Case Report

Research in Oncology
2024; Vol. 20, No. 2: 40-44
DOI: 10.21608/resoncol.2024.243842.1203

Silent Metastatic Mucinous Colonic Carcinoma to the Uterine Cervix: A Case Report

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Abstract

Introduction: Metastasis of colon cancer to the uterine cervix is a rare occurrence, with only a few case reports and small series documented in the literature.

Case Presentation: We present a case of a patient with asymptomatic metastatic mucinous carcinoma of colonic origin to the cervix. The patient had previously undergone a left hemi-colectomy for mucinous adenocarcinoma of the sigmoid colon, followed by six cycles of chemotherapy. Eighteen months after treatment, thickening of the uterine cervix was incidentally noted during the removal of an intrauterine device. Pathological examination of a cervical biopsy revealed submucosal deposits of mucinous adenocarcinoma, while the mucosa remained intact. Immunohistochemistry confirmed the primary colonic origin through positive CK20 expression. A bone scan further detected early metastatic deposits in the dorsal and lumbar vertebrae.

Conclusion: This case underscores the need to consider the uterine cervix as a potential early metastatic site in patients with colorectal cancer.

Keywords: Colon cancer, metastases, uterine cervix

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Received: 21-October-2023, **Accepted:** 9-July-2024, **Published online:** 20-October-2024

Introduction

Colorectal cancer is one of the most common malignancies worldwide, with a tendency to spread to both local and distant sites. The most frequent sites of metastasis include regional lymph nodes, liver, lungs, and peritoneum. [1] Among the female genital tract, the ovary is recognized as the most common site affected by metastatic spread. [2] However, metastasis from distant primary sites to other parts of the genital tract, such as the uterine corpus and cervix, is exceptionally rare. [3–6] When colorectal cancer does involve the uterus, it is often through direct local extension rather than true hematogenous or lymphatic dissemination to distant sites.

Metastasis of colorectal cancer to the uterine cervix is particularly uncommon, with only a few documented cases in the literature. [7–10] Such occurrences can be challenging to diagnose because they are often asymptomatic and may mimic primary gynecological malignancies, making clinical and pathological evaluation crucial. In this case report, we describe a patient with metastatic mucinous adenocarcinoma of colonic origin to the uterine

cervix, highlighting the unusual pattern of spread and the diagnostic complexities associated with this rare presentation.

Case presentation

A 45-year-old woman presented to the family planning clinic at Sohag University Hospital with a two-month history of persistent, dull, supra-pubic pain. She had a copper intrauterine device (CuT380A) inserted approximately six years ago, following her last childbirth, and sought its removal due to ongoing discomfort. The patient was a grand multipara, with seven living children, and had a history of regular menstrual cycles.

Two years prior to this presentation, she had undergone a left hemi-colectomy for an obstructive annular mass located in the sigmoid colon. Histopathological analysis of the resected specimen confirmed the presence of mucinous adenocarcinoma with signet-ring cell components and extracellular mucin pools. The surgical margins were free, and the tumor had invaded four pericolic lymph nodes, classifying it as Duke's Stage C. Following the surgery, the patient received six cycles of adjuvant chemotherapy with the FOLFOX regimen, consisting of oxaliplatin, leucovorin, and fluorouracil. After completing chemotherapy, she was placed on regular follow-up for 18 months before returning to the clinic to request the removal of her IUD.

Upon speculum examination, the IUD threads were visible, and the device was gently removed. However, an abnormal appearance of the cervix was noted. The cervix appeared hypertrophied, with an "angry," reddish aspect, and its surface was mottled with abnormally prominent blood vessels. Although the vaginal and cervical mucosae were intact, showing no signs of ulceration, nodules, or polyps, digital and bimanual examination revealed that the cervix was firm and indurated, especially on the right side. An unpleasant odor was also noted during the examination.

Given the unusual findings, the patient was admitted for further evaluation. Routine preoperative tests, including complete blood counts, were normal, with a hemoglobin level of 11.4 g/dl. Tumor markers, including serum CEA, CA19-9, and CA-125, were within normal ranges. A computerized tomography (CT) scan of the abdomen and pelvis showed an elongated, well-defined mass, measuring approximately 3.5 x 2 cm, confined to the uterine cervix. Importantly, there was no evidence of recurrent lesions in the sigmoid colon, nor were there any signs of liver metastasis or enlarged abdominal or inguinal lymph nodes. A CT scan of the chest showed no pulmonary deposits, while a bone scan revealed small, silent osteolytic lesions in the dorsal and lumbar vertebrae. An intravenous pyelogram indicated a mildly dilated right ureter and right renal calyces, along with a slight shift of the urinary bladder to the left.

