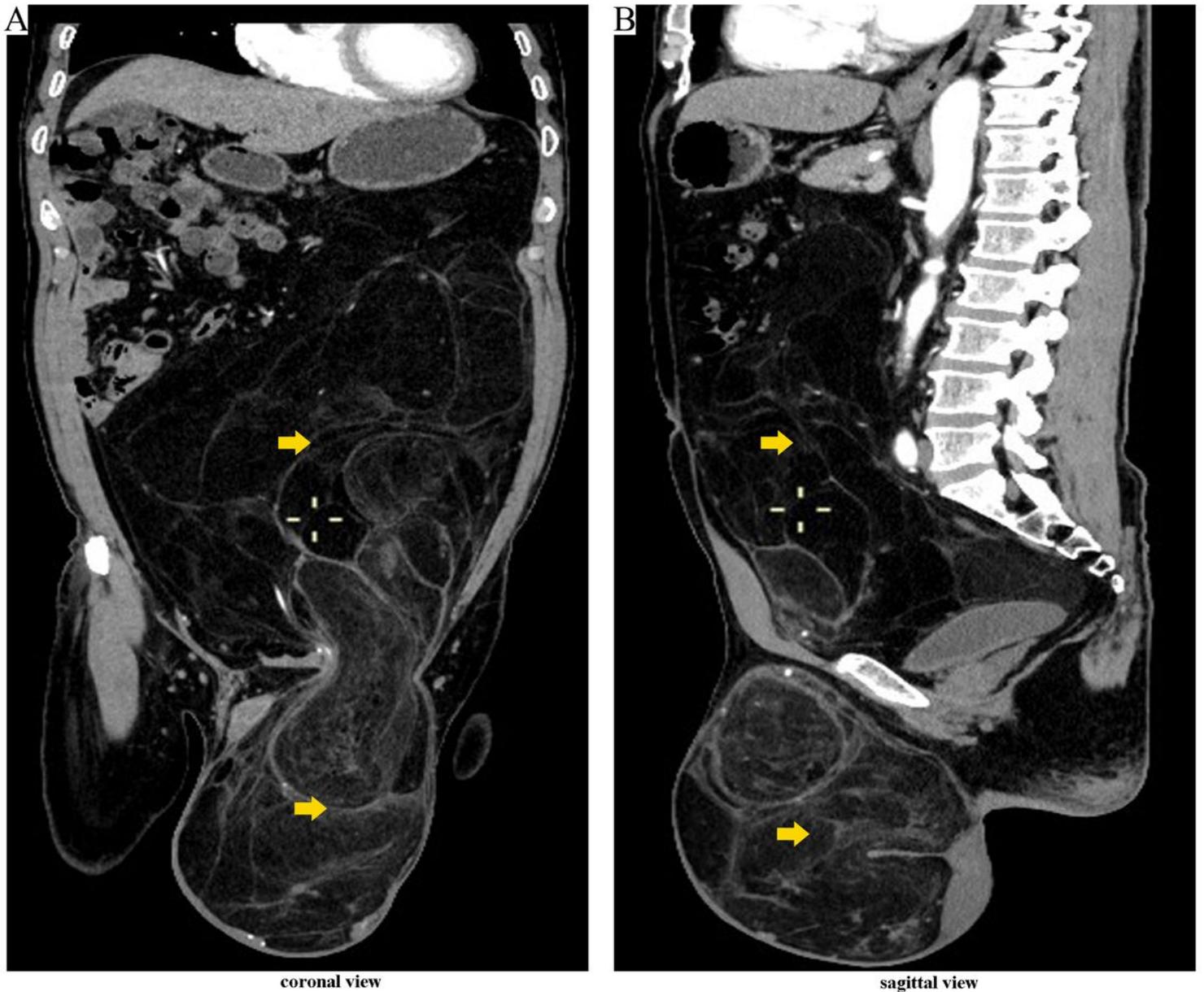


Figure 2

(A-B) The contrast-enhanced computed tomography showing a giant retroperitoneum mass of fat density protruding through the groin into the scrotum (yellow arrow). The left image revealing the coronal view, and the right showing the sagittal view.

