

An unexpected recurrence of rectal squamous cell cancer presenting as deep vein thrombosis

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ABSTRACT

Tumor thrombus is an uncommon oncologic complication and is exceedingly rare in the setting of colorectal cancer. We present the case of a 71-year-old woman with a significant oncologic history, including rectal squamous cell cancer, who presented with left lower extremity deep vein thrombosis. She underwent left lower extremity venography and thrombectomy of the left common iliac vein. Pathologic examination revealed fragments of squamous cell carcinoma embedded in an organizing thrombus. A covered stent was placed in the common iliac vein across the internal iliac vein origin. Positron emission tomography-computed tomography confirmed mediastinal and retroperitoneal lymphadenopathy, which was managed with adjuvant carboplatin and paclitaxel chemotherapy. (*J Vasc Surg Cases Innov Tech* 2023;9:1-4.)

Keywords: Colorectal cancer; Thrombosis; Venous stent; Venous thrombosis

Malignancy is a well-established risk factor for the development of venous thromboembolism (VTE), because cancer cells are known to secrete proinflammatory cytokines and cause a hypercoagulable state.¹ VTE is a major complication and the second leading cause of mortality in cancer patients.² Thus, cancer patients have a four- to sevenfold higher risk of VTE compared with the general population, with ~4% of all hospitalized cancer patients developing VTE.³ The highest risk of deep vein thrombosis (DVT) is in the setting of brain, pancreatic, stomach, and lung cancer, although the prevalence in patients with colorectal cancer has been found to be as high as 6.4%.^{1,4}

In cancer patients, the composition of a DVT is typically identical to that of thrombus from other causes, consisting of fibrin, red blood cells, platelets, and inflammatory cells.⁵ Limited literature is available describing the presence of neoplastic cells within the thrombus and the prognostic implications of such a finding. In the present report, we detail the finding of squamous cell carcinoma (SCC) cells within a DVT in a female patient with a recent history of SCC of the rectum.⁶ Tumor thrombus is a known complication of malignancy, with well-documented cases associated with Wilms tumor, renal

cell carcinoma, adrenal cortical carcinoma, and hepatocellular carcinoma.⁷ A few cases of tumor thrombus associated with SCC have been previously documented but mainly in the renal pelvis.^{5,8} Therefore, the anatomic location in the present case is unusual and unique. Our patient provided written informed consent for the report of her case details and imaging studies.

CASE REPORT

We present the case of a 71-year-old woman with a medical history of hypertension, dyslipidemia, coronary artery disease, myocardial infarction, and coronary intervention. Furthermore, the patient had a significant history of malignancies and abdominal surgeries. She had no family history of VTE, recent travel, or other provoking factor, except for a history of cancer. Ten years before the current presentation, she had undergone right hemicolectomy for mucinous adenocarcinoma of the appendix, now in remission. Three years later, she had undergone laparotomy, diaphragmatic stripping, splenectomy, cholecystectomy, omentectomy, supracervical hysterectomy, bilateral salpingo-oophorectomy, and radical debulking with hyperthermic intraperitoneal chemotherapy, chemotherapy, and radiotherapy for stage T4bN+Mx invasive, moderately differentiated SCC of the rectum, also believed to be in remission.

She presented to the emergency department with a gradual onset of left lower extremity pain and swelling of 1 month's duration. Physical examination revealed diffuse nonpitting edema in the left lower extremity with intact sensation and motor function and palpable pulses and normal skin color. Venous duplex ultrasound revealed DVT in the left common femoral, femoral, and gastrocnemius veins (*Fig 1*). The iliac veins could not be visualized because of bowel gas. The patient was discharged home with apixaban and instructions to return for follow-up in the vascular clinic in 2 weeks.

The patient returned 4 days later because of significantly worsening left leg pain, pelvic pain, and difficulty ambulating. Physical examination revealed diffuse left lower extremity nonpitting edema up to her groin but no phlegmasia. She had

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Author conflict of interest: none.

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The editors and reviewers of this article have no relevant financial relationships to disclose per the Journal policy that requires reviewers to decline review of any manuscript for which they may have a conflict of interest.

