



Vascular complication during staging lymphadenectomy in early-stage ovarian cancer

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Abstract: Ovarian cancer (OC) is the fifth most frequent cancer in Europe and currently represents the main cause of death in women presenting gynecological cancer. In 70% of cases, the disease may be diagnosed at an advanced stage with nonspecific symptoms. In the early stages OC, surgical staging is needed to assess the extent of the disease. According to the National Comprehensive Cancer Network (NCCN), surgical staging includes total hysterectomy, bilateral salpingo-oophorectomy, omentectomy, peritoneal biopsies, and pelvic and lumboaortic lymphadenectomy. The classic surgical approach provides a median laparotomic longitudinal incision. However, in specialized centers, staging surgery may be performed through laparoscopic surgery for selected patients. Laparoscopic approach showed minor intra and post-operative complications, shorter hospital stay, faster return to work, and better aesthetic satisfaction when compared to laparotomic surgery. Nonetheless, even minimally invasive surgery is not without complications. In case of major complications occurring during laparoscopy rapid and prompt life-saving treatments could be necessary. We present a 63-year-old woman case with a 55 mm, multilocular-solid left adnexal mass, Color Score 2, with abnormal CA 125, requiring comprehensive staging surgery. The study aims to show a possible and dangerous vascular complication that may occur during staging lymphadenectomy in early-stage OC. In this case, a rapid laparotomic conversion was needed to quickly stop bleeding.

Keywords: Ovarian cancer (OC); vascular complication; staging lymphadenectomy

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Introduction

Ovarian cancer (OC) is the fifth most frequent female cancer and represents the main cause of death from gynecological cancer (1). In 70% of cases, OC may be diagnosed at an advanced stage with nonspecific symptoms (2). In early-stage OC, surgical staging is necessary. According to the National Comprehensive Cancer Network, surgical staging includes total hysterectomy, bilateral salpingo-oophorectomy, omentectomy, peritoneal biopsies, and pelvic and lumboaortic lymphadenectomy (3).

Staging surgery should be performed through a vertical midline abdominal incision. Nevertheless, in specialized centers, staging surgery may be performed through

laparoscopic approach in selected cases (3). Minimally invasive surgery is associated with a lower blood loss, shorter hospital stay, better quality of life, and fewer major complications compared to classic open surgery (4-7).

Nonetheless, if laparoscopy is performed, when major complications occur during this procedure, rapid life-saving treatments could be necessary alongside good surgical skills.

We present a 63-year-old woman case with a 55 mm, multilocular-solid left adnexal mass, Color Score 2, with abnormal CA 125. Adnex model suggested for a malignant lesion (8). No distant metastatic localizations have been identified on computed tomography. The frozen section analysis of the left adnexa showed a high-grade serous OC, thus surgical staging was performed.

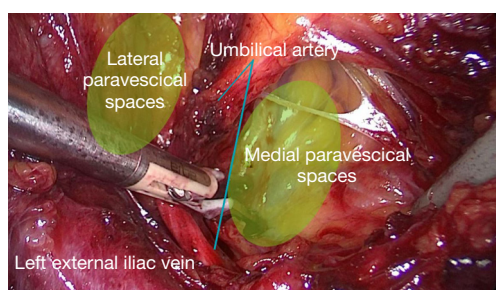


Figure 1 Paravesical spaces.

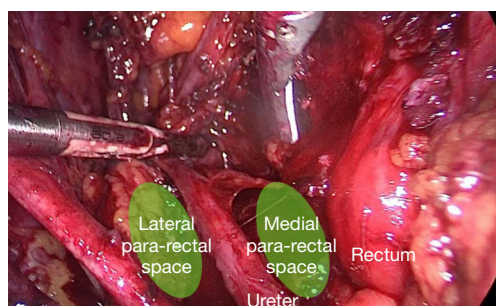


Figure 2 Pararectal space.

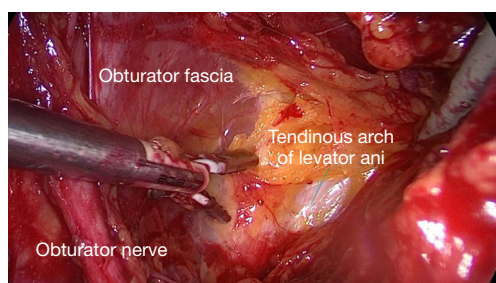


Figure 3 Obturator space.

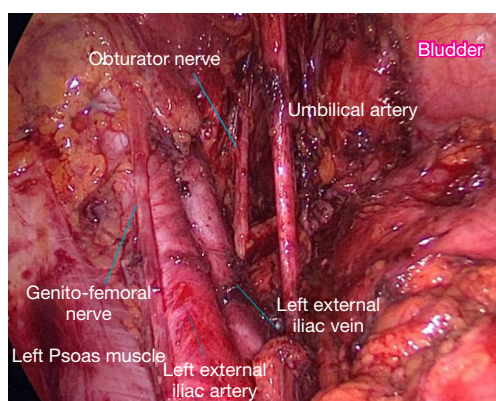


Figure 4 Main anatomical structures.

