Multimodal Endovascular Palliation for Femoral Arterial Blowout in the Setting of Metastatic Vulvar Carcinoma

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Background: Vascular blowout syndrome is a well-known, life-threatening condition complicating advanced-stage head and neck malignancies but has rarely been reported in the gynecologic oncology realm in association with the femoral circulation. A 50-year-old woman with metastatic vulvar squamous cell carcinoma presented with left threatened femoral arterial blowout, secondary to an exophytic neoplastic mass originating from the left inguinal lymph nodes.

Methods: Bland embolization of the tumor as well as 3 vessel covered stent revascularization was successfully performed with excellent tumor devascularization and reinstitution of arterial integrity.

Results: Successful devascularization of the tumor, with no non-target embolization was achieved, with excellent apposition and deployment of 3 covered stents in the femoral artery bifurcation.

Conclusion: We present a unique case of threatened femoral artery blowout syndrome in the setting of metastatic vulvar carcinoma requiring various endovascular techniques for palliation. These endovascular techniques can be invaluable in minimally invasive palliation of advanced stage neoplasms abutting the iliofemoral circulation.

Vascular blowout syndrome is a well-recognized entity in the setting of adjacent and/or metastatic neoplastic processes.[1–10] This has been most commonly described in the carotid circulation in the setting of advanced-stage head and neck malignancies.[1–10] Neoplasms of the female genital tract with metastatic components affecting the iliofemoral circulation with threatened or impending rupture have rarely been described in the literature and approaches have been variable with inconsistent outcomes.[11–15] Advancements in endovascular techniques have revolutionized vascular reconstruction in the setting of native arterial disease such as atherosclerosis, fibromuscular dysplasia, and even arteritis. In addition, both congenital and acquired vascular malformations are now being targeted primarily via catheter-directed techniques as first-line therapy. Herein, we report a unique case of metastatic vulvar—squamous cell carcinoma involving the left inguinal lymph nodes causing threatened blowout of the left femoral arterial bifurcation, recurrent bouts of intractable hemorrhage, and threatened acute limb ischemia.

CASE REPORT

Background

A 50-year-old woman with a history of recurrent malignant vulvar squamous cell carcinoma, status post her third cycle of palliative chemotherapy, was referred to vascular

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Ann Vasc Surg 2015; 29: 127.e11—127.e15
http://dx.doi.org/10.1016/j.avsg.2014.08.012

Manuscript received: June 2, 2014; manuscript accepted: August 15, 2014; published online: October 8, 2014.

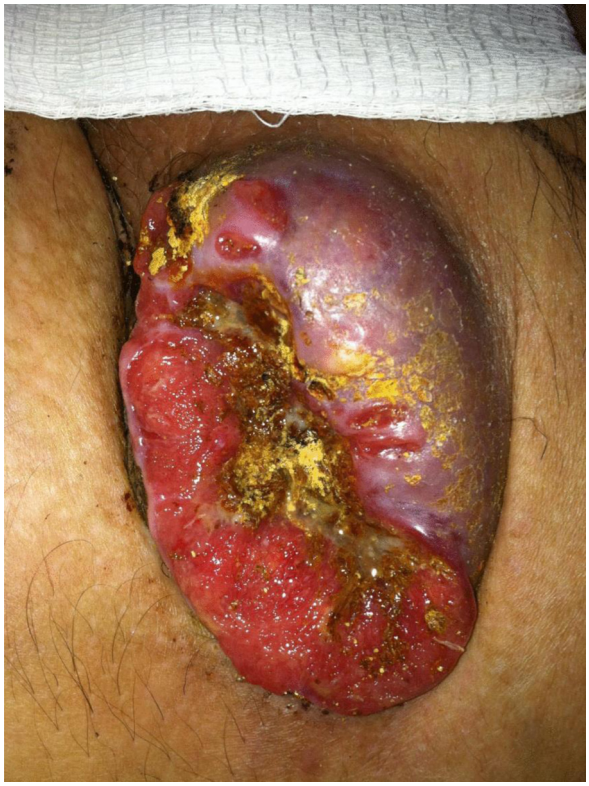

Fig. 1. Fungating, exophytic neoplastic mass in the left groin complicated by recurrent bouts of hemorrhage requiring hospitalization and transfusion. The mass was mildly tender to palpation and was associated with serous drainage as well.