2468-4287

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<https://doi.org/10.1016/j.jvscit.2023.101142>

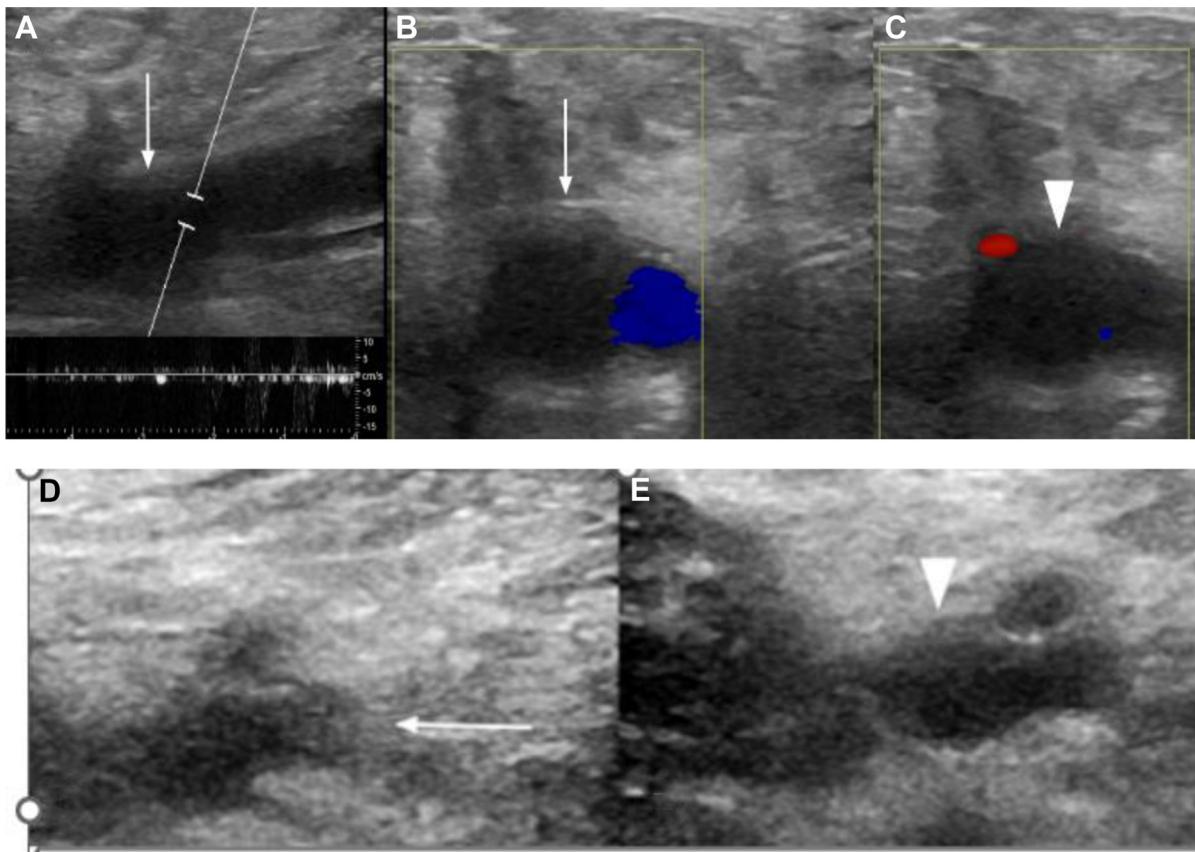


Fig 1. Longitudinal (**A**) and transverse (**B** and **C**) Doppler ultrasound views of the lower extremity showing the left common femoral vein with an absence of flow (*arrows*) and a lack of compressibility (*arrowhead*). **D** and **E**, Transverse ultrasound of the left femoral vein demonstrating an absence of flow (*arrow*) and a lack of compressibility (*arrowhead*).

