Oncology

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. 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. Among Retzius sparing radical prostatectomy (RS-RARP), lymphoceles have been reported in 10% of PLNDs for intermediate and high-risk prostate cancer. 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-
defined mixed density fluid collection containing blood products dis-
tending 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 lym-
phocele 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 pros-
tatectomy. 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. 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 lym-
phoceles can further promote a prothrombotic state.

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 post-
operatively, making lymphocele a significant cause of morbidity
following PLND. Lymphoceles are less commonly seen when an incision
is made in the peritoneum. RS-RARP is growing in popularity as it
shows improved early continence with comparable oncologic out-
comes. 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. 1. Submassive pulmonary embolism of the bilateral pulmonary arteries with segmental and lobar involvement. a) CT images b) Thrombectomy specimen.](image1)

![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.](image2)
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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