

CASE REPORT

Endometrial carcinosarcoma associated with uterine inversion

Carcinosarcoma endometrial asociado a inversión uterina

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Resumen

La inversión uterina se caracteriza por la invaginación del cuerpo uterino a través del cuello uterino. Clásicamente, la inversión uterina se divide en dos categorías principales: puerperal y no puerperal, siendo la última una entidad poco común y con poco registro en la literatura.

Este caso clínico se trata de una mujer de 68 años con cuadro de tres meses de dolor en el hipogastrio y con sangrado vaginal. La resonancia magnética nuclear de abdomen evidenció una inversión uterina asociada a una masa sólida de 9,4 cm × 7,9 cm. A partir de este hallazgo, la paciente recibió quimioterapia para control local como neoadyuvancia y luego fue llevada a histerectomía total, cuyo estudio histopatológico confirmó el diagnóstico de carcinosarcoma. Posteriormente, recibió manejo complementario con radioterapia.

Los carcinosarcomas están asociados a inversión uterina de manera infrecuente, sin embargo, constituyen una entidad que debe considerarse dentro de los diagnósticos diferenciales.

Palabras clave: inversión uterina; carcinosarcoma; neoplasias endometriales; diagnóstico diferencial.

Conflicts of interest

The authors declare no conflicts of interest.

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Abstract

Uterine inversion is characterized by the invagination of the uterus through the cervix. Classically, uterine inversion is divided into two main categories: puerperal and non-puerperal, with the latter being a rare entity with few reports in the literature.

This case report describes a 68-year-old woman with a three-month history of hypogastric pain and vaginal bleeding. Abdominal nuclear magnetic resonance revealed uterine inversion associated with a solid mass

measuring 9.4 x 7.9 cm. Based on this finding, the patient received neoadjuvant chemotherapy for local control and later underwent a total hysterectomy. Histopathological examination confirmed the diagnosis of carcinosarcoma. She subsequently received complementary treatment with radiotherapy.

Carcinosarcomas are rarely associated with uterine inversion; however, they constitute an entity that should be considered in the differential diagnosis.

Keywords: uterine inversion; carcinosarcoma; endometrial neoplasms; diagnosis, differential.

Introduction

Uterine inversion is an obstetric and gynecological emergency characterized by the invagination of the uterus through the cervix. Uterine inversion is usually categorized into two main types: puerperal and non-puerperal (1). Puerperal uterine inversion often results from obstetric factors such as excessive traction on the umbilical cord or uterine atony (2). On the other hand, non-puerperal uterine inversion is less common and has a more complex etiology, making diagnosis and treatment more challenging.

Non-puerperal uterine inversion is linked to a range of risk factors, including anatomical, clinical, and pathological factors. Among anatomical factors, congenital uterine anomalies, such as a bicornuate or septate uterus, are notable, as they can predispose to inversion by altering the uterus's shape and function (3). Other clinical risk factors that have been identified include previous uterine prolapse, hormonal treatments, connective tissue diseases, and pelvic trauma (4).

Regarding pathological factors, neoplasms—primarily fibroids and leiomyomas—are the most commonly identified causes of non-puerperal uterine inversion, accounting for about 87.0% of cases. It is important to note that a significant percentage of non-puerperal uterine inversions are linked to malignant neoplasms, such as sarcomas (7.4%) and carcinomas (5.6%) (5). For uterine inversions associated with malignant neoplasms, it has been described that tumor growth within the uterine cavity acts as an irritant to the myometrium, causing contractions that can lead to tumor expulsion by pulling the uterus from its already weakened fundal insertion. Furthermore, tumor weight and increased intra-abdominal pressure from coughing or the Valsalva maneuver can contribute

to the pathophysiological mechanism (2). In the global literature, only one case of carcinosarcoma causing uterine prolapse has been reported (6).

This work aims to describe a case of non-puerperal uterine inversion caused by a malignant neoplasm, reported in Colombia, emphasizing the clinical, histopathological, and surgical findings that aided in its diagnosis and therapeutic approach.

