



Research Letter

Salvage therapy in acute life-threatening vaginal bleeding of cervical cancer: Hypogastric artery embolization

Sema Süzen Çaypınar^{*}, Hakan Güraslan, Baki Şentürk, Hüseyin Cengiz, Levent Yaşar

Department of Gynecology and Obstetrics, Bakirkoy Dr. Sadi Konuk Teaching and Research Hospital, Istanbul, Turkey

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Dear Editor,

Cervical cancer is the second leading cause of death among women in the world [1]. Eighty percent of these deaths occur in developing countries with low socioeconomic status [2]. It is the ninth most common cancer among females in Turkey, with an incidence rate of 4.76 per 1000 [3], and it is a well-known fact that the most frequent cause of mortality in terminal-stage cervical cancer cases is bleeding and uremia. Vaginal bleeding usually progresses very rapidly and may result in death within a few hours either by secondary anemia and its complications or by hemorrhagic shock. Although ligation of the hypogastric artery is a standard procedure with proven efficacy in controlling massive bleeding in cervical carcinoma, in recent years, embolization has become a significant therapeutic option for the management of intractable hemorrhage in gynecologic malignancies because of its low mortality and morbidity rates [4]. In this report, we present a case of terminal-stage cervical cancer associated with massive vaginal bleeding, and we describe the beneficial effects of hypogastric artery embolization in the management of such bleeding.

One year ago, a 56-year-old patient was admitted to our hospital with pelvic pain and spotting vaginal bleeding. The first gynecologic examination showed an exophytic tumor of the cervix measuring approximately 5 cm in diameter. Pathological examination of a cervical biopsy confirmed Grade 3 squamous cell carcinoma. On further evaluation, the tumor was found to extend to the pelvic wall and involve the bladder and rectum. FIGO (The International Federation of Gynecology and Obstetrics) staging of the tumor was Stage IVA. Cisplatin-based chemotherapy and external radiotherapy combined with brachytherapy was started immediately after diagnosis. There was no remarkable vaginal

bleeding during chemoradiotherapy. However, 2 months ago, the patient was admitted to our emergency room with massive cervical bleeding without blood clotting. On physical examination, blood pressure was 60/30 mmHg, and heart rate was 130 beats per minute. Laboratory tests showed severe anemia (hemoglobin, 5 mg/dL). During this period, the patient underwent transfusion with a total of five units of blood to correct anemia. Bleeding did not stop with the application of vaginal tamponade in combination with hemostatic agents. Also, severe pelvic pain occurred due to local tumor pressure with tamponade. Pain control could not be achieved by the anesthesiologist. Considering the increased bleeding, the patient was planned to undergo laparoscopic ligation of the hypogastric arteries; however, we decided to perform selective arterial embolization because the patient's poor general status made her unsuitable for surgery. The embolization procedure was performed by interventional radiologists. X-ray fluoroscopy, arteriography, and embolization of the bilateral hypogastric arteries were performed via a percutaneous right femoral artery approach using local anesthesia and intravenous sedation (Figure 1). Vaginal bleeding stopped within 12 hours of the intervention. Pelvic pain was observed as a side effect during the post-operative period due to ischemia of the tumor tissue, but this pain was controlled with simple analgesics. During the 2-month follow-up after the intervention, there was no bleeding and no need for transfusion. The patient died due to stroke 2 months later.

Malignant tissues spread to neighboring healthy tissues through neovascularization, but the distinguishing feature of these blood vessels is that they are highly fragile and can easily result in massive bleeding. Bleeding from the tumor is a serious life-threatening complication, especially in advanced cervical cancer. A standard procedure is the ligation of the hypogastric artery, which has proven to be effective to control massive bleeding in cervical carcinoma. The procedure has limitations; it cannot be performed in patients with highly deformed pelvic anatomy (due to radiotherapy or the recurrence of cancerous tissue) and the poor general status. In these cases, embolization and other endovascular techniques have become the significant therapeutic options for the management of intractable obstetric and gynecologic hemorrhage [4,5]. The first reported use of transcatheter arterial embolization was for the control of intractable pelvic hemorrhage in patients with gynecologic malignancies in the mid-1970s [6]. Emergency arterial

^{*} Corresponding author. Department of Gynecology and Obstetrics, Bakirkoy Dr. Sadi Konuk Teaching and Research Hospital, Tefik Sağlam Street, Number 11, Zuhuratbaba, Istanbul, Turkey.