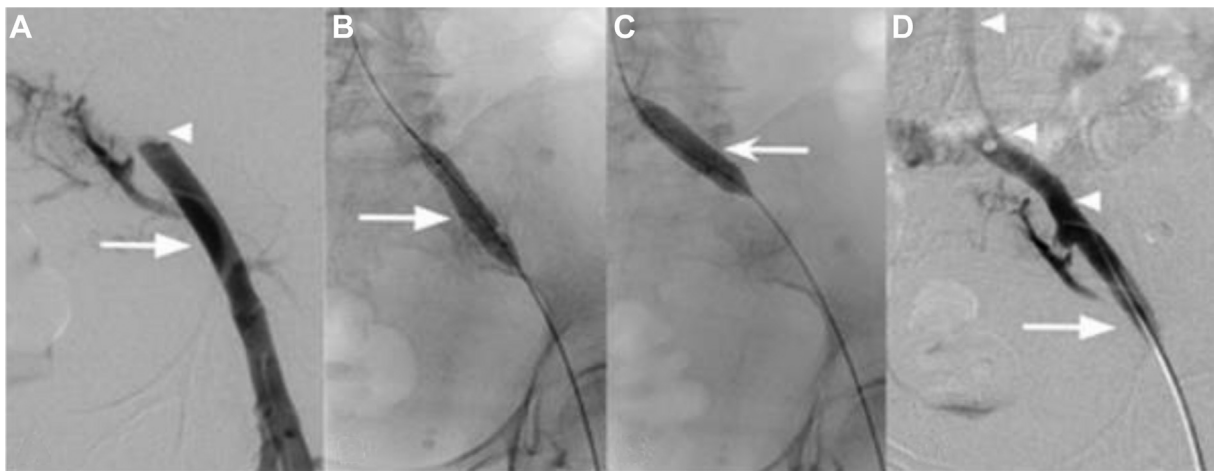


Fig 2. **A**, Left lower extremity venogram showing abrupt loss of opacification (*arrowhead* indicates site of occlusive thrombus at the distal common iliac vein). Normal flow is visualized in the external iliac vein (*arrow*). **B** and **C**, Following catheter directed thrombectomy, a venoplasty utilizing a 10×40 mm balloon, was performed distally and proximally at the site of occlusion (*arrows*). **D**, Post-thrombectomy venogram demonstrating patency of the previously occluded iliac vein (*arrow*) to the level of the inferior vena cava (IVC; *arrowheads*).

intact distal pulses, sensation, and motor function. The patient underwent left lower extremity venography in prone position. The left popliteal vein was used as the access site. Venography

revealed patency of the popliteal, common femoral, femoral, and external iliac veins but complete occlusion of the left common iliac vein (**Fig 2. A**). Mechanical thrombectomy of the left