Examination under anesthesia confirmed a hard, minimally mobile cervix with a posteriorly displaced external os. There was no involvement of the parametrial tissues, and no exophytic lesions were observed on the cervix. A cystoscopy revealed intact bladder mucosa, with no evidence of tumor invasion. A punch biopsy was obtained from the cervix for histopathological analysis. Microscopic examination revealed mucinous carcinoma with signet-ring cells embedded in a stroma rich in extracellular mucin. The tumor was predominantly located in the cervical stroma, while the overlying ectocervical mucosa was intact and non-dysplastic (Figure 1 A and B). Given the patient's prior history of colonic adenocarcinoma, a diagnosis of metastatic mucinous carcinoma from a primary colonic tumor was strongly suspected. Immunohistochemical analysis showed diffuse, strong positive staining for CK20, a marker consistent with colonic carcinoma, thereby confirming the diagnosis of metastatic mucinous colonic carcinoma to the cervix (Figure 1 C and D).

Discussion

Metastasis to the female genital tract is most found in the ovaries, making them the primary site for secondary malignancies from non-gynecological cancers. [2] However, metastasis to the uterine cervix is exceptionally rare. Historical data by Lemoine NR et al., who reviewed surgical pathology files at London Hospital over 65 years (1919-1984), identified only 33 cases of metastatic tumors to the cervix, underscoring the rarity of such occurrences. [5] Similarly, Pérez-Montiel D et al. reviewed cases at the National Institute of Cancer in Mexico between 1990 and 2009, identifying only 10 instances of metastasis to the cervix. [6] The primary origins in their study included

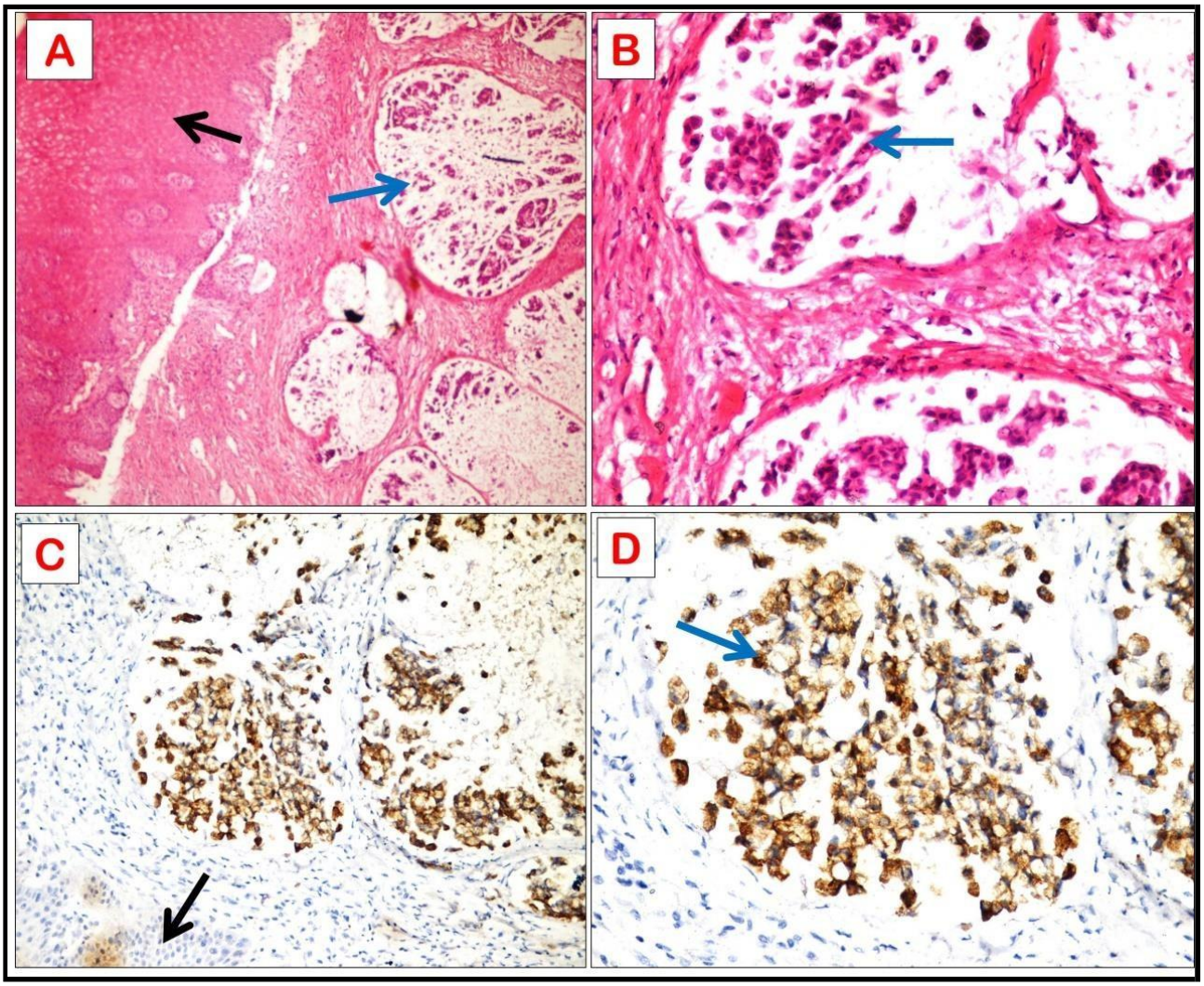

Figure 1: Histological sections of the metastatic tumor in the cervix. The cervical epithelium (black arrows) remains intact, while tumor cells (blue arrows) are localized within the cervical stroma. Panels A and B show Hematoxylin and Eosin (H&E) stained sections, while panels C and D display immunohistochemically stained sections. Magnifications: A and C, x100; B and D, x400.

ovarian (four cases), gastric (two cases), breast (two cases), and rectal (two cases) carcinomas.

