

# Duplication of External Iliac Artery: A Case Report

Narayani Kalnawat<sup>1\*</sup>, Devyani Mahajan<sup>1</sup>, Neemish Kamat<sup>2</sup> and Hemant Tongaonkar<sup>1</sup>

<sup>1</sup>Department of Gynaecologic Oncology, Nanavati Max Institute of Cancer Care, Mumbai, Maharashtra, India

<sup>2</sup>Department of Radiology, Nanavati Max Super Specialty Hospital, Mumbai, Maharashtra, India

## Abstract

Anomalies of pelvic vasculature are very dangerous as they can cause torrential bleeding during pelvic surgery, especially oncological surgery. A thorough knowledge of possible variations is necessary to ensure preparedness and ability to manage the complications that may arise. We present a case of duplication of the external iliac artery in a case of carcinoma ovary, detected intra-operatively.

**Keywords:** Anatomical • Variation • Pelvic

## Case Presentation

We present the case of a 44-year-old woman suffering from epithelial ovarian cancer, who presented with complaints of constipation and pain in abdomen. The imaging studies in the form of CECT abdomen and pelvis indicated complex ovarian solid and cystic masses along with extensive peritoneal, omental deposits and pelvic as well as retroperitoneal lymph node enlargement (stage III C). Image guided biopsy from the omental nodules confirmed the presence of high-grade serous carcinoma. She underwent 3 cycles of neo-adjuvant chemotherapy, after which she was taken up for interval cytoreductive surgery in view of good response to chemotherapy. Total abdominal hysterectomy & bilateral salpingo-oophorectomy was performed, along with pelvic and retroperitoneal lymph node dissection. Total omentectomy and pelvic peritonectomy and excision of deposit from Pouch of Douglas were also done.

On careful lymph node dissection, another vessel running parallel to the left external iliac artery was seen, with enlarged lymph nodes present between the two vessels. On further inspection, it was found to be a duplicate external iliac artery on the left side (Figure 1).

CT Angiography done 3 weeks post-operatively confirmed the presence of a second left external iliac artery. In our case, there is a smaller vessel seen arising from left external iliac artery just distal to common iliac artery bifurcation. It runs parallel throughout the course of the EIA from pelvic brim, distal to EIA branches viz. inferior epigastric and deep circumflex iliac arteries. It is then seen turning upwards and anteriorly to enter the anterior abdominal wall. This is a rare anatomical variant representing duplication of external iliac artery. Review of the pre-operative imaging was not helpful as CT Angiography was not done before surgery. This case is reported for the rarity of its presentation.

## Discussion

In pelvic surgery, it is extremely important to be aware of and anticipate potential anatomic variations of the pelvic vessels as the presence of these variations may lead to injury to these vessels and may endanger the safety of the patient during radical surgery for pelvic cancers. One of the more severe

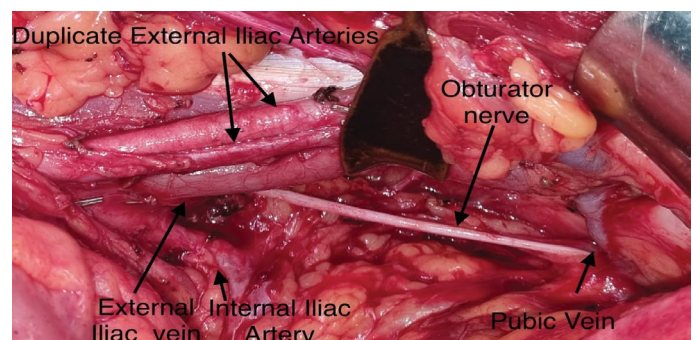
**\*Address for Correspondence:** Narayani Kalnawat, Department of Gynaecologic Oncology, Nanavati Max Institute of Cancer Care, Mumbai, Maharashtra, India, Tel: 9820978282; E-mail: nkalnawat@gmail.com; nkalnawatroy@gmail.com

