

The Management of a Patient with Pelvic Kidney and High-Grade Endometrial Cancer: A Case Report

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¹Izmir City Hospital, Clinic of Gynecologic Oncology, İzmir, Turkey

²University of Health Sciences Turkey, İzmir Faculty of Medicine, Department of Gynecologic Oncology, İzmir, Turkey

ABSTRACT

Endometrial cancer is the most common gynaecological malignancy in high-income countries. Endometrial cancers are typically diagnosed at an early stage and are associated with favourable clinical outcomes in the majority of cases. The international guidelines recommend a sentinel lymph node biopsy for low-risk endometrial cancers, whereas a systematic pelvic and aortic lymphadenectomy is still recommended for high-risk patients. Pelvic kidney is a relatively common congenital renal anomaly, with an incidence of 1 in 1,000 to 2,000; such anomalies can be seen during pelvic or paraaortic lymphadenectomy the aim of this case report is to represent the intraoperative management of a patient diagnosed with serous endometrial cancer following histopathological examination, whose preoperative imaging revealed a pelvic type of right kidney. Anatomical anomalies of the kidney can be challenging to the surgeon in the context of pelvic surgery. However, a thorough preoperative evaluation, precise intraoperative dissection and proper exposure of surrounding structures can reduce the risk of such complications.

Keywords: Pelvic kidney, lymphadenectomy, gynaecology, gynaecological oncology

INTRODUCTION

Endometrial cancer is one of the most prevalent gynaecological malignancies. High-risk histologic endometrial cancers, including serous, clear cell, and grade 3 endometrioid histology, represent 28% of cancer cases. However, due to their high recurrence rates, they account for 74% of endometrial cancer-related deaths. The role of complete surgical staging in high-grade endometrial cancer remains a topic of debate. Nevertheless, the diagnostic importance of lymph node evaluation in this group is an established aspect of clinical practice.¹

Renal ectopia means that the kidney is not in its normal or orthotopic position in the upper retroperitoneum or "renal" fossa. Renal ectopia is a relatively common congenital anomaly of the kidneys and urinary tract. A pelvic kidney is a developmental anomaly that arises due to the kidney's inability to ascend from its developmental region in the pelvis to its typical anatomical position during the embryonic developmental stage. The prevalence of pelvic kidney disease

is estimated to be between 1 in 2200 and 1 in 3000.² It is established that pelvic ectopic kidney is associated with a multitude of vascular supply and origin variations.³

Additionally, as a consequence of its shared embryonic origin, genital developmental problems can be seen such as; vaginal atresia frequently manifests alongside other congenital anomalies of the urogenital system, including a hypoplastic uterus, a rudimentary fallopian tube, and an ovary. While pelvic kidneys are frequently asymptomatic and discovered incidentally, they can be associated with other conditions, including nephrolithiasis, ureteropelvic junction obstruction, and extrarenal calyces.

It is estimated that only one in ten ectopic kidneys is diagnosed. The diagnosis of an ectopic kidney is typically made incidentally. The diagnosis of a pelvic ectopic kidney can be established through the use of a variety of imaging techniques, including ultrasound, computed tomography (CT), voiding cystourethrogram, radionuclide scan, and magnetic resonance imaging (MRI). An initial ultrasound scan can identify ectopic kidneys in the pelvis.



Address for Correspondence: Muzaffer Sancı, İzmir City Hospital, Clinic of Gynecologic Oncology, İzmir, Turkey

E-mail: drsanci@yahoo.com **ORCID ID:** orcid.org/0000-0002-8494-4302

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The presence of a pelvic kidney can present challenges during surgical procedures due to its impact on the pelvic anatomy. Anatomy and vascular structure information can be obtained via preoperative imaging. Variable pelvic anatomy is very important in patients scheduled for abdominal or pelvic surgery. This case report represents the surgical management of a patient with serous endometrial cancer and a known ectopic right pelvic kidney, employing paraaortic lymphadenectomy.

