

## Case Report

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# Transcatheter Arterial Chemoembolization Treatment for Vulvar Cancer: A Case Report

Baokui Zhao<sup>a</sup> Hui Xue<sup>b</sup>

<sup>a</sup>Department of Radiology Imaging and Intervention, Red Cross Hospital of Qinghai, Xining, China; <sup>b</sup>Department of Oncology, Red Cross Hospital of Qinghai, Xining, China

## Keywords

Vulvar cancer · Transcatheter arterial chemoembolization · Necrosis · Skin defect

## Abstract

Vulvar cancer is a rare malignant tumor occurring in elderly postmenopausal women. At present, surgery is the main treatment for vulvar cancer. Chemotherapy alone has no obvious therapeutic effect as a treatment for vulvar cancer, so it is often combined with radiotherapy or surgery. Selective arterial infusion chemotherapy and embolization is rarely used for the treatment of vulvar cancer. A 63-year-old Tibetan woman underwent superselective arteriography and embolization. On the 7th day after the operation, the vulvar tumor was necrotic and fell off, and a skin defect at the left labia majora appeared. This patient had no other serious complications. Arterial embolization can block the blood supply to a vulvar tumor, has an obvious effect in reducing the tumor, and can even induce tumor necrosis and make the tumor fall off. However, the skin defect after necrosis and abscission does not heal easily, and even carries the risk of local bleeding, which should be paid attention to by the interventionalist and oncologist. The clinical effects of transcatheter arterial embolization for vulvar cancer still need to be studied by interventionalists and oncologists.

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Baokui Zhao  
Department of Radiology Imaging and Intervention  
Red Cross Hospital of Qinghai  
No. 55, Nandajie Street, Xining, Qinghai 810000 (China)  
542969495@qq.com

## Introduction

Vulvar cancer is a rare malignant tumor, accounting for 3–5% of all malignant female genital tract tumors, and it mostly occurs in elderly postmenopausal women. The main pathological types are squamous cell carcinoma, adenocarcinoma, basal cell carcinoma, malignant melanoma, and sarcoma [1, 2]. Vulvar cancer most often occurs in the labia majora, labia minora, vestibule of the vagina, and clitoris. Local nodules or masses appear first, which gradually increase in size. Necrosis, ulceration, infection, increased secretion, itching, and pain could occur additionally. The shape of the tumor is papillary or cauliflower-like, and the tumor may expand rapidly, involving the anus, rectum, and bladder.

The occurrence and development of vulvar cancer is a complex process with many factors, genes, and steps involved [3]. Vulvar intraepithelial neoplasia is a precancerous lesion of vulvar cancer [4]. Young vulvar cancer patients show a human papillomavirus (HPV) infection pathway which is often associated with common vulvar intraepithelial neoplasia and high-risk HPV infection, especially with types 16 and 18 [5]. Elderly patients are usually not associated with HPV infection, but with lichen sclerosus or squamous epithelial hyperplasia [6]. In addition, herpes simplex virus infection may be an independent risk factor for vulvar cancer. Some studies have found that patients with vulvar cancer have a high positive rate of herpes simplex virus II in serum and genital herpes infection [7].

Based on a patient's history and clinical manifestations, combined with the laboratory examination, imaging, pathology, and other examinations, the diagnosis can be clear. Surgery is the main treatment for vulvar cancer. With our understanding of the biological behavior of vulvar cancer, the surgical treatment mode for vulvar cancer has changed a lot. Individualized and humanized surgical treatment is emphasized for early vulvar cancer, while surgery plus radiotherapy and chemotherapy are emphasized for local late-stage or late-stage vulvar cancer. At present, there is no standard chemotherapy plan for vulvar squamous cell carcinoma, and the commonly used plans mainly include cisplatin, 5-FU, mitomycin, etc. [3]. Arterial embolization can be used for hemostasis if vulvar cancer causes local bleeding when there is a poor medical treatment effect; transcatheter arterial chemoembolization is used less in vulvar cancer treatment in the clinic.

