Oncology Problem Solving

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Program/Dept: Florida Hospital Diagnostic Radiology
Chief Complaint & HPI

- Chief Complaint
  - Bleeding right thigh mass in a patient being anticoagulated for pulmonary embolism

- History of Present Illness
  - 86yo Hispanic male with known history of metastatic pleomorphic liposarcoma of the right thigh presents with a bleeding right thigh mass. On staging CT of the chest, there was an incidental PE. Anticoagulation was initiated with Lovenox to Coumadin bridge. The patient returned with several days of persistent bleeding of the mass. IR was consulted to assist with management.
Relevant History

- **Past Medical History**
  - Recent PE, metastatic pleomorphic liposarcoma of the right thigh, DM, HTN, Dementia, Anemia

- **Past Surgical History**
  - Prior cholecystectomy, prior right thigh biopsy

- **Family & Social History**
  - Not obtainable

- **Review of Systems**
  - Not obtainable

- **Medications**
  - coumadin, lovenox, benazepril, cyanocobalamin, gabapentin, insulin, pantoprazole, simvastatin

- **Allergies**
  - NKDA
Diagnostic Workup

- **Physical Exam**
  - 98.5, 80, 16, 142/99, 97% RA
  - NAD, Lungs clear
  - Right thigh mass dressed with blood saturated dressing; removal of dressing shows a mass with open wound, exposed muscle and oozing blood. The right thigh is erythematous and warm with 1+ edema of the lower leg, as compared to the normal left leg

- **Laboratory Data**
  - PT/INR – 21.6/1.92
  - LFTs – nml
Physical exam

- Figure 1. Photograph of ulcerated right posterolateral thigh mass demonstrating underlying muscle tissue and briskly oozing blood.
Diagnostic workup

- Figure 2. Sonographic image of the right thigh mass demonstrates echogenic fatty components, solid components with increased color flow, and anechoic cystic components.
Diagnostic workup

Figure 3. CT angiogram of the right thigh demonstrates a large, well-circumscribed, heterogeneous, highly vascularized mass of the posterior compartment of the right thigh with both soft tissue and fatty components.
Diagnostic workup

- Figure 4. Coronal maximum intensity projection PET image demonstrates a hypermetabolic right thigh mass with numerous hepatic, pulmonary, pelvic lymph node and osseous metastatic deposits.
Diagnosis

- Bleeding Metastatic Pleomorphic Liposarcoma in a Patient Requiring Anticoagulation for PE
Intervention

• Objectives
  ✔ Primary: Stop the bleeding from the thigh mass
  ✔ Secondary: Prevent new PE or worsening of current PE

• Plan
  1. RBC transfusion for anemia
  2. Hold Lovenox and Coumadin to resolve coagulopathy
  3. Arteriogram of right lower extremity following access of left common femoral artery. Selectively embolize feeding vessels to the tumor.
  4. Place IVC filter via the opposite groin or transjugular approach
Figure 5. Distal abdominal aortogram was performed following access of the left common femoral artery. An Omni Flush catheter was used to direct guidewire to the right common iliac artery.
Figure 6. Right common femoral arteriogram demonstrates a right thigh mass with multiple feeding collateral vessels arising predominantly from the profunda femoris branches.
Intervention

- Figure 7. Right common femoral arteriogram subtraction image demonstrates profunda femoris branches in better detail. We planned to selectively embolize the first and second perforator branches (yellow arrows).
Intervention

- Figure 8. Postembolization right common femoral artery angiogram demonstrates decreased vascularity within the right thigh mass, with maintained patency of the superficial femoral artery. Successful embolization of 80% of the vascular supply was achieved with 500-700 micrometer embospheres.
1) To significantly decrease operative bleeding of a soft tissue tumor, by what percentage does tumor enhancement need to be reduced during preoperative embolization?

A: 5%
B: >20%
C: >70%
D: >95%
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C: >70%. According to Sun and Lang, preoperative embolization must eliminate >70% of the arterial supply to the tumor in order to significantly reduce operative bleeding. According to Barton et al., surgical resection should occur within 3 days of the embolization to prevent neovascularization.

D: >95%

Return to Case

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Figure 9. Right common femoral vein was then accessed and an infrarenal IVC filter was placed.
2) Which of the following is an indication for IVC filter placement?

A: Treatment of acute pulmonary embolism.
B: Prevention of pulmonary embolism in a patient who cannot be anticoagulated.
C: To maintain patency of the IVC in a patient with intra-abdominal malignancy.
D: Prevention of pulmonary embolism in a patient with upper extremity DVT.
1) Which of the following is an indication for IVC filter placement?

A: Treatment of acute pulmonary embolism. IVC filters are used to prevent PE in patients with lower extremity DVTs.

B: Prevention of pulmonary embolism in a patient who cannot be anticoagulated. IVC filter placement is indicated in patients who cannot be anticoagulated due to recent trauma or bleeding risk, and in patients who have failed anticoagulation therapy.

C: To maintain patency of the IVC in a patient with intra-abdominal malignancy. IVC filters are not used to stent the IVC, but to prevent clot or debris from migrating to the pulmonary arteries.

D: Prevention of pulmonary embolism in a patient with upper extremity DVT. A filter in the INFERIOR vena cava, would not prevent an upper extremity DVT from migrating to the lungs.
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Clinical Follow Up

▪ Bleeding of the right thigh mass stopped POD#1 at which time anticoagulants were resumed.

▪ Patient was discharged home on POD#4 to home healthcare.

▪ Recommendations were to have outpatient radiation therapy to the right thigh to prevent future growth and revascularization of the mass.
Embolization of bone and soft tissue tumors is well described in the literature for preoperative conditioning and palliation. Our case is unique in that it represents a palliative embolization for the specific purpose of decreasing bleeding in an anticoagulated patient with an unresectable primary tumor.

Contraindications to bone and soft tissue embolization include coagulopathy, thrombocytopenia and anemia. For this reason, we corrected the coagulopathy and transfused PRBCs prior to the procedure.

IVC filter placement is an effective way to prevent PE in a patient with contraindications to anticoagulation (as in this patient).
References & Further Reading