CASE REPORT

A 59-year-old postmenopausal female patient presented with a complaint of vaginal spotting that had been ongoing for 4 months. A diagnosis of serous endometrial carcinoma was made following the analysis of endometrial biopsy. MRI revealed the presence of a 33 mm mass lesion with evidence of superficial invasion into the myometrium. Furthermore, imaging revealed that the patient's right kidney was situated within the pelvic region. It was observed that the right kidney was situated between the L2-L3 and L4-L5 intervertebral levels (Figure 1). The patient was being treated for essential hypertension with a calcium channel blocker. No abnormalities were observed in the patient's blood count or biochemical parameters.

The patient underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, bilateral pelvic lymphadenectomy, para-aortic lymphadenectomy and infragastric omentectomy.

The paraaortic lymphadenectomy procedure was performed with technical difficulties due to ectopic pelvic kidney, which presented a challenge in terms of surgical access. The dissection was initiated along the right pelvic plane. The right ureter, vesicovaginal, and rectovaginal connections were identified. The right kidney was then mobilised from its connections with the cecum and other pelvic structures. The right kidney and ureter were dissected with precision, employing both sharp and gentle techniques. The renal

vascular structure was observed to comprise two arteries and one vein. One artery was observed to originate from the left renal artery, while the other was identified as a branch from the iliac bifurcation, situated 1 cm above the latter. The renal vein was observed to drain into the vena cava inferior posteriomedial to the VCI (Figure 2). Following the exploration, a successful lymphadenectomy was performed. Prior to discharge, the patient was provided with comprehensive information and obtained informed consent in accordance with standard practice.

DISCUSSION

The principal treatment modality for patients diagnosed with serous endometrial cancer is a multimodal approach that incorporates surgical, chemotherapeutic, and/or radiotherapeutic interventions. For patients with early-stage serous endometrial cancer, surgery is the best option for treatment. A hysterectomy in conjunction with a bilateral salpingo-oophorectomy permits the removal of the primary tumour and the identification of risk factors that may indicate the necessity for adjuvant therapy. The current guidelines recommend the implementation of retroperitoneal staging to evaluate the extent of disease and inform the decision regarding adjuvant therapy.⁴

The dissection of the paraaortic lymph nodes commences at the midpoint of the right common iliac artery. The dissection

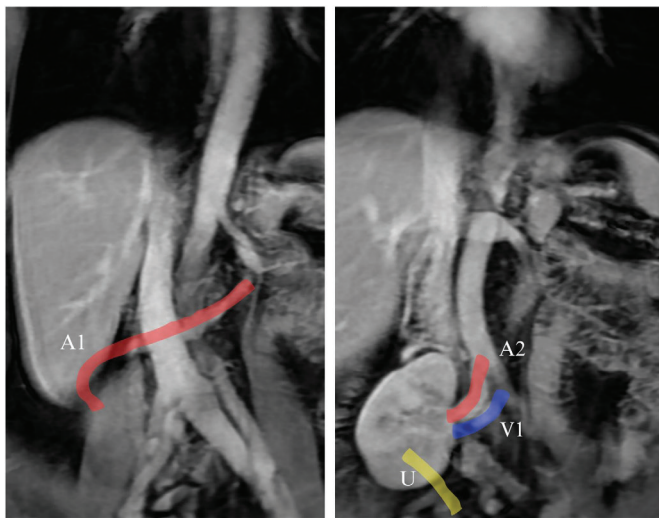


Figure 1. The image of the pelvic ectopic kidney is visible on the preoperative MR evaluation
MR: Magnetic resonance

