World Journal of Case Reports and Clinical Images

DOI: http://dx.doi.org/10.51521/WJCRCI.2025.e41.407



CASE REPORT

Vena Cava Duplication with Isolated Para-Aortic Lymph Node Metastase from Uterine Cancer: A Case Report

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Received Date: 28-May-2025 Revised Date: 08-June-2025 Accepted Date: 10-June-2025 Published Date: 15-June-2025

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Citation:

Candost Hanedan, Hande Nur Öncü, Neslihan Öztürk, Gökçen Ege, Vakkas Korkmaz (2025) Vena Cava Duplication with Isolated Para-Aortic Lymph Node Metastase from Uterin Cancer: A Case Report. World J Case Rep Clin Imag. 2025 May-June; 4(1)1-5.

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This case report presents a unique instance of isolated para-aortic lymph node metastasis from endometrial adenocarcinoma in a patient with vena cava duplication. Endometrial cancer, the most common gynecologic malignancy, typically has a favorable prognosis when diagnosed early. However, lymph node metastasis significantly impacts treatment decisions. Vena cava duplication, a rare congenital anomaly, poses challenges during retroperitoneal surgeries. In this case, a 61-year-old woman with FIGO stage IIIC2 endometrial adenocarcinoma underwent successful surgical treatment, including total abdominal hysterectomy and lymph node dissection. Preoperative imaging revealed the vena cava anomaly, highlighting the importance of thorough vascular assessment to prevent surgical complications. This report underscores the need for awareness of vascular anomalies in gynecologic oncology to optimize surgical outcomes and guide adjuvant therapy decisions.

Keywords: Vena Cava Duplication, Isolated Para-Aortic Lyph Node, Endometrium Cancer

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Introduction

Endometrial cancer (EC) is the most common gynecologic cancer and the fourth-most common cancer among women in the United States [1]. EC are generally regarded as having favorable prognosis, with a 5-year overall survival reaching 80%, mainly because many patients are diagnosed at an early stage and are cured by surgery alone [2]. Lymph node metastasis is the most important prognostic factor which helps in deciding adjuvant treatment. Incidence of isolated paraaortic lymph node metastasis is approximately 1-3% [3].

Duplication of the inferior vena cava (IVC) is a congenital anomaly with an incidence of 0.1% to 3.5% [4]. The correct diagnosis is important for retroperitoneal surgery and venous interventions [5].

We present an unusual case of isolated paraortic lymph node (PaLN) from uterin adenocancer FIGO stage IIIC2 (2023 FIGO staging of endometrium cancer) patient with vena cava duplication.

Case Presentation

A 61-year old woman presented with post-menopausal bleeding. She had a history of laparascopic cholesistectomy and vagynal surgery due to sistorectosel at 2020. Her history was notable for Type 2 diabetes, obesity and astyma. On preoperative evulation, endometrial biopsy revealed International Federation of Gynecology and Obstetrics (FIGO) grade1 endometrioid adenocarcinoma and MR demonstrated less than 50% myometial invasion. Computed tomography (CT) did not detect any sign of distant metastasis or lymphadenopathy but it showed duplication vena cava inferior above suprarenal area . Our patient hystopatological datas and prescrenining test shows low-risk endometrial cancer. She underwent a total salpingoabdominal hysterectomy, bilateral oophorectomy, pelvic and para-aortic lymph node dissection and omentectomy due to frozen section result tumor diameter 4 cm and myometrial invasion > 50%. Surgical pathology confirmed the diagnosis FIGO stage 3C2 endometrioid type of uterin adenocarcinoma with presence of lymphyascular space invasion (LVSI). Adjuvant chemotherapy and external beam radiotherapy were recommended.



