

Cervical Cancer - Palliative Embolization Due to Bleeding A Case Report

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Abstract

Advanced cervical cancer results in infiltration of adjacent organ structures and can be complicated by severe bleeding. Endovascular embolization is a life-saving therapeutic option. This case highlights a unique presentation of a severely bleeding recurrent cervical cancer infiltrating the rectum in a patient with prior hysterectomy. Arterial supply to the tumor was almost exclusively supplied by the superior rectal artery originating from the inferior mesenteric artery. She was successfully treated with selective endovascular embolization using 500 micron particles. The patient had immediate resolution of severe bleeding, no procedural-related complications, and reduced recurrence of bleeding on long-term follow-up.

Keywords: Cervical, Cancer, Bleeding, Embolization, Endovascular, Artery.

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INTRODUCTION

Cervical cancer is the second most common cancer among women worldwide. The incidence of bleeding among cervical cancer can range between 0.7% and 100%, with 6% of cases being life-threatening [1]. Here we present a case of advanced recurrent cervical cancer infiltrating the rectum in which endovascular embolization was used as a palliative method to achieve hemostasis during an episode of heavy vaginal bleeding. Most cervical cancers receive arterial supply from branches of the internal iliac artery, more specifically the uterine arteries and cervico-vaginal arteries. In patients with prior hysterectomy, arterial supply to tumors may be parasitized from different arteries, and this case presentation is unique since blood supply almost exclusively originated from the inferior mesenteric artery, due to the tumor's infiltration of the rectum.

CLINICAL HISTORY

A 42-year-old female with recurrent squamous cell cervical cancer presented with a 1-day history of syncope, heavy vaginal and rectal bleeding. Her hemoglobin on presentation was 5.9. Her history included chemotherapy, hysterectomy, bilateral salpingo-oophorectomy, bilateral nephrostomy for ureteral obstruction and diverting colostomy due to rectovaginal fistula.

IMAGING FINDINGS

CT abdomen & pelvis (CTAP) demonstrated prior post-surgical changes of partial colectomy, left lower quadrant colostomy, and large infiltrative soft tissue mass involving the vaginal cuff and rectum. It was associated with a large rectovaginal fistula, consistent with recurrent malignancy [Fig 1 & 2].

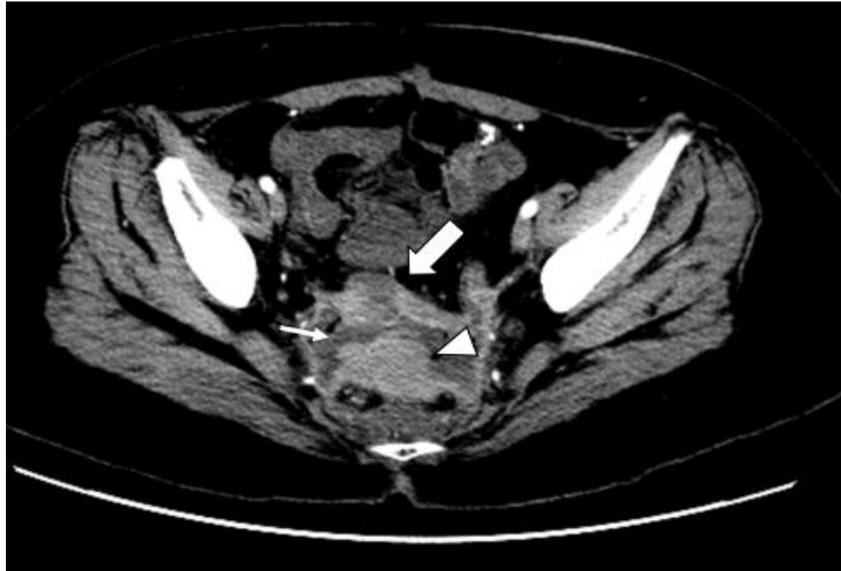


Fig-1: Contrast-enhanced axial image of the pelvis demonstrate a mass involving the vaginal cuff (large arrow) and rectum (arrowhead) associated with large recto-vaginal fistula (small arrow)



Fig-2: Contrast-enhanced sagittal image of the pelvis demonstrate a mass involving the vaginal cuff (large arrow) and rectum (arrowheads) associated with large recto-vaginal fistula (small arrow)

Considering the severity of bleeding, interventional radiology was involved to attempt an emergency endovascular embolization as a means to achieve hemostasis.