Clinical case description

A 68-year-old woman with a history of hypertension and a family history of endometrial, colon, and gastric cancers. She went through menopause at age 55. The patient presented with a three-month history of lower abdominal pain and vaginal bleeding. Abdominal nuclear magnetic resonance (NMR) revealed uterine inversion, with displacement of the uterine body and segment into the vaginal canal. A solid mass measuring 9.4 cm × 7.9 cm, originating from the uterine fundus and corpus, was identified, sparing the vaginal canal walls and showing no extension to adjacent structures. A curettage biopsy indicated a poorly differentiated malignant tumor. Immunohistochemical studies showed strong and diffuse positivity for vimentin and p16, along with p53 overexpression. There was no immunoreactivity for estrogen receptors, progesterone receptors, CKEA1/EA3, CK7, CK20, S100, or napsin A. The immunoprofile was consistent with a high-grade undifferentiated sarcoma. The tumor was staged as T3bN0M0, stage IIIb.

The patient was evaluated by an oncology board, which determined that, considering the imaging findings involving the bladder and rectum, she would benefit from

four cycles of neoadjuvant chemotherapy for local control using a paclitaxel and carboplatin regimen. Following the chemotherapy cycle and given the response to treatment, a total abdominal hysterectomy was performed. Macroscopic examination revealed both Fallopian tubes and one ovary within the endocervical cavity, protruding through the cervical os. The uterine fundus showed a raw, tumor-like

area that, upon sectioning, appeared whitish, heterogeneous, and measured 2 cm × 1 cm, extending to the serosa. Detached from the uterus, a brown, soft, irregular tumor mass measuring 9 cm × 7 cm was found, covered with fibrinopurulent membranes, which, upon sectioning, was whitish and soft with extensive areas of necrosis ([Figure 1](#)).

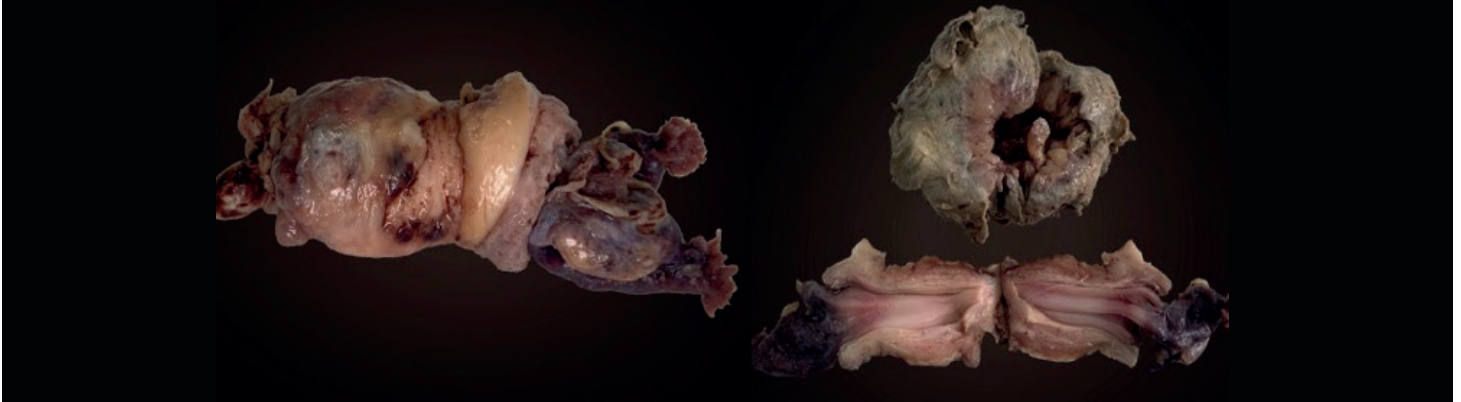


Figure 1. Macroscopic assessment of the uterus and Fallopian tubes

Furthermore, histological sections from the ulcerated area of the uterine fundus and the detached mass showed a mixed malignant neoplasm with an epithelial component of glandular structure and spindle cell mesenchymal components ([Figure 2](#)). The parametrium, ovary, and fallopian tubes had no lesions.