**Copyright:** © 2023 Kalnawat N, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

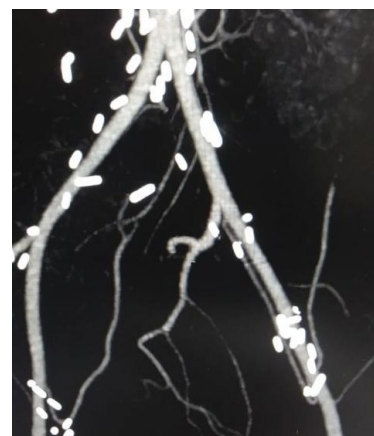
**Received:** 01 April, 2023; **Manuscript No. jccr-23-95220;** **Editor Assigned:** 03 April, 2023; **PreQC No. P-95220;** **Reviewed:** 14 April, 2023; **QC No. Q-95220;** **Revised:** 20 April, 2023, **Manuscript No. R-95220;** **Published:** 28 April, 2023, DOI: 10.37421/2165-7920.2023.13.1562

and potentially lethal complications in pelvic injuries and bleeding from the external iliac artery. However, these variations have been seldom studied.

Congenital anomalies of the external iliac artery are rare. A literature search revealed only 1 case of duplication of external iliac artery being reported in literature in 1985 Tamisier D, et al. [1] reported a case of agenesis or abnormal course of the external iliac artery and classified the congenital anomalies involving the external iliac artery into 3 groups viz. (1) anomalies of the origin or course which are extremely rare "anatomic curiosities; (2) hypoplasia or atresia co-existing with persistent sciatic artery; and, (3) isolated hypoplasia or atresia which can occasionally cause chronic ischemia of the lower limbs. They also did a review of the published literature and found that in the first group, the only reported anomalies were either agenesis of external iliac artery, origin of the external iliac artery directly from the abdominal aorta or from an anomalous common iliac artery. However, they could not find a single report of duplication of the external iliac artery (Figure 2).



**Figure 1.** Intra-operative photograph after pelvic lymph node dissection on the left side. Second external iliac artery clearly seen arising just underneath the bifurcation of common iliac artery.



**Figure 2.** Post-operative angiography. 3D reconstructed views of the abdominal aorta and its branches examined in arterial phase.

Hamabe A, et al. [2] studied the anatomical variations of the intrapelvic vessels in 81 patients who underwent colorectal surgery at their institute and imaged them with CECT abdomen and pelvis. The study of the images of 162 hemipelvises revealed several anomalies of the pelvic veins but was unable to find a single patient with duplication of external iliac artery. Nayak S, et al. [3] carried out a cadaveric study of variations of the external iliac artery in 48 pelvic halves and found variations related to the morphology and branching pattern of the external iliac artery in 42% of patients – however, they were also unable to find a single case of duplication of the external iliac artery.

---

## Conclusion

A thorough knowledge of pelvic anatomy and delineation of the template of pelvic lymph node dissection during surgery is essential to identify anatomical variants and prevent injury to these structures.

---

## References

1. Tamisier, Daniel, Jean-Pierre Melki and Jean-Michel Cormier. "Congenital

anomalies of the external iliac artery: Case report and review of the literature." *Ann Vasc Surg* 4 (1990): 510-514.

2. Hamabe, Atsushi, Takashi Harino, Takayuki Ogino and Tsukasa Tanida, et al. "Analysis of anatomical variations of intrapelvic vessels for advanced pelvic surgery." *BMC Surg* 20 (2020): 1-7.
3. Nayak, S. Badagabettu, A. Padur Aithal, Naveen Kumar and D. Regunathan, et al. "A cadaveric study of variations of external iliac artery and its implication in trauma and radiology." *Morphologie* 341 (2019): 24-31.

**How to cite this article:** Kalnawat, Narayani, Devyani Mahajan, Neemish Kamat and Hemant Tongaonkar. "Duplication of External Iliac Artery: A Case Report." *Clin Case Rep* 13 (2023): 1562.