## Case Report

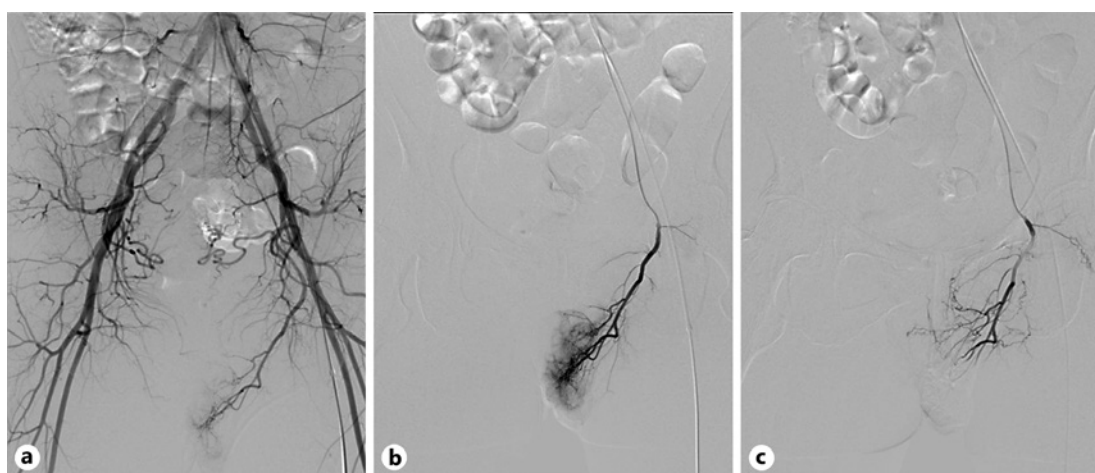
A 63-year-old Tibetan woman had been diagnosed with squamous cell carcinoma of the vulva 6 months previously at a local hospital due to the discovery of a vulvar mass. At that time, the patient refused surgery due to the large trauma of the operation, and refused to receive radiotherapy, chemotherapy, or other treatment. After leaving the hospital, she was recuperating at home and was taking short-term Chinese medicine treatment. The specific drugs and doses were not provided. The tumor of the vulva gradually increased, and there was a skin defect on the surface of the tumor, as well as intermittent small amounts of bleeding.

Two months before admission, there was bleeding due to rupture of the vulvar mass; the amount of bleeding was about 600 mL. The bleeding stopped after the patient had received local compression and hemostatic treatment. The patient was admitted to the hospital because of vulvar pain and a small amount of bleeding. There was infection and exudation on the surface of the tumor. After admission, MRI of the patient's pelvis showed that the left vulvar mass was indistinct in the surrounding tissue of the left labia majora, and there were multiple enlarged lymph nodes in the pelvis and groin (Fig. 1).

In order to improve the prognosis and prevent bleeding, superselective arteriography and embolization were performed on the 12th day after admission. During the operation,



**Fig. 1. a–c** MR images of the pelvis. Exophytic mass on the left labia majora.



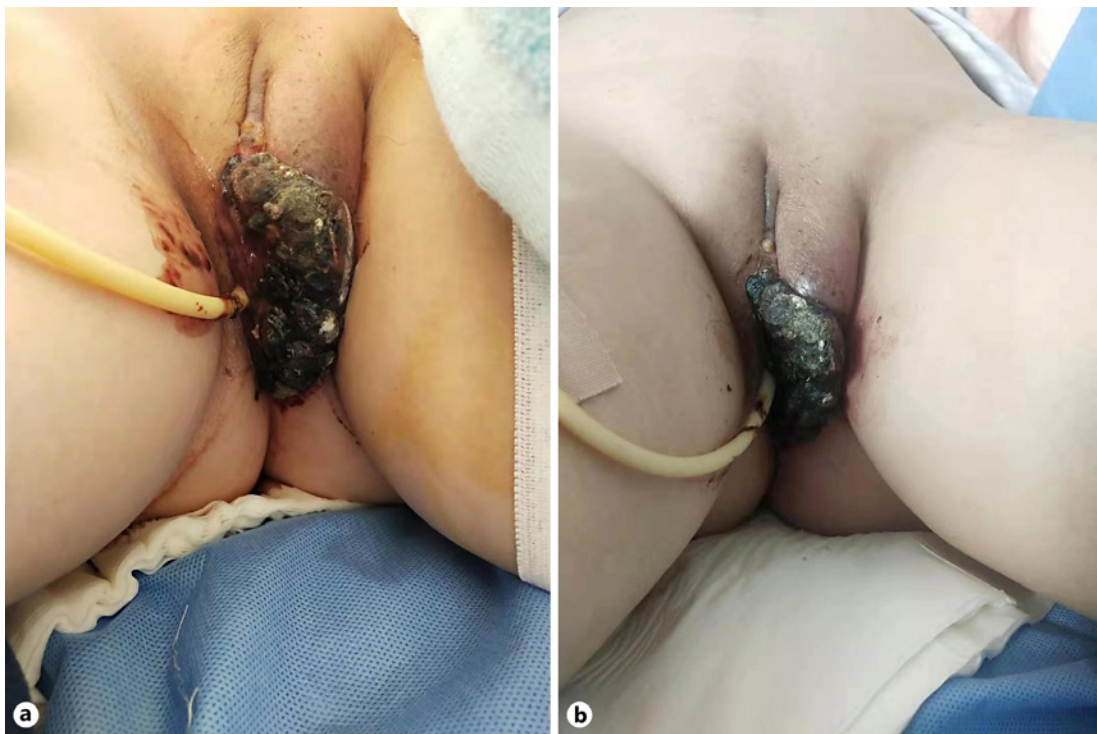
**Fig. 2. a, b** Digital subtraction angiograms showing that the blood to the left vulvar mass was supplied by the left internal pudendal artery. **c** After embolization, on the follow-up angiography, the tumor's vessels and staining had disappeared.

digital subtraction angiography showed that the blood to left vulvar mass was supplied by the left internal pudendal artery (Fig. 2a, b). During the operation, 20 mg cisplatin and 500 mg fluorouracil were given as arterial infusion chemotherapy, followed by embolization of the tumor blood supply artery with gelatin sponge particles. After embolization, on follow-up angiography, the tumor's vessels and staining had disappeared (Fig. 2c).