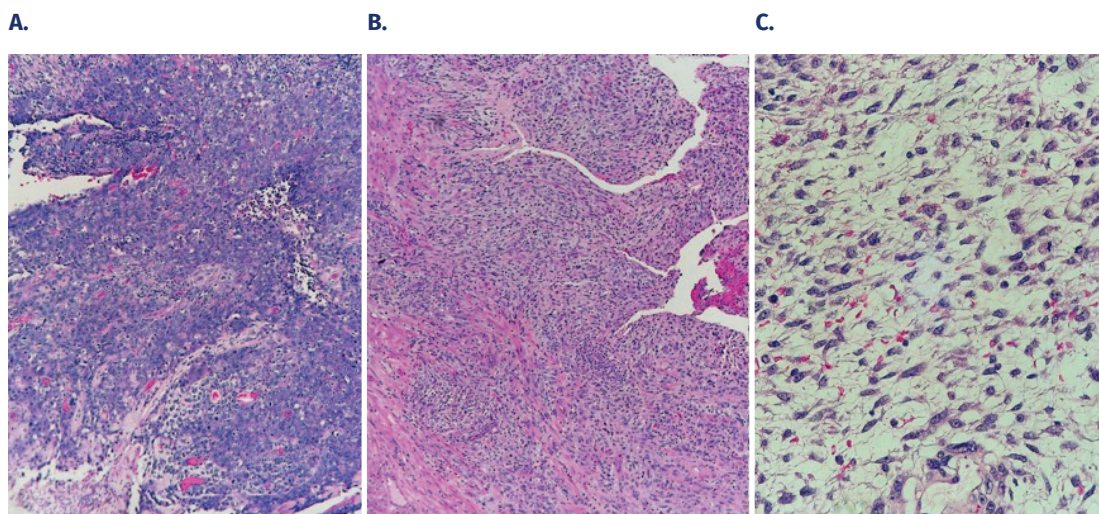
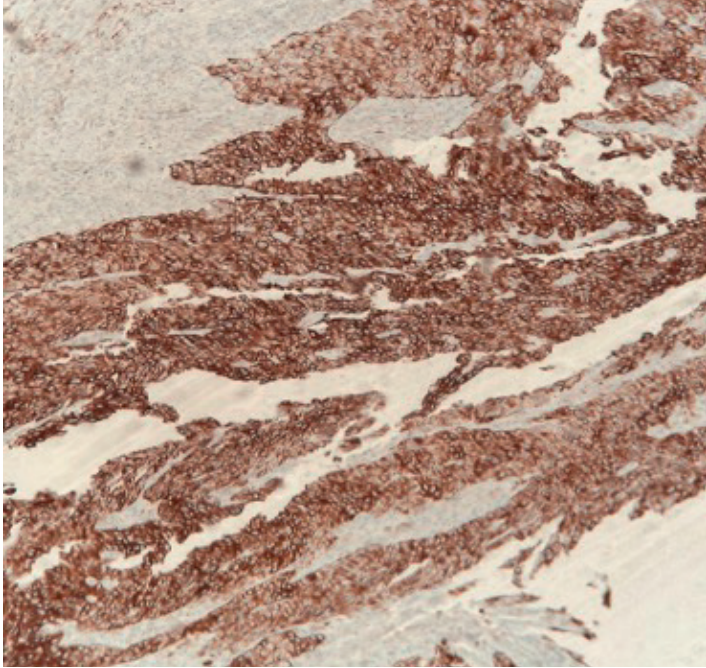


Figure 2. Microscopic evaluation: hematoxylin and eosin (4x, 10x, 40x). **A.** (4x) Malignant neoplasm of mixed origin featuring an epithelial component arranged in endometrioid-type glands, with large cells, hyperchromatic nuclei, and dispersed chromatin. **B.** (10x), and **C.** (40x) The mesenchymal component was consistent with a high-grade spindle cell lesion with extensive necrosis and more than 30 mitoses per 10 high-power fields.

Immunohistochemical studies revealed CK EA1/EA3 staining in the glandular epithelial component and desmin in the sarcomatous component, along with negativity for myogenin, smooth muscle actin, and the transcription factors PAX8 and WT1; estrogen and progesterone receptors were not expressed. Furthermore, it showed p53 gene overexpression and microsatellite stability (positivity

for MSH2, MSH6, PMS2, and MLH1 proteins), as well as a positive PDL1 protein report (Figure 3). The histological and immunohistochemical findings were consistent with carcinosarcoma (endometrioid adenocarcinoma and high-grade undifferentiated sarcoma), with p53 overexpression and intact nuclear expression of mismatch repair proteins.

A.



B.

