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Complex space of Retzius lymphocele resulting in iliac compression and submassive pulmonary embolism after robotic Retzius sparing prostatectomy

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ABSTRACT

Lymphoceles are common following prostatectomy with lymph node dissection, but the vast majority are asymptomatic. We present a unique case of a large complex lymphocele tracking into the anterior space of Retzius following Retzius sparing prostatectomy and bilateral pelvic lymphadenectomy. The patient initially presented with shortness of breath and subsequent diagnosis of a submassive pulmonary embolism. Further evaluation revealed compression of the iliac vessels by the fluid collection. Following multiple failed attempts of drainage percutaneously, the patient required return to the operating room for peritoneal marsupialization, drainage of fluid collection, and evacuation of large amounts of clot within the collection.

Introduction

Pelvic lymph node dissection (PLND) is recommended for identification of nodal metastasis in prostate cancer allowing for accurate staging, prognosis, and treatment in higher risk patients.[1] However, a common complication following PLND is the formation of a pelvic lymphocele. Although usually asymptomatic, some patients may exhibit fevers, abdominal pain, or lower extremity swelling requiring treatment.[2] Among Retzius sparing radical prostatectomy (RS-RARP), lymphoceles have been reported in 10% of PLNDs for intermediate and high-risk prostate cancer.[3] We present a unique case of submassive pulmonary embolisms (PE) potentially caused by iliac compression by a large complex space of Retzius lymphocele after a RS-RARP.

Case presentation

A 66-year-old Caucasian male without pertinent medical history was referred to Urology clinic with hematospermia and a prostate specific antigen of 1.6. On physical exam, he was found to have a suspicious prostate nodule and subsequently underwent biopsy which revealed Gleason Grade Group (GG) 1 adenocarcinoma in one core. The patient was recommended to undergo active surveillance. However, confirmatory biopsy resulted in upstaging to GG4 disease and the patient underwent a RS-RARP with bilateral PLND. There were no intraoperative or postoperative complications, and he was discharged home on postoperative day one without a pelvic drain. Final pathology revealed GG3 pT3bN0 disease with negative surgical margins.

At his second follow up on postoperative day 46, the patient complained of exertional dyspnea. He endorsed abdominal distension but reported normal bowel function. As the patient appeared acutely tachypneic, he was referred for urgent computed tomography (CT) angiography, which demonstrated bilateral PE with evidence of right heart dilation (Fig. 1a). The patient was admitted, and interventional radiology (IR) performed a pulmonary artery thrombectomy and placement of an inferior vena cava filter, with a large volume of clot evacuated (Fig. 1b). The patient was placed on high dose subcutaneous enoxaparin for therapeutic anticoagulation.

Following thrombectomy, the patient continued to complain of abdominal distension, worsening bladder spasms, suprapubic discomfort and bilateral lower extremity edema. CT scan revealed a large well-

Abbreviations: LND, Lymph node dissection; RS-RARP, robotic-assisted laparoscopic Retzius-sparing radical prostatectomy; PE, pulmonary embolism; GG, Grade group; CT, Computed tomography; IR, Interventional radiology.

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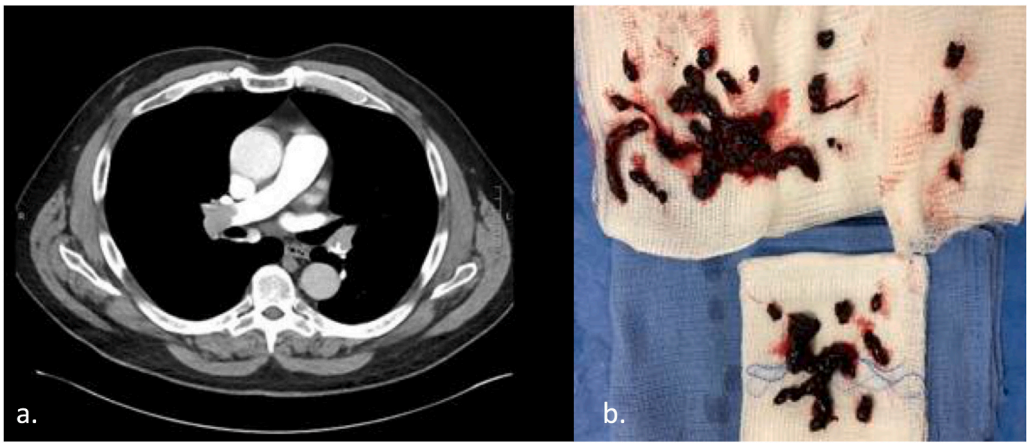

Fig. 1. Submassive pulmonary embolism of the bilateral pulmonary arteries with segmental and lobar involvement. a) CT images b) Thrombectomy specimen.

