

# SUCCESSFUL CONTROL OF POST-HYSTERECTOMY HEMORRHAGE USING EMBOLIZATION AND TRANSVAGINAL GLUE EMBOLIZATION IN CHORIOCARCINOMA - A CASE REPORT

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## ABSTRACT

Gestational choriocarcinoma is a rare but aggressive trophoblastic tumor characterized by early hematogenous spread and high vascularity. We report a case of a 35-year-old female with known gestational choriocarcinoma who underwent total abdominal hysterectomy due to uncontrolled vaginal bleeding. During surgery, both internal iliac arteries were ligated to control hemorrhage. Postoperatively, persistent pelvic bleeding continued. Computed tomography angiography revealed multiple serpiginous vascular channels and a pseudoaneurysm arising from the left internal iliac artery region. Transarterial embolization was attempted via right common femoral artery access using a C2 catheter. Angiography demonstrated a left internal iliac artery pseudoaneurysm supplied indirectly through gluteal collateral branches. These vessels were coil-embolized. Due to complex collateral circulation, a transvaginal ultrasound-guided direct puncture approach was undertaken, and glue embolization of the pseudoaneurysm was performed successfully. Hemostasis was achieved. This case highlights multidisciplinary hemorrhage control in advanced pelvic vascular pathology associated with gestational choriocarcinoma.

## Introduction

Gestational choriocarcinoma is an aggressive, malignant form of gestational trophoblastic neoplasia (GTN), originating from placental trophoblastic tissue and notable for its significant vascularity. Hemorrhage is a frequent and potentially fatal complication due to delicate neovascular networks.<sup>1,2</sup> Management frequently necessitates combined surgical, chemotherapeutic, and interventional radiology methods.<sup>3</sup>

Controlling pelvic hemorrhage can be challenging surgically, particularly following hysterectomy when collateral and parasitic vessels form. Pseudoaneurysm formation after pelvic surgery is uncommon but recognized, especially when vessels are friable or previously ligated.<sup>4</sup> Endovascular treatment is the preferred method for pseudoaneurysm control; however, complex collateralization may limit standard catheter-based access.<sup>5</sup> In

these cases, direct percutaneous or transvaginal embolization might be necessary.<sup>6</sup>

This case report presents a successful and effective integration of coil embolization and transvaginal ultrasound-guided glue embolization of a pseudoaneurysm in a patient experiencing post-op pelvic hemorrhage following total abdominal hysterectomy (TAH) performed for gestational choriocarcinoma.

## Case Presentation

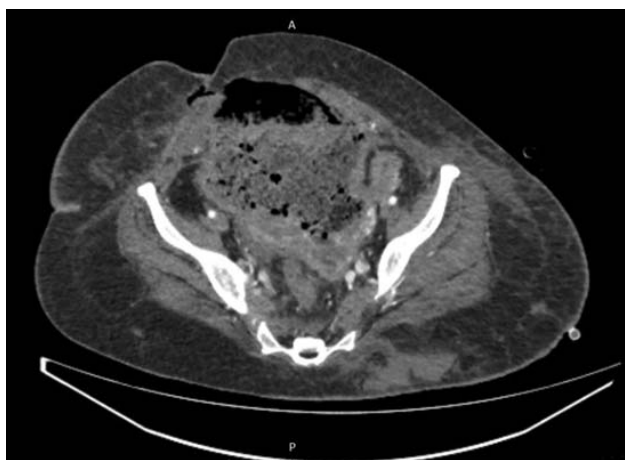
A 35-year-old multiparous woman with a recent diagnosis of gestational choriocarcinoma presented with heavy, continuous vaginal bleeding.  $\beta$ -hCG levels were markedly elevated. She underwent total abdominal

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hysterectomy due to persistent hemorrhage unresponsive to medical management. During surgery, bilateral internal iliac artery ligation was performed to control pelvic hemorrhage. Postoperatively, despite surgical measures, she continued to exhibit recurrent vaginal bleeding, with hemoglobin fluctuating between 6.5 and 8 g/dL, requiring multiple transfusions.