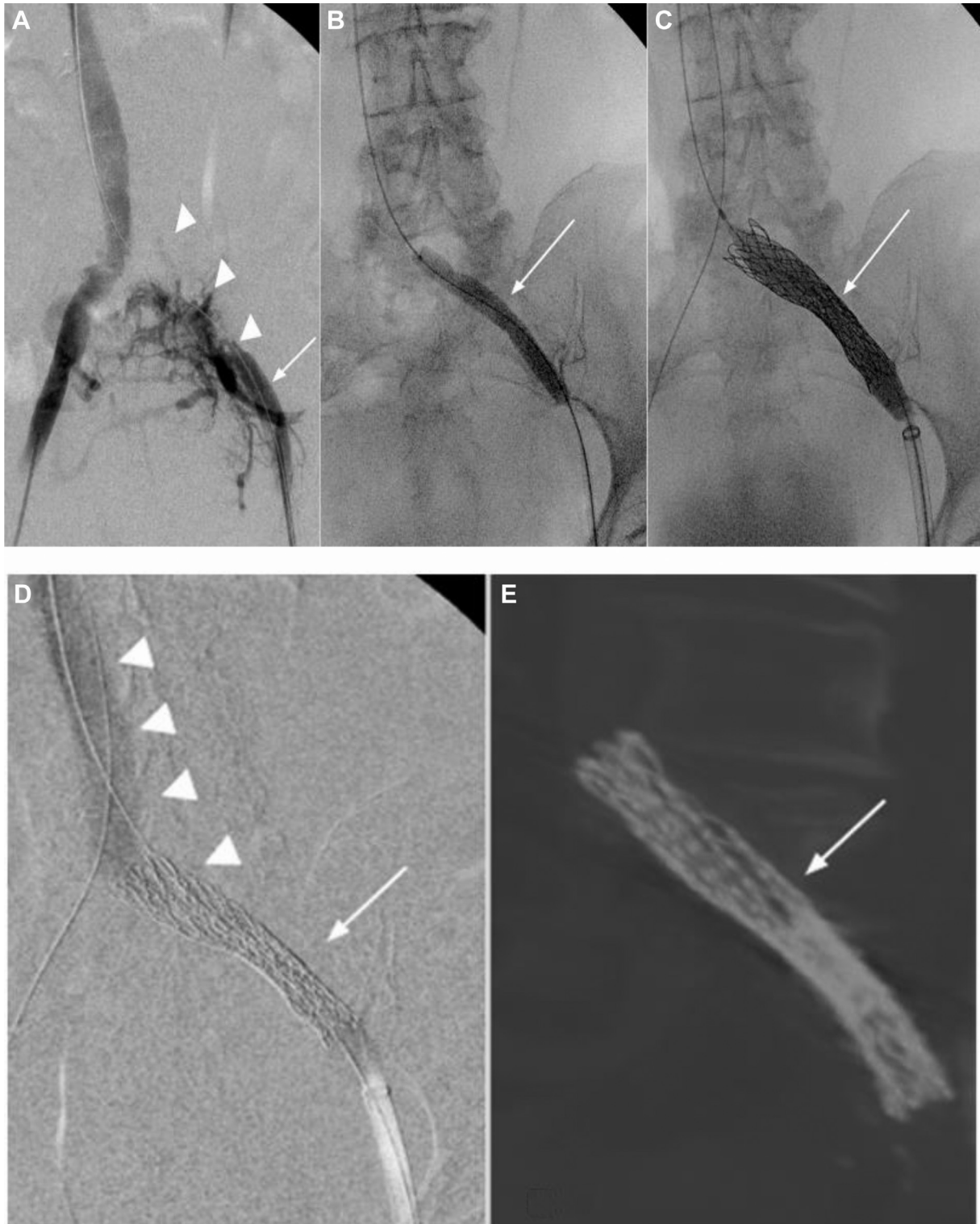


Fig 3. **A,** Pelvic venogram showing abrupt loss of opacification (*arrowheads*) involving the common iliac vein to external iliac vein (*arrow*). **B,** Interval venoplasty using an 8 × 80-mm balloon (*arrow*). **C,** Subsequent deployment of 16 × 60-mm B-Braun stents (*arrow*). **D,** Venogram demonstrating patency of previously occluded common and external iliac veins (*arrowheads*). **E,** Follow-up computed tomography (CT) scan demonstrating an intact left external iliac vein stent (*arrow*) in the appropriate position.

common iliac vein was performed using an Inari ClotTrierer System (Inari Medical, Irvine, CA), and balloon angioplasty was performed using a 10-mm × 4-cm Dorado catheter (Becton, Dickinson, and Co, Tempe, AZ), with a total treatment length of 8 cm (Fig 2, B-D). The flow was improved. Intravascular ultrasound (IVUS) was not performed. The specimen was sent for pathologic examination. She was discharged the next day.

The pathologic examination results from the thrombus specimen showed fragments of SCC embedded in an organizing thrombus. The patient was instructed to follow-up with her oncologist for workup of a likely recurrence of rectal SCC. Her case was presented at an institutional tumor board meeting, and the possibility of tumor growth from systemic venous drainage of the rectum to the internal and common iliac veins was discussed. It was decided to place a covered stent in the left common iliac vein, with extension distally to cover the origin of the internal iliac vein and prevent further invasion and intravenous tumor growth.

While waiting to undergo an outpatient PET scan to rule out metastasis, she returned to the hospital with a recurrence of her symptoms, including left lower extremity swelling and pain. An intravenous heparin infusion was initiated, and the patient was admitted to the hospital. She underwent computed tomography (CT) of the abdomen and pelvis, which did not reveal any mass or compression on the iliac vein. Repeat venous duplex ultrasound showed no thrombus in the left lower extremity. She underwent repeat venography, which showed patent left popliteal, femoral, and common femoral veins and occlusion of the common iliac vein. IVUS was used to determine the size of the common and external iliac veins. She underwent balloon angioplasty, with insertion of 16 × 60-mm and 16 × 40-mm B-Braun covered CP stents (B. Braun Interventional Systems Inc, Bethlehem, PA) in the left common iliac vein, which distally covered the internal iliac vein origin and extended to the external iliac vein (the device was used outside the manufacturer's instructions for use; Fig 3, A-D). Her postoperative course was unremarkable, and she was discharged home on postoperative day 3 with apixaban. PET-CT soon after showed new uptake in the mediastinum and retroperitoneal periaortic lymph nodes. The patient began carboplatin and paclitaxel treatment immediately. Repeat PET-CT after 3 months showed complete resolution of the adenopathy. The patient was followed up for 12 months after stent placement and had no symptoms in the left lower extremity. The stent was patent on venous duplex ultrasound and CT evaluation of the pelvis (Fig 3, E).

DISCUSSION

Our patient was thought to be in remission from her SCC until she presented with leg swelling. VTE can be the first symptom of an occult malignancy in an otherwise healthy individual.⁷ Approximately 20% of patients with symptomatic DVT will have a known active malignancy.⁹ In addition, 8% of patients who have cancer diagnosed at the time of VTE will have colon or rectal cancer.¹⁰ The thrombus found in these cases has features similar to thrombus in noncancer patients.

Our institutional paradigm for proximal DVT does not include cross-sectional imaging, especially at the first episode. The use of IVUS and sending the specimen for pathologic evaluation are determined by surgeon preference. However, IVUS is routinely used, especially if thrombectomy does not result in resolution of flow. We use both mechanical and suction thrombectomy devices depending on the chronicity and surgeon preference. To the best of our knowledge, the use of covered stents in the iliac veins for tumor recurrence has not been previously reported, and no data are available on the long-term efficacy of covered stents to prevent tumor growth. No significant information is available on the use of covered stents—whether balloon expandable or self-expandable—in veins. The B-Braun stent is a coarctation device with excellent radial force and its size matched the size of the iliac veins in our patient.

CONCLUSIONS

To the best of our knowledge, the present report is the first description of a case of rectal SCC recurrence presenting as DVT. We recommend for patients with history of malignancy to send all thrombectomy specimens for pathologic examination because thrombus could be a sign of cancer recurrence.

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