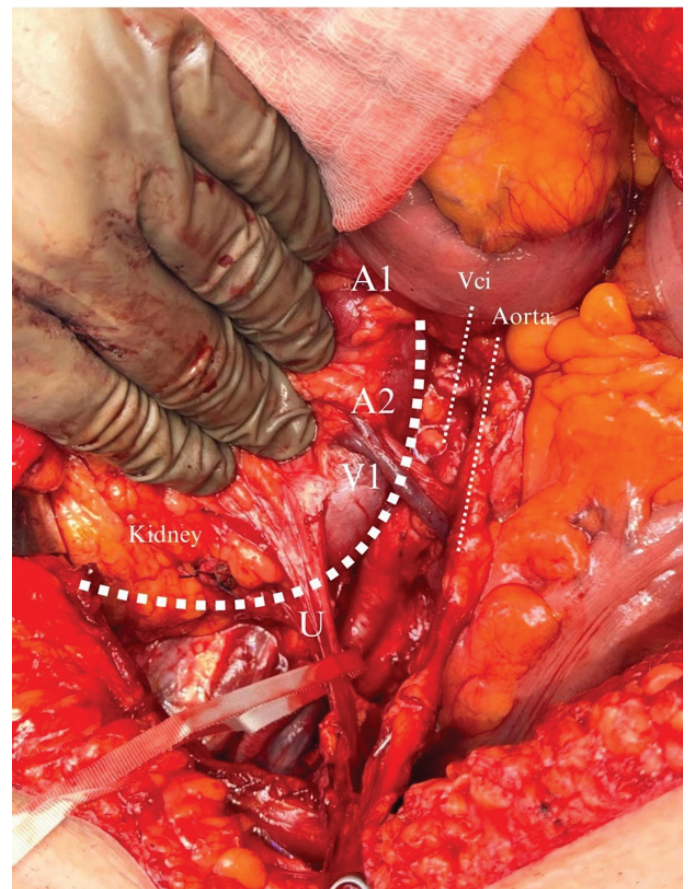


Figure 2. The intraoperative anatomy of the pelvic kidney

of the precaval and preaortic lymph nodes is performed down to the level of the left renal vein.⁵ The position of the kidney, ureters and renal vein represent the fundamental anatomical points for a suitable para-aortic lymphadenectomy.

In patients with a pelvic kidney diagnosis, initiating the lymph dissection with the mobilization of the kidney, followed by the dissection of the bowel and other pelvic connections, and then the sharp and gentle dissection of the renal vessels and ureter, facilitates the surgical procedure. It is inadvisable to commence lymph dissection without first identifying any pelvic renal vascular variations.

Pelvic ectopic kidney is a rare condition that requires caution during para-aortic lymph node dissection in gynaecological surgery due to alterations in vascular structures. Anatomical anomalies of the kidney and ureter present a challenge in the formulation of appropriate dissection plans. The inelaborate performance of lymphadenectomy in patients with a pelvic kidney and also with a lack of attention may result in vascular and ureteral injuries and potentially lead to irreversible kidney damage.

In order to overcome these difficulties, it is essential to determine the origin of the kidney and ureter in the renal pelvis and to monitor this in its integrity with great care. The meticulous dissection is crucial due to the anatomical variations observed in the kidney.

A pelvic kidney may be misdiagnosed as an adnexal mass or a bulky lymph node during preoperative imaging. Bader et al.⁶ described two cases of a pelvic kidney mimicking a bulky lymph node during pelvic lymphadenectomy in gynaecological cancer patients.

Both CT and MRI are effective in demonstrating the vasculature of the pelvic kidney and the anatomical location of the ureter and renal pelvis. MRI is performed in order to obtain information regarding the myometrial invasion of the endometrial tumour. In patients with a pelvic kidney diagnosis, three-dimensional CT and angiography are also recommended.

Previously, similar cases of surgical intervention in women with pelvic ectopic kidney anomalies have been documented in the literature.⁶⁻⁸ Similarly, the case reports described the surgical challenges associated with performing surgery on patients with pelvic ectopic kidneys and highlighted the benefits of preoperative evaluation in this patient population.

In conclusion, the pelvic kidney represents a significant challenge in the context of surgical staging for patients with

gynaecological oncology conditions. In the case of patients with a diagnosis of pelvic kidney, it is of the utmost importance to perform a gentle dissection of the renal vessels and ureter, taking great care to avoid any damage to the ureter and vasculature.

Ethics

Informed Consent: The patient was obtained informed consent in accordance with standard practice.

Authorship Contributions

Surgical and Medical Practices: A.O.A., G.Ö.Ş., A.G.B., M.S., Concept: C.A., M.S., Design: C.A., M.S., Data Collection or Processing: S.K., A.O.A., G.Ö.Ş., Analysis or Interpretation: G.Ö.Ş., Literature Search: C.A., A.G.B., Writing: C.A., A.G.B., M.S.

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