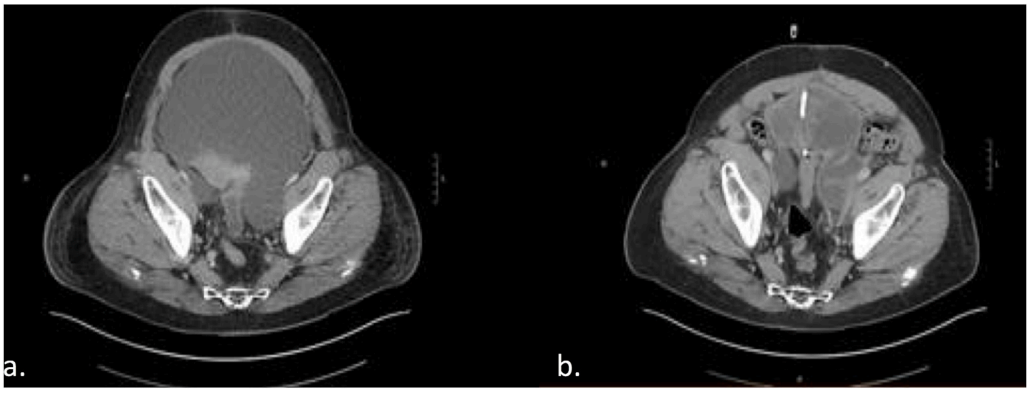

Fig. 2. CT Images a) Large complex fluid collection with likely clotted blood products contained within the space of Retzius and compressing the iliac vessels b) Mildly improved but persistent complex fluid collection, again with clotted blood products, following drain placement.

defined mixed density fluid collection containing blood products distending the space of Retzius and compression of the common iliac veins (Fig. 2a). A drain was placed in the fluid collection for decompression by IR. Fluid studies demonstrated a normal creatine and triglyceride level, and subsequent cytology and culture were negative.

Following drainage, the patient reported improvement in symptoms and was discharged. However, he returned seven days later complaining of fever and worsening abdominal distension. CT imaging demonstrated an appropriately positioned drain with a persistent complex fluid collection originating from the left obturator fossa (Fig. 2b). IR upsized and repositioned the indwelling drain. However, the repositioned drain functioned poorly with low output of dark, clotted material.

Given failure of conservative measures, the patient was taken for robotic-assisted laparoscopic marsupialization and washout of residual lymphocele and blood clot (Fig. 3). Intraoperatively, a large mass effect was noted within the intact space of Retzius. A small right-sided lymphocele was noted and drained clear fluid. The fluid collection within the space of Retzius was thought to be originating from the left iliac fossa, so the bladder was dropped by incision of the median umbilical ligaments and urachus, exposing the space of Retzius and iliac vessels. Dark fluid, fibrinous tissue, and coagulated blood products were noted, the space was irrigated thoroughly, and large amounts of blood clot was evacuated. Two 19F Blake drains were placed over each obturator fossa and projecting into the space of Retzius.

Following the operation, the patient was discharged with one Blake drain and IV Vancomycin. Postop week two, CT scan showed drastic improvement in the fluid collections with stable drain output. The drain was removed. Repeat CT postoperative week six showed decreasing left pelvic fluid collection and persistent small the right sided collection. The patient remained clinically asymptomatic without fevers, chills, or pain after drain removal.

Discussion

Thromboembolic disease is a dreaded complication of radical prostatectomy. Prostate cancer itself can induce a hypercoagulable state compounded by the immobility of pelvic. History of thromboembolic event, open surgical approach and higher stage disease have been associated with higher rates of thromboembolic events.[4] Notably, PLND has been associated with an eight- and six-fold greater risk of deep venous thrombosis and PE. Compression of the iliac vessels by lymphoceles can further promote a prothrombotic state.[5]

Most lymphoceles are asymptomatic. Symptomatic lymphoceles are treated most commonly with percutaneous drain placement and or sclerotherapy, however, up to 57% end up being readmitted postoperatively, making lymphocele a significant cause of morbidity following PLND.[2] Lymphoceles are less commonly seen when an incision is made in the peritoneum.[1] RS-RARP is growing in popularity as it shows improved early continence with comparable oncologic outcomes.[3] The peritoneum is incised in three places for RS-RARP with PLND: in the pouch of Douglas, and over the iliac vessels. The bulk of the collection extended anteriorly into the space of Retzius, but its size and communication with lateral PLND lymphocele sites resulted in compression of the iliac veins. Despite the extensive size, the patient was 1qeminimally symptomatic from the collection until he developed his PE. We believe that there may have been a small bleed within the left

