



# Successful Surgical Procedure of Vaginal Cancer Located at the Mid Portion of the Vagina: A Case Report

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## Abstract

**Introduction:** Vaginal cancer is extremely uncommon and most types of this cancer are secondary from other sites such as the cervix or uterine endometrium. Due to the rarity of this gynecologic cancer, studies are limited about treatment modality and most of them have recommended pelvic and vaginal radiotherapy rather than radical surgery. Combined modality including surgery and adjuvant radiotherapy is not supported by experts because of high rates of morbidities. The purpose of our report was to declare the effectiveness of radical surgery in vaginal cancer located in the mid-portion of the vagina, where radiotherapy is considered as the standard treatment.

**Case Presentation:** A woman with vaginal primary squamous cell carcinoma (SCC) in the mid-portion of the vaginal wall undergoing a radical surgery was evaluated in this study. All margins were free of tumoral involvement. In addition, our patient had situs inversus as a rare congenital anomaly which was detected accidentally during the imaging study.

**Conclusions:** Severe and irreversible fibrosis of the vagina after radiotherapy is known as a major challenge, especially in younger patients while shortening of the vagina after surgery is reversible although achieving free tumor margin is absolutely critical. Therefore, an important question arises regarding vaginal cancer whether the advantages of every modality outweigh the disadvantages or not. Thus, it is recommended that surgery is an alternative for radiation by means of a team with high experience in surgery even in vaginal cancer located at the mid portion.

**Keywords:** Vaginal cancer, Situs inversus, Radiotherapy

## Introduction

Vaginal primary squamous cell carcinoma (SCC) is extremely uncommon and approximately composes 1-3% of all gynecologic cancers (1). The incidence rate of vaginal SCC has remained unchanged for decades (2). The same as cervical SCC, human papillomavirus (HPV) is the main cause of vaginal SCC, therefore, high-risk sexual behavior has an important role in developing vaginal cancer (3).

Primary vaginal cancer is rare and almost 80%-90% of cancers are metastatic from other sites (4). The staging of vaginal cancer is clinical although various imagines are recommended for treatment planning, including chest radiography, cystoscopy, and proctoscopy (5). Surgical staging including radical vaginectomy and lymphadenectomy with or without hysterectomy is only considered in selected patients (e.g., in a small group just with vaginal cancer located in the posterior superior wall of the vagina. The overwhelming majority of cases are treated with radiotherapy with or without chemotherapy (6). Due to the rarity of this specific cancer, uncertain methods exist about treatment modalities and there are convincing arguments on it. Based on traditional methods, radiotherapy is considered for vaginal cancer involving the lateromedial wall. This report introduced a

patient with vaginal SCC located at medio-lateral wall of the vagina treated only with radical surgery and has been avoided of the serious complication of the radiotherapy, including vaginal fibrosis and dyspareunia. Our case was unique because she had a rare anomaly named situs inversus. Thoracic and abdominal organs are completely transposed in this congenital anomaly. For example, the stomach and spleen are on the right while the liver is on the left side of the body (7, 8).

## Case Report

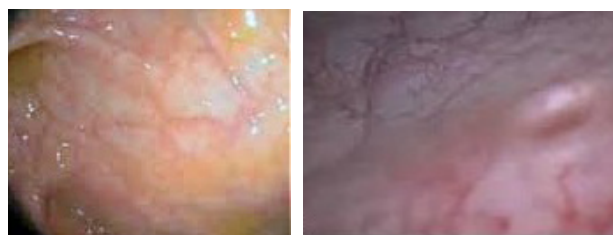
A 43-year-old G2L2 patient was referred to our tertiary center for resistant vaginal discharge, she had received multiple types of antibiotics. On generalized physical examinations, there were no remarkable points. On vaginal inspection, a round ulcerative lesion was discovered on the right mediolateral wall of the vagina by 2 cm in the largest diameter. In deep palpation and rectovaginal digital examinations, there was only a superficial ulcer with no invasion to the beneath the layer of the vagina and the rectum. Uterine cervix and adnexa seemed to be normal. Blood laboratory tests included hemoglobin 12.3 with a blood cell count of 6700 and the platelet count of 143 000. Urine and Stool analyses were normal. A large biopsy was



performed as well. The histopathologic result revealed vaginal SCC grade 2. A universal metastasis workup was carried out because of the high rate of metastatic disease in vaginal cancer. Chest radiography, abdominopelvic spiral CT scan, cystoscopy, and proctoscopy were done (Figures 1 and 2). In addition, primary vaginal SCC was diagnosed after reviewing all of the imaging because no point was discovered in favor of metastatic disease, which is more common than primary cancer in the vagina. On imaging, there was an interesting point (Figures 3 and 4). The liver was detected on the left while the stomach, spleen, and heart were located on the right side of the patient. She had a congenital anomaly named situs inversus. Our hospital has a Gynecology Oncology Department and we consult with a radiotherapist and an expert hematologist. Eventually, we decided to conduct pelvic and vaginal radiotherapy but the patient did not accept our plan because she was young. Thus, we discussed the probable future complication of radiotherapy, including vaginal fibrosis and dyspareunia. Therefore, we decided to perform the surgical method. Two gynecologic oncologists and one urologic oncologist contributed to this surgery and abdominal radical vaginectomy, hysterectomy, and lymphadenectomy were performed as well. Two units of the packed cell were transfused and the patient had an uneventful recovery period. She went home after 5 days of hospitalization. There were no major or minor surgical complications. The pathologic margin of the surgery and lymph nodes were free of tumor involvement thus we considered just to follow up examinations every two months for the first year of the surgery and every 4 months for the second and the third year. After three years, she is now symptom-free and there is no sign of the recurrence or metastasis of the disease.