surgery for evaluation and recommendations concerning an exophytic, fungating neoplastic mass in the left groin region with complete encasement of the common femoral artery (CFA), superficial femoral artery (SFA), and profunda femoral artery (PFA) on computed tomography (Figs. 1 and 2). There was no evidence of active extravasation, arteriovenous fistula formation, hematoma, or pseudoaneurysm. The mass was moderately vascular on contrast-enhanced imaging. Extensive metastatic spread to regional lymph nodes was noted on positron emission tomography scans. The mass itself was complicated by recurrent bouts of hemorrhage causing multiple hospital admissions, frequent blood transfusions, and severe anxiety for patient and family given juxtaposition to adjacent major vessels and concern for impending rupture, uncontrollable hemorrhage, and possibly death.

Preoperative Evaluation

Physical examination revealed an extremely anxious, frail woman in no acute distress. Vital signs were within normal limits. Left groin inspection revealed an indurated, fungating tumor with an ulcerated, centrally necrotic core and moderate serosanguinous drainage and extensive bilateral inguinal lymphadenopathy. There was no

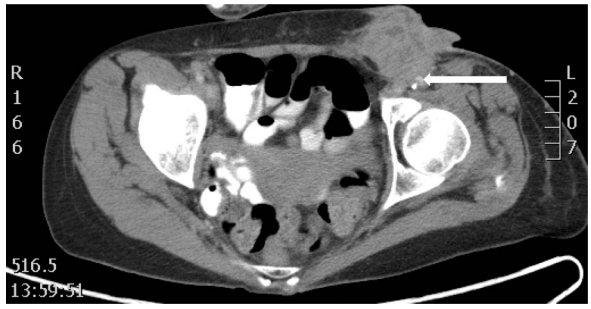

Fig. 2. Axial cut, contrast-enhanced computed tomography scan demonstrating protrusion of a neoplastic mass with circumferential encasement of and impingement on the left distal common femoral artery (*solid white arrow*).

evidence of infection, purulence, or cellulitis. The mass was mildly tender to palpation. Normal popliteal and pedal pulses were palpated ipsilaterally.

Routine laboratory evaluation revealed a normal white blood cell count (no left shift) and microcytic anemia. Coagulation parameters were within normal limits. Patient was on a prophylactic regimen of subcutaneous low-molecular weight heparin. Noninvasive vascular diagnostic laboratory evaluation revealed mild reduction in the left ankle brachial index (0.75; normal above 0.9) and no evidence of lower extremity deep vein thrombosis bilaterally.

Given the location of the mass, palliative surgical excision would have required extensive dissection and major vascular reconstruction with introduction of synthetic graft material in a hostile environment with poor healing potential and prone to infection because of catabolic state secondary to widespread tumor burden. Furthermore, the acquired hypercoagulability of malignancy would have jeopardized the patency of any bypass graft with subsequent limb and life-threatening ischemia. Therefore, a decision was made to proceed with angiographic evaluation of the lesion with plans for concomitant palliative therapy if amenable.

Operative Technique

Micropuncture access of the right CFA was obtained and retrograde sheath placement was performed. The distal abdominal aorta was catheterized and flush aortography performed showing a patent distal aorta and iliac system bilaterally. A hypervascular mass was noted in the left groin region with multiple feeding arterial branches stemming from the main body of the CFA, SFA, PFA, as well as the terminal branches of the anterior internal iliac artery (IIA) (Fig. 3). Selective catheterization of the left IIA confirmed major arterial feeders to the mass arising distally from its anterior branches.

After systemic heparinazation, superselective, coaxial microcatheterization of feeding arterial branches of the IIA was performed. Bland embolization of the tumor was carried out using 500—700μm Embospheres (Merit Medical Systems, Flagstaff, UT). Completion angiography