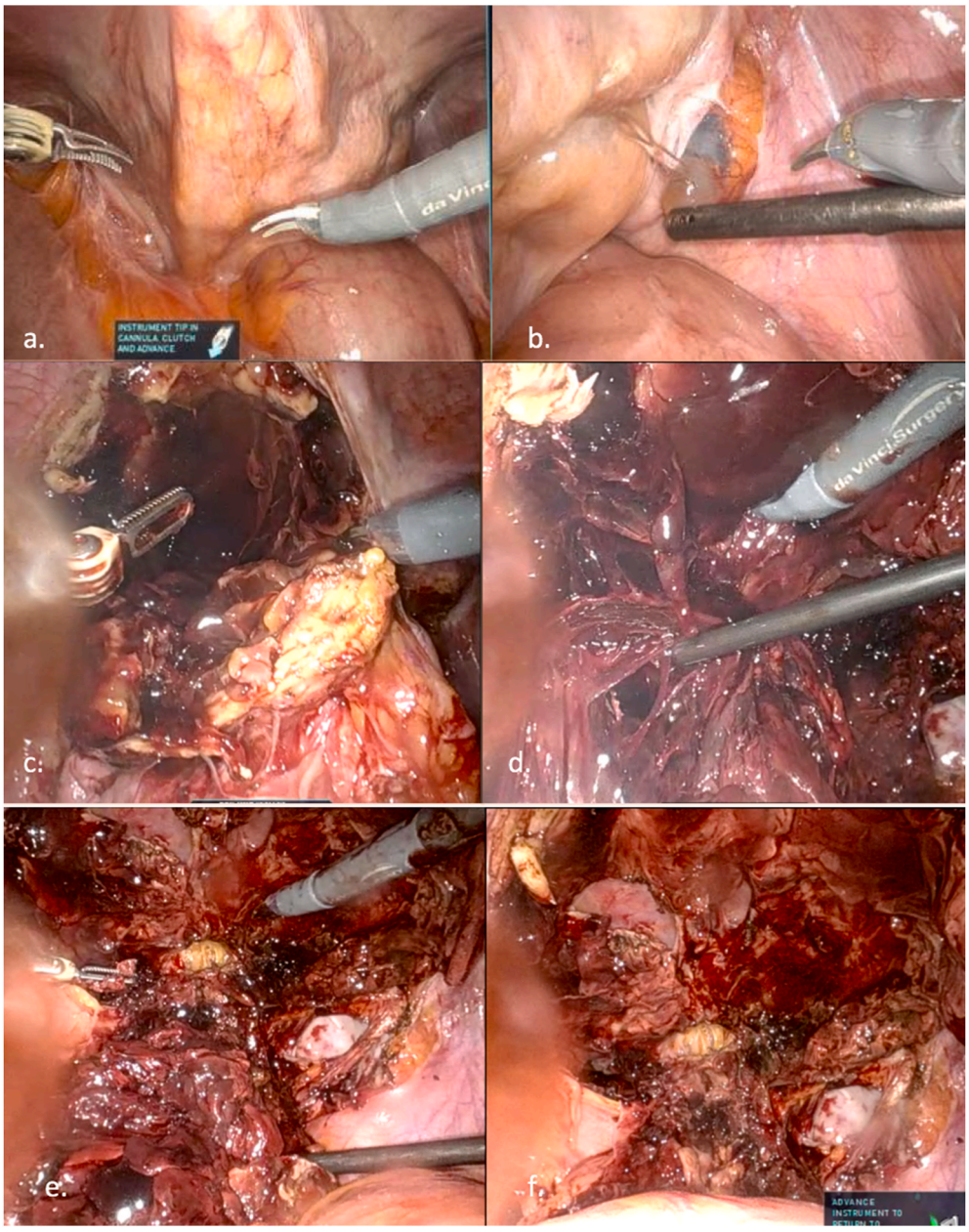

Fig. 3. Intraoperative images a) Distension of space of Retzius prior to marsupialization. b) A small right sided lymphocele with clear fluid the space of Retzius was incised and drained. c-f) The bladder was dropped revealing mostly dark fibrinous material with blood clot originating from the left obturator fossa.

obturator fossa following initiation of high-dose anticoagulation, which worsened the lymphocele and impeded percutaneous drainage. This was confirmed upon return to the OR during which a very complex with many solid hemorrhagic components was noted.

In over 100 RS-RARPs at our institution, this is the first symptomatic lymphocele we have encountered. This unique case demonstrates that although lymphoceles are rarely symptomatic, they can cause significant morbidity and may present differently following RS-RARP.

Conclusion

The sequelae of complex lymphoceles can be severe, and compression of the iliac vessels can tip an already hypercoagulable post-prostatectomy patient towards severe thromboembolic events. In RS-RARP, these fluid collections can form anterior to the bladder in the preserved space, and even large collections may have few initial symptoms. Recognition and treatment of these collections is critical and may require operative intervention when percutaneous drainage fails.

Declaration of competing interest

None.

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