On the 7th day after the operation, the tumor in the vulva was necrotic and exfoliated (Fig. 3), and the skin defect at left labia majora appeared (Fig. 4). The patient was given daily disinfection and change of dressing, the defective area of the vulvar skin became smaller, and the patient had no other serious complication. About 40 days after the interventional operation, the vulvar skin defect had healed (Fig. 5). The patient continues to be therapized with radiotherapy.

## Discussion

At present, surgical treatment is the main treatment of vulvar cancer in the clinic [8]. With our understanding of the biological behavior of vulvar cancer, the surgical treatment mode for vulvar cancer has changed a lot. Sentinel lymph node examination and resection are used to determine whether to carry out unilateral or bilateral inguinal lymph node resection.



**Fig. 3.** After the operation, the left exophytic tumor was ischemic and gradually reduced. **a** Day 3. **b** Day 5.



**Fig. 4.** On day 7 after the interventional operation, the skin defect at the left labia majora appeared.

**Fig. 5.** By day 40 after the interventional operation, the skin defect at the left labia majora had healed.

Individualized and humanized surgical treatment is emphasized for early vulvar cancer, while surgery plus radiotherapy is emphasized for local advanced or advanced vulvar cancer.

Vulvar cancer often occurs in elderly women who have been menopausal for many years. These patients have a lower expectation of the effect of treatment. Elderly patients with lower immunity, combined with hypertension, diabetes, and other chronic diseases, have poor

tolerance to chemotherapy, and it is difficult to complete predetermined treatment plans. Compared with younger patients, older ones have poor hematopoietic reserve, and the myelosuppression caused by chemotherapy is more obvious. Patients who receive chemotherapy for vulvar cancer are mostly those without any chance of operation and recurrence after the operation. Squamous cell carcinoma accounts for 80% of vulvar cancer cases. Compared with adenocarcinoma, squamous cell carcinoma is more sensitive to radiotherapy, but less sensitive to all available anticancer drugs. Castellano et al. [9] state: “As improved RT modalities are increasingly used, we show that, contrary to older similar studies, the addition of chemotherapy to adjuvant RT of SCC vulvar cancer does not appear to improve outcomes. CRT may increase risk of toxicity and thus should be reserved for younger women.” Thus, chemotherapy for vulvar cancer is still disputed.

Interventional therapy uses a special catheter inserted directly into the supply artery of the tumor, which can effectively elevate the concentration of any chemotherapeutic drug in the local cancer tissue, effectively eliminate tumor cells, and help the patient in reverting the disease; therefore, the patient could obtain the opportunity for operation, and better operational conditions for follow-up treatment may be created [3]. In past clinical practice, arterial chemoembolization has achieved good results in the treatment of cervical cancer, endometrial cancer, and other malignant gynecological tumors. However, there are few clinical practice reports on arterial chemoembolization for the treatment of vulvar cancer. After arterial chemoembolization, the vulvar tumor shrinks, necrotizes, and falls off, showing a good effect in tumor reduction, which is more accurate and effective than intravenous chemotherapy. Because of the interruption of the blood flow and nutrition to the vulvar tumor, tissue necrosis occurs rapidly, which leads to the tumor falling off; skin defects and other effects are inevitable. Because normal skin tissue cannot be generated on the surface of a malignant tumor, skin grafting and other treatments are provided to improve the skin defects, and patients even need to endure local skin defects for a long time. There is a risk of bleeding due to poor healing of local tissue. Therefore, aggravations of the skin defect after interventional treatment for vulvar cancer should be paid attention to by the interventionalist and oncologist. Before interventional operation, the risk should be communicated to patients and their families in detail, and their permission should be obtained. At present, there are few reports on the treatment of vulvar cancer by transcatheter arterial embolization, and its clinical efficacy and safety still need to be studied in clinical practice and research.

## Conclusions

Arterial infusion chemotherapy for advanced vulvar cancer can elevate the concentration of chemotherapeutic drugs focusing on the lesion and producing clear antitumor effects. Arterial embolization can block the blood supply to the vulvar tumor, which has the obvious effect of reducing the tumor's size; it can even cause tumor necrosis and make the tumor fall off. However, local skin defects are formed after tumor necrosis and exfoliation, which do not heal easily and even carry the risk of local bleeding; thus, this should be paid attention to by the interventionalist and oncologist. The clinical therapeutic effect of transcatheter arterial embolization for vulvar cancer treatment still needs to be studied by interventionalists and oncologists.

## Statement of Ethics

The authors guarantee that the guardians of the patient have given their written informed consent to publish their case (including publication of the images).

## Disclosure Statement

The authors declare no conflict of interest.

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This case study was done without any funding.

## Author Contributions

Z. Baokui: substantial contributions to the study's conception and design, acquisition of data, analysis and interpretation of the data, drafting of the article, critical revision for important intellectual content, and final approval of the version to be published; X. Hui: contributions to providing the case, acquisition of data, and taking of the photographs.

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