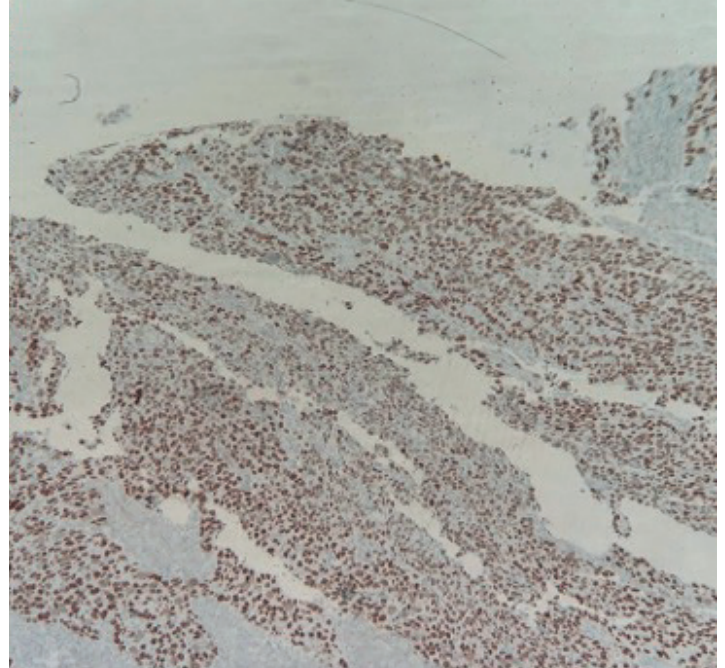


Figure 3. Immunohistochemical study. **A.** (10x) CKEA1EA3, strong and diffuse membrane immunoreactivity in epithelial cells that made up the epithelial component. **B.** (4x) Desmin, perinuclear immunoreactivity in spindle cells that made up the mesenchymal component.

The patient was then evaluated by the clinical oncology service, which recommended adjuvant radiotherapy. At the follow-up performed at the third month after the start of radiotherapy, it continued without complications, and the treatment was extended until the sixth month, at which point control would be carried out by the treating specialty.

Discussion

Non-puerperal uterine inversion accounts for about 17% of all uterine inversion cases. Approximately 79 cases have been documented in the global scientific literature from 1976 to December 2024, with leiomyomas being

the most common cause (7-8). Only two cases of non-puerperal uterine inversion linked to malignant neoplasms have been reported worldwide, in 1963 and 2001, associated with carcinosarcomas. As in the case described here, these cases occurred in postmenopausal women aged 65 to 75 who presented with abdominal pain, chronic vaginal bleeding, and a palpable mass protruding from the vagina. Only in the case reported here was the uterine adnexa (fallopian tubes and ovaries) also involved. In neither case was there a family history of uterine leiomyomatosis mentioned in the mother or sisters (6-9). Regarding diagnostic imaging, NMR was the method used, providing adequate performance, as previously described in pelvic gynecological pathologies, with findings including a U-shaped uterine cavity, a thickened and inverted uterine fundus in the sagittal view, and a “bull’s-eye” configuration (10).

The etiological diagnosis of uterine inversion requires histopathological studies and immunohistochemical assays necessary for diagnostic confirmation, which were performed in both the 2001 case and the one described here; in the older case, this technology was unavailable.

In this type of neoplasm, it has been described that, in addition to total hysterectomy and salpingo-oophorectomy, adjuvant therapy is recommended. The National Comprehensive Cancer Network advises systemic therapy with carboplatin/paclitaxel, combined with monoclonal antibodies (e.g., trastuzumab, dostarlimab-gxly, and bevacizumab), and brachytherapy at any pathological stage; adding external beam radiation therapy for pathological stages equal to or greater than stage II (10). The case reported in 2001 underwent uterine artery embolization, a procedure that reduced bleeding and allowed for preoperative stabilization to perform the hysterectomy, which is the central component of the treatment.

Uterine inversion associated with carcinosarcoma is extremely rare, requires multidisciplinary management and personalized treatment plans, considering therapies for associated problems like bleeding and secondary anemia, even though these are not specified in clinical practice guidelines.

Ethical considerations

This study was conducted in accordance with the guidelines outlined in Resolution 008430 of 1993 of the Colombian Ministry of Health. Informed consent was obtained from the patient for the publication of images, and recommendations for anonymity and data confidentiality were followed.

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