After informed consent, the patient was transferred to the angiography suite. Under local anesthesia, the right common femoral artery was accessed. A C2 catheter and guidewire were used to selectively catheterize the left common iliac artery. Multiple angiographic runs were performed. Bilateral internal iliac arteries appeared ligated. A pseudoaneurysm cavity was visualized, but the direct feeding artery was obscured by dense collateral channels. The left gluteal arterial branches were identified contributing to the pseudoaneurysmal blush. Coil embolization of these gluteal branches was performed, reducing flow. Angiography of the right common iliac artery revealed no pelvic blush. The left ovarian artery was catheterized and found non-contributory. Because the pseudoaneurysm continued to show perfusion through microcollaterals, a transvaginal ultrasound-guided direct approach was taken. Under transvaginal sonographic guidance: The pseudoaneurysm was visualized near the left lateral wall of the bladder. A needle was advanced into the pseudoaneurysm sac. N-butyl cyanoacrylate (NBCA) glue was injected under fluoroscopic control. Post-injection fluoroscopy confirmed complete obliteration of contrast flow. Hemostasis was achieved. The patient was shifted to ICU for monitoring.



**Figure 1:** Pre-embolization CT Angiogram revealing left internal iliac pseudoaneurysm without evidence of feeding artery.



**Figure 2:** Post-embolization image showing multiple variable sized coil embolization of left gluteal arterial branches as well as embolization of left internal iliac pseudoaneurysm

On 24 hour post procedure follow-up, the puncture site remained clean with no hematoma. Bleeding stopped, and hemodynamic stability improved. The patient continued chemotherapy for choriocarcinoma according to FIGO guidelines. Follow-up pelvic Doppler ultrasound at 1 week showed no residual pseudoaneurysm flow.  $\beta$ -hCG levels trended downward.

## Discussion

In gestational choriocarcinoma, post-operative pelvic hemorrhage can persist even after surgery due to extensive neovascularity induced by the tumor and extra-pelvic collateral vessels involvement. Previous studies show that such hemorrhage is often severe and very resistant to surgical control, often then requiring IR management.<sup>2</sup> In our case, hemorrhage following hysterectomy and bilateral internal iliac artery ligation supports the reports that oncologic collateral circulation can bypass proximal ligation and continue to hemorrhage despite surgery.<sup>4</sup>

Endovascular embolization is regarded as the preferred approach to manage pelvic arterial hemorrhage and

pseudoaneurysms, especially in complex cases.<sup>3,5</sup> With our patient, angiography showed indirect pseudoaneurysm filled by gluteal collaterals, requiring embolization of these vessels, consistent with established strategies when direct arterial access is not feasible.<sup>5</sup> However, as reported in gynecology oncology literature, selective transarterial embolization may be limited when feeding vessels are hidden due to prior ligation or dense collateral networks.<sup>5,8</sup>

When pseudoaneurysm perfusion persists through microcollateral channels, direct puncture embolization has been reported as an effective salvage technique, offering rapid hemostasis while avoiding repeat laparotomy.<sup>6,10</sup> Kim et al. reported that Transvaginal ultrasound-guided access provides precise lesion targeting and is an effective approach for managing pelvic pseudoaneurysms, particularly in situations where the lesion is located near the vaginal vault or bladder.<sup>9</sup> Similarly, Yoon et al. demonstrated that direct puncture embolization can achieve rapid and durable hemostasis in pseudoaneurysms when conventional transarterial approaches are unsuccessful or technically limited.<sup>10</sup> In this case, a stepwise approach combining transarterial coil embolization alongside transvaginal NBCA glue embolization resulted in durable hemostasis, highlighting the importance of multimodal interventional techniques in extensively collateralized trophoblastic tumors.<sup>3,8,9</sup>

## Conclusion

In highly vascular disease states such as gestational choriocarcinoma, pelvic hemorrhage may persist despite surgical intervention. This case demonstrates the value of combining transarterial coil embolization with transvaginal ultrasound-guided glue ablation to control a complex pseudoaneurysm in the internal iliac region. The patient on 9 month post procedure follow-up is healthy and without complications, this ruling that interventional radiology plays a critical role in life-saving hemorrhage control in advanced pelvic tumors.

**CONFLICT OF INTEREST:** None

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