A pre-procedural CT angiogram was performed prior to endovascular intervention [Fig. 1 and Fig. 2]. The angiogram showed a hypervascular tumor arising from the cervix, invading into the vagina and rectum. The tumor was supplied by the superior rectal artery [Fig 3].

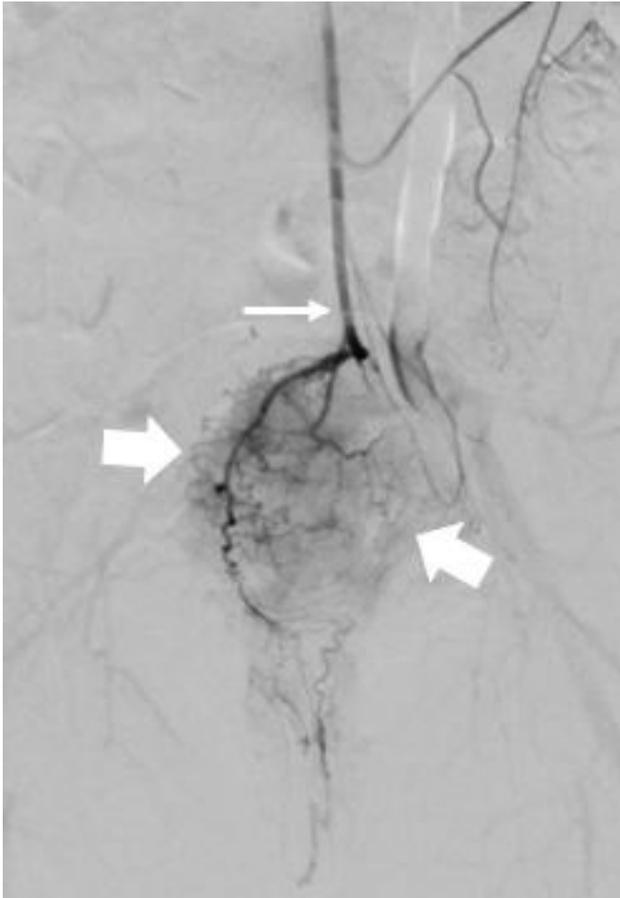


Fig-3: Pre-embolization inferior mesenteric artery angiogram showing a hypervascular tumor (large arrows) supplied by the superior rectal artery (small arrow).

DISCUSSION

Hemorrhage is a common complication occurring in 10% of advanced malignancies [2]. The etiologies for bleeding in advanced malignancies include infiltration of cancer, coagulopathies, thrombocytopenia or adverse effects of chemo- or radiotherapy [1]. When encountering a case of recurrent pelvic cancer, bleeding should always be investigated with physical examination, initial baseline blood tests, and additionally supplemented with imaging to evaluate the source of bleeding. Imaging modalities include contrast enhanced CT scans and angiography. An irregular and invading mass would make bleeding due to infiltrative cancer more likely. On fluoroscopic angiography, infiltrative cancer would show up as an area of increased vascularity and when there is brisk active bleeding, it may show up as active contrast extravasation.

Dynamic contrast-enhanced MRI (DCE MRI) is a useful modality that can look into the vasculature of the invading cervical tumor and can be utilized as a source for risk stratification of high bleeding risk tumors [3].

In addition to initial resuscitation, the interventions for securing hemostasis in cases of major bleeding include packing, use of tranexamic acid, local radiotherapy, and interventions including uterine artery ligation, cauterization, and embolization [4, 5].

Treatments like tranexamic acid, packing, and local radiotherapy are useful for mild to moderate bleeding. In cases of advanced cancers with severe bleeding, the measures should focus on reducing the flow of blood to the vessels supplying the mass through embolization, artery ligation or cauterization [2, 4].

In our case of a patient with recurrent cervical cancer presenting with major bleeding, we proceeded with pelvic angiography with embolization. A unique feature of this case, is that the mass had largely infiltrated the rectum with the dominant arterial supply originating from the inferior mesenteric artery, as opposed to the internal iliac arteries, which normally supplies the uterus and cervix.