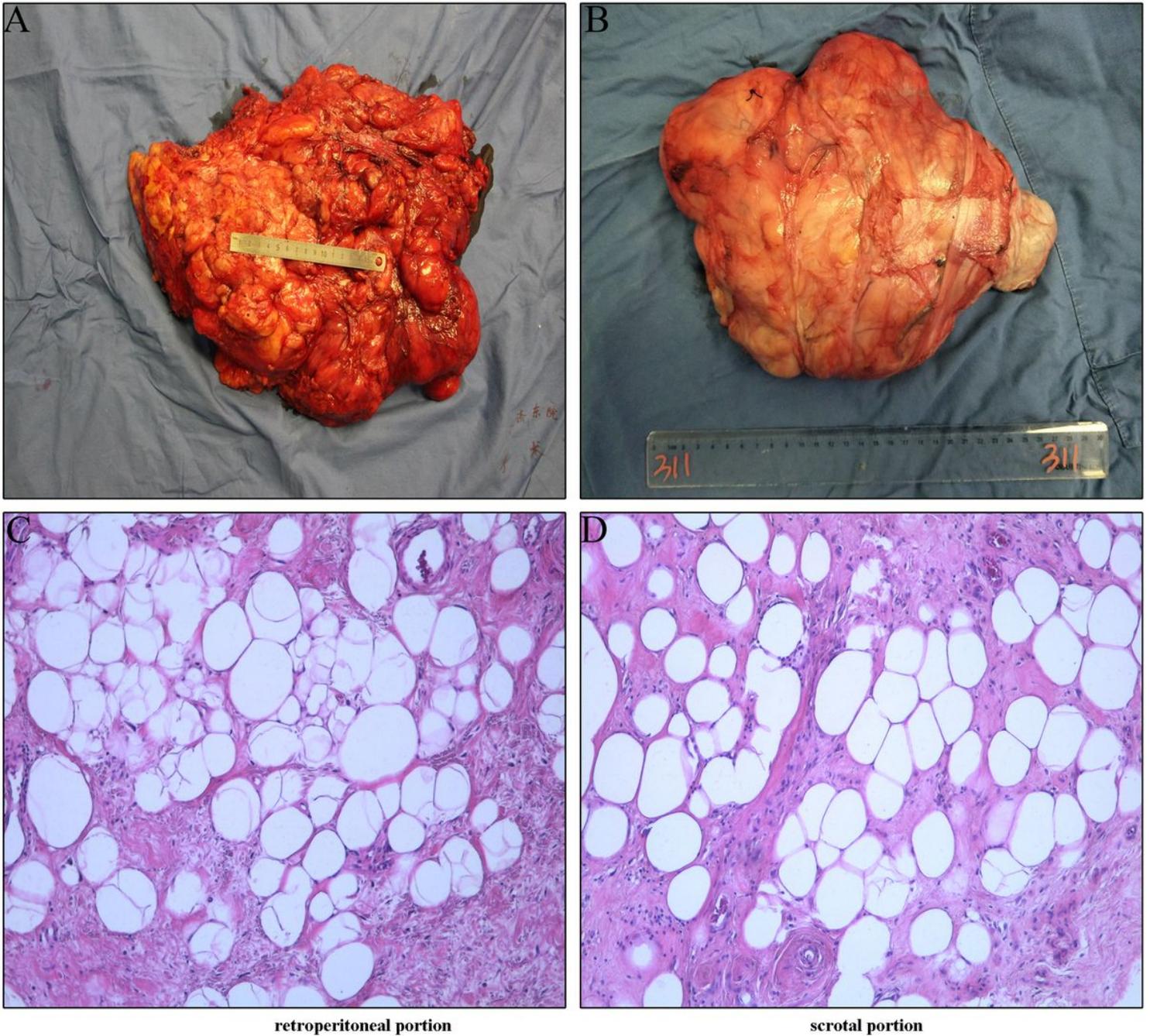


Figure 3

The resected specimen including the retroperitoneal portion (A) and scrotal portion (B) showed lobulated yellow fat tissue with envelope. They both are well differentiated liposarcoma in pathological manifestation (C and D, hematoxylin and eosin staining $\times 100$).

Supplementary Files

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