Figure 1: Abdominal CT scan of the patient in (coronal view) showing





Figure 2: Abdominal CT scan of the patient in axial view showing 8.24 mm lymph node metastasis and histopatological examination showing lypmh node metastasis

Discussion:

Most of the endometrial cancers are diagnosed at an early stage and lymph nodes metastasis rates are very low.Staging of early stage endometrial cancer includes simple hysterectomy with or without lymph node dissection. Proponents of lymphadenectomy cite the need for accurate staging to guide adjuvant therapies, to provide valuable prognostic information and to eradicate metastatic disease in the removed nodes with possible therapeutic benefit [6]. However, criticisms of lymphadenectomy include lack of randomized studies demonstrating a therapeutic benefit for lymphadenectomy and morbidity associated with lymphadenectomy, as well as the corresponding quality of life and cost implications [7]. Therefore, the decision to perform lymphadenectomy in cases with endometrial cancer is very important.

Lymphatic spread pathways in endometrial cancer depend on the localization of the primary tumor. Endometrial cancers, which are usually located in the lower and upper part of the uterus, affect the obturator lymph nodes, while endometrial cancers located in the upper uterine corpus or uterine fundus are more likely to involve Para aaortic lymph node area. Involvement of PaLNs is possible by 2 lymphatic pathways. The first lymphatic pathway, which involves spreading to the lymph nodes located near the internal and common iliac vessels, and then to the PaLNs. While the lymphatic pathway, which runs along the gonadal vessels and reaches directly to the PaLNs, is the second pathway [8,9].

In endometrial cancers, the rate of metastasis in both pelvic and para-aortic lymph nodes is approximately 3-7 times higher than isolated positive para-aortic lymph node involvement. Lymphatic metastases are found in paraaortic lymph nodes in approximately 1% of early stage endometrial cancer cases, even if there is no involvement of the pelvic lymph nodes [9]. The rate of metastasis of endometrial cancer in both pelvic and para-aortic lymph nodes varies between 3-6.9% [10].

Recognition of duplication anomaly, which is one of the anomalies of the development of the inferior vena cava caused by complex embryogenesis, is especially important for surgical procedures and invasive procedures performed by surgeons and radiologists. Duplication of the inferior vena cava can be diagnosed by computed tomography and angiography. (11) IVC duplication can often be seen in 2 different ways.As in our patient, IVC Duplication is the most common type, in which both IVCs rise on both sides of the abdominal aorta and the left IVC joins the left renal vein and then empties into the IVC on the right side, crossing the aorta. Each IVC of this type usually receives its corresponding adrenal, renal, and lumbar veins, but the IVC on the left side can drain directly into the left renal vein instead of the IVC on the right side. The diameters of the two IVCs can be similar or different. The right IVC is clearly enlarged above the renal vein. One or more crosscommunicating veins can be seen between the IVCs on the left and right sides. In the less common type of IVC Duplication, both veins are on the same side and are mostly on the right side [12]. Double-helix IVC duplication has also been reported [13].

There are also many cases in the literature where IVC duplication has been diagnosed in other situations, such as autopsy and retroperitoneal surgery (especially abdominal aortic aneurysm repair and living donor nephrectomy [14,15].

IVC duplication is especially important in retroperitoneal surgery. IVC duplication and its association with a large number of renal vessels and abnormal arms complicates dissection and increases the risk of bleeding. Therefore, identification of the type of duplication IVC in the preoperative period may be possible with full analysis of CT scan or angiography [16]. With the information obtained by preoperative CT and/or angiography, it is possible to effectively identify IVC during surgery and reduce the risk of bleeding.

Conclusion:

We reported a first case of isolated paraortic lymph node metastasis from endometrioid type uterin adenocancer patient with vena cava duplication. This case highlights the importance of preoperative screening for risk endometrial adeno cancer due to vascular anomalies in the para-aortic region such as v.cava duplication. For surgeons performing major abdominal surgeries such as lymphadenectomy, diagnosing vascular anomalies in preoperative screening will prevent complications that may occur during surgeries.

Conflicts of Interest: The authors declare there is no conflicts of interest.

Funding: None.

Acknowledgements: To the best of our knowledge, this is the first report of vena cava duplication with isolated paraortic lypmh node metastasis of endometrum cancer successful surgical treatment, according to a Medline search of English publications.

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