From a procedural standpoint, we accessed the right common femoral artery using ultrasound guidance with subsequent placement of a 5-French vascular sheath in the right groin. The inferior mesenteric artery was catheterized with a 5-Fr reverse curve selection catheter using fluoroscopic guidance. Through this catheter, the superior rectal artery was selectively catheterized with a 2.4 French microcatheter and diagnostic angiography demonstrated the hypervascular mass largely infiltrating the rectum. Superior rectal artery embolization was performed using larger-sized particles, specifically Embosphere 500 micron as the main hemostatic agent with a good effect. Embosphere® microspheres are non-resorbable, biocompatible, hydrogel microspheres coated with perfluorinated polymer (Polyzene®-F). Larger particles (particles greater than 250 micron) should be used when embolizing in this situation to avoid end-organ ischemia, since the superior rectal artery supplies both the mass and the rectum. Smaller particle embolization would carry a very high risk of ischemic complications to the bowel/colon.

Post-embolization angiogram demonstrates near-complete stasis of superior rectal artery bleeding without further opacification of the tumor [Fig 4]. The patient tolerated the procedure well and no immediate, short or long-term complications were identified. In addition, the patient had no ischemic complications from embolization. Following the procedure, the patient remained hemodynamically stable without a further drop in hemoglobin. She did not develop ischemic complications. There was no evidence significant recurrent bleed up to 9 months post-procedure, though her disease had progressed with new liver metastases.

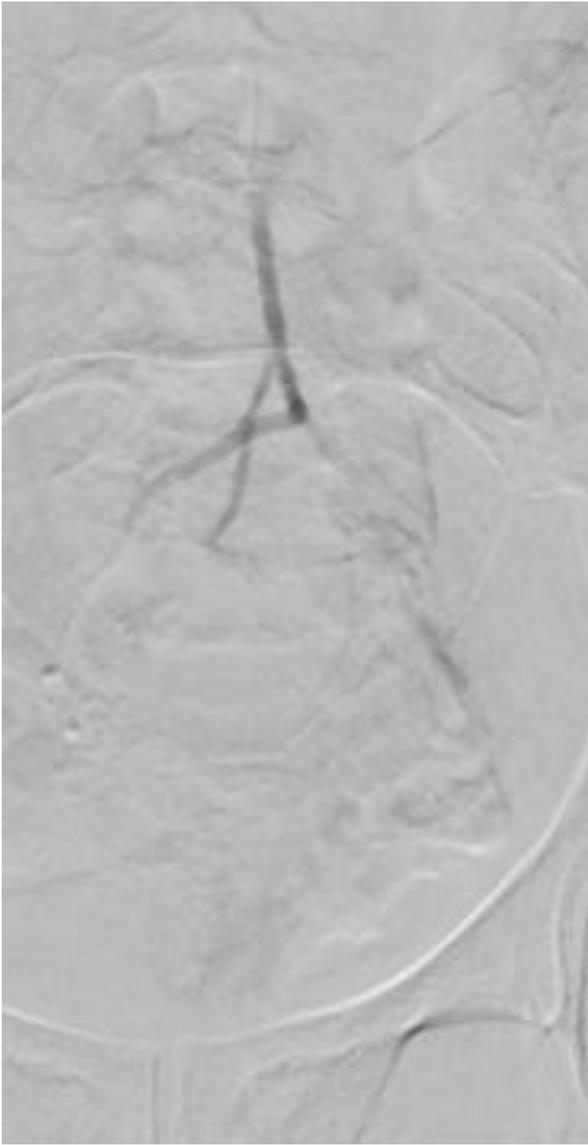


Fig-4: Post-embolization angiogram demonstrates near-complete stasis of superior rectal artery without further opacification of the tumor

CONCLUSION

To conclude, in cases of advanced cervical cancer where contrast CT and angiography shows a highly vascular and infiltrative mass, interventional radiology should be involved early in decision making. In our case, we used intermediate-sized particles (ie. Embozene 500 micron) as a hemostatic agent with good immediate effect, no complications, and reduced recurrence of bleeding on long-term follow-up.

Final Diagnosis

Bleeding secondary to infiltrative cervical cancer.

Differential Diagnosis

Bleeding secondary to coagulopathy

Bleeding secondary to thrombocytopenia

Bleeding secondary to the side effects of radio or chemotherapy

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