**Discussion**

Vaginal cancer is uncommon and most types of this cancer are secondary from the uterine cervix or endometrium. Primary vaginal cancer may be squamous or adenocarcinoma and a very small percentage may be melanoma. The squamous subtype is more common



**Figure 2.** Cystoscopy showed normal mucosa of the bladder. Rectoscopy showed normal mucosa of the recto-sigmoid without any invasion.

in primary cancer although this type of tumor is nearly diagnosed after the age of 65 in women. Prior radiotherapy, regular tampon consumption, and HPV exposure are known as the risk factors for developing vaginal SCC. Recurrent and resistant vaginal discharge, vaginal bleeding, and dyspareunia are the most common symptoms of vaginal cancer (9, 10). Our patient was young for vaginal SCC. She was 43 years old, so vaginal SCC may also be observed in younger patients. She had a vaginal discharge with no answer to various antibiotics. This is important to notice any sustained symptoms in the vagina even without vaginal bleeding. The exact inspection and the gentle palpation of all walls of the vagina are mandatory. The turning of the vaginal speculum is a critical point in gynecology examinations because a portion of the vagina may be obscured and the main lesion can be missed as



**Figure 3.** Chest CT shows liver is located at left.



**Figure 1.** CXR shows that the heart is located at right while the liver is located at left.



**Figure 4.** Abdominal CT scan shows situs in-versus.

well. If a specified lesion is diagnosed, a biopsy is needed, otherwise, colposcopy and Pap smear test are considered for detecting microscopic disease (11). A lesion with a well-defined border was observed in our patient and a biopsy was performed accordingly. In the case of vaginal cancer, metastasis workup is necessary for discovering the type of cancer (i.e., primary or secondary) because almost 80%-90% of the vaginal cancer is secondary, thus we evaluated all body organs. On the chest radiography and the spiral CT scan, it was found that she has a congenital anomaly. All visceral organs were in opposite sites. Situs inversus is rare and its incidence is between 1 per 10 000 to 1 per 50 000 (12). Although this condition has no influence on the normal health condition, the diagnosis of this situation can be important, especially in cases who need surgical intervention. Obviously, knowing the exact location of every organ can affect the surgical plan. In our patient, lymphadenectomy was highly difficult due to the reverse location of the sigmoid colon on the right side of the body. Situs inversus is mostly detected on screening or when a patient undergoes evaluations for another disease. Various cancers have been reported accompanying situs inversus, including pancreas adenocarcinoma, hepatocellular carcinoma, colorectal, and gastric cancer (13, 14). To the best of our knowledge, only one case has been reported with situs inversus and vaginal cancer so far, which its subtype was clearly cell adenocarcinoma, thus our case is the first report of vaginal SCC with situs inversus. The specific mutation for this congenital anomaly has not been introduced, which can lead to other mutations and future cancer although this fact is not unlikely. Due to the rarity of vaginal cancer treatment, modalities are controversial. In the lesion with stage 1, especially in the superior and posterior wall of the vagina, the surgical method is recommended, and radiotherapy is reasonable for the remaining cases because surgery with free margin in these patients is extremely difficult and may lead to major complications (e.g., vesicovaginal or rectovaginal fistula). Achieving free margin in these cases is unlikely and most of them will need adjuvant radiotherapy and combined modalities. A combination of surgery and radiotherapy would have more probability for dangerous complications. Accordingly, when a surgeon takes a guess that free margin is out of reach (e.g., in mid-portion lesions), he or she selects radiotherapy rather than surgery to avoid combined modality. However, our patient was only 43 years old and sexual function was important for her. She did not admit our plan. We discuss irreversible vaginal fibrosis after radiation and dyspareunia. Therefore, we considered surgery for her. It was a complex operation and two gynecologic oncologists and one urologic oncologist contributed to this radical vaginectomy. We considered the pros and cons, and finally, decided to do surgery. The closed follow-up was done for her, and she is now free of any symptoms and signs. In conclusion, an exact examination is recommended in every woman with sustained vaginal

discharge even without vaginal bleeding. A biopsy is needed as soon as possible for every macroscopic lesion and vaginal colposcopy for the occult disease. In selecting treatment modality, we can perform surgery even in mid-portion lesions if our patient is young, and if there exist expert oncologic surgeons to achieve a margin free of tumor. The clinical usage of our presentation is that surgery can be curative after draconian measurements including a surgical team with high experience and a young patient with a good general appearance. Despite avoiding vaginal shortening caused by radiotherapy, cystitis and colitis can be prevented with surgery. The lack of high-quality evidence regarding radical surgery in vaginal cancer located at the mid-portion was the most important limitation of this case report. Nevertheless, future systematic studies are mandatory to suggest radical surgery as an alternative option for standard radiotherapy.

#### Authors' Contribution

SA participated in the literature review. SN wrote the article. MB revised the article. EH prepared the figures and NH prepared the final revision. All authors have confirmed the final revision of the manuscript.

#### Conflict of Interests

Authors declare that they have no conflict of interests.

#### Ethical Issues

This study was reviewed by the Ethics Committee of Iran University of Medical Sciences before submission and was performed in accordance with the ethical standards in an appropriate version of 1964 Declaration of Helsinki. Accordingly, the patient filed informed consent and the ethics committee of our hospital approved the publication of the patient's history, patient imaging, and pathologic photos.

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