E-mail address: sm_szn@hotmail.com (S.S. Çaypınar).

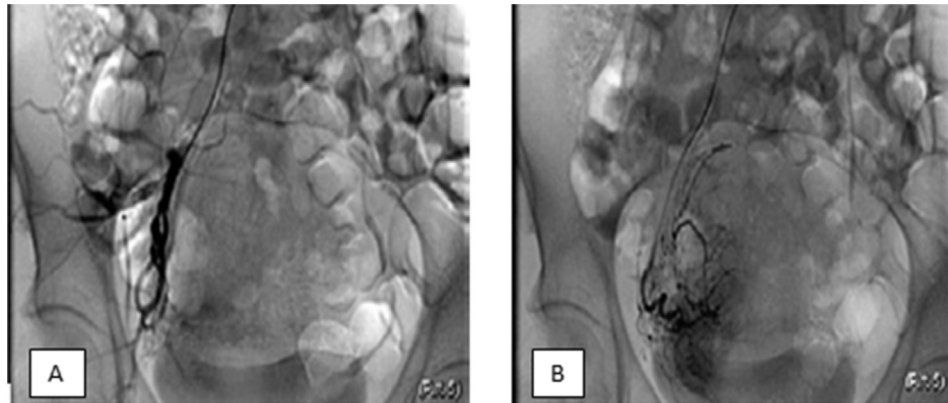


Figure 1. Decline of flow rate of an embolic agent injected into the arterial branches (stagnation) and disabling of pathological neovascularization. Pelvic arteriography before (A) and after (B) superselective hypogastric embolization.

embolization is a safe and effective means of controlling intractable genital hemorrhage.

In one German case series, five patients (four with cervical carcinomas and one with endometrial carcinoma) were treated with embolization. Bleeding was successfully controlled in four cases with minor side effects. One patient died after a second hemorrhage [7].

In another case series from Pisco et al [8] in 1989, transcatheter embolization of the internal iliac arteries was performed in 108 patients with pelvic neoplasm (uterus in 39, ovary in 16, urinary bladder in 50, and prostate in 3) suffering from uncontrollable bleeding. Complete control of hemorrhage was achieved in 69% of patients and partial control in 21% of patients. They were unable to reduce the need for transfusion in 11 patients, six of whom had only unilateral embolization. Recommendation based on this study was that embolization should be bilateral, and permanent material should be used [8].

In 2001, Mihmanli et al [9] showed successful cessation of vaginal hemorrhage by arterial embolization in six patients with gynecologic malignancies (four with cervical carcinoma, one with endometrial carcinoma, and one with vaginal metastasis of ovarian carcinoma). Recurrent bleeding did not occur in any of the cases. There were no complications related to the embolization procedure [9].

Yamashita et al [10] performed selective arterial embolization in 17 patients with malignant pelvic neoplasm. Temporary control of bleeding was achieved in all patients, but bleeding recurred in seven patients [10].

In a case report published from Tunisia in 2005, a woman with cervical cancer developed massive pelvic hemorrhage after radiotherapy. Angiography demonstrated extravasation of contrast from both uterine arteries. The bleeding was controlled after hyperselective embolization [11].

In 1996, Lin et al [12] reported a case of a hemodynamically unstable woman who presented to the emergency department with life-threatening bleeding from a pelvic tumor. After initial resuscitation and blood transfusion, an angiogram identified that hemorrhage originated from the uterine branch of the right internal iliac artery. Embolization of both the anterior and posterior branches of the internal iliac artery was performed, and the bleeding was arrested [12].

Based on the limited number of studies in the literature, it appears that arterial embolization plays a significant role in controlling massive bleeding in gynecologic malignancies, and that it is a minimally invasive successful technique to achieve hemostasis. Embolization of the bilateral hypogastric arteries should be considered as an effective and safe procedure to achieve urgent

control of acute, massive, life-threatening vaginal bleeding in patients in whom a surgical approach may not be appropriate. This conservative treatment not only improves the patient's quality of life but also prevents potential complications related to blood transfusion.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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