A systematic review covering cases from 1970 to 2009 reported 136 patients with metastasis to the uterine cervix. The most common primary site was the stomach (45 cases), followed by breast (36), ovarian (36), and colorectal (19) carcinomas. [6] Notably, in 38 patients (27.9%), the cervix was the only site of metastasis, suggesting that the uterine cervix could be involved in the early stages of distant metastasis. This highlights the importance of considering the cervix as a potential site for early metastatic disease in patients with a history of cancers like colorectal carcinoma.

The rarity of metastasis to the cervix can be attributed to several factors. The uterine cervix is a small organ with a dense, fibrous stroma and relatively limited vascular supply, which may make it less susceptible to metastatic deposits. Additionally, the cervix is not routinely screened during metastatic workups for extra-genital malignancies, nor is it a common focus in autopsy studies. [6] When metastases do occur, the most frequent clinical presentations include transvaginal bleeding, abdominal masses, and abdominal pain, symptoms that can mimic those of primary cervical tumors. [8] In the present case, however, the patient had a regular menstrual cycle

and a normal hemoglobin level. The tumor was discovered incidentally during the removal of an intrauterine device, which the patient had sought due to vague lower abdominal pain.

The differential diagnosis in this case primarily included primary adenocarcinoma of the cervix or direct extension of an endometrial adenocarcinoma. However, the absence of uterine bleeding and the presence of excess mucin in the tumor tissue reduced the likelihood of a primary cervical or endometrial tumor. Furthermore, the intact and non-dysplastic cervical mucosa, along with the submucosal localization of the tumor cells, argued against primary adenocarcinoma of the cervix. Immunohistochemical analysis was also crucial; cervical and endometrial adenocarcinomas typically test negative for CK20, [9] whereas the tumor cells in this case exhibited strong CK20 positivity, a marker consistent with colorectal origin.

The primary mechanisms for colorectal cancer metastasizing to the uterine cervix include direct extension and spread through lymphatic or hematogenous routes. Direct extension from the previously resected sigmoid cancer was unlikely in this patient for several reasons. Firstly, radiological follow-up showed that the mass was confined to the uterine cervix with no evidence of recurrent or residual disease at the original tumor bed. Secondly, the lesion involved the right lateral side of the cervix and caused compression of the right ureter. If the spread were due to direct extension, the left lateral wall of the cervix would likely have been affected first. Lastly, there was no evidence of ovarian metastasis or peritoneal seeding, which would be expected if the tumor cells had spread through direct extension or seeding within the abdominal cavity. This pattern suggests that tumor cells reached the cervix via hematogenous or lymphatic pathways, consistent with findings in similar studies. [6, 7] Another possibility is that tumor cells could have been implanted in the pouch of Douglas or the posterior vaginal cuff during the surgical dissection at the time of the initial sigmoidectomy, as suggested in previous reports. [10]

Conclusion

This case highlights several important considerations regarding metastasis to the uterine cervix. Firstly, the cervix should be included in the metastatic workup for patients with a history of colorectal cancer, as it may serve as an early site of metastatic spread. Secondly, clinicians should consider the possibility of metastatic disease whenever a diagnosis of adenocarcinoma of the cervix is made, especially in patients with known malignancies elsewhere. Finally, diagnosing a metastatic tumor in the cervix can significantly impact the treatment strategy, underscoring the need for accurate and thorough diagnostic evaluation.

Acknowledgments

The authors gratefully acknowledge the support and cooperation of the staff members from the Departments of Oncology and Gynecology & Obstetrics at Sohag University Hospital in assisting with the data collection for this case report.

Authors' contribution

Conception: Ahmed ARH; Design: Ahmed ARH; Data Collection: Bakheet RA & Salem MN; Data Analysis and Interpretation: Ahmed ARH & AboElella AMA; Drafting the manuscript: Ahmed ARH & Salem MN; Revising the manuscript: Bakheet RA & AboElella AMA; Approval of the final version of the manuscript: All authors; Agreement to be accountable for all aspects of the work: All authors;

Conflict of interest

The authors declare that they have no conflict of interest to disclose.

Data availability

All relevant data supporting the findings of this case report are included within the article. Additional anonymized data can be obtained from the corresponding author upon request.

Ethical considerations

This case was reported in compliance with the principles outlined in the Declaration of Helsinki.

Funding

Not applicable.

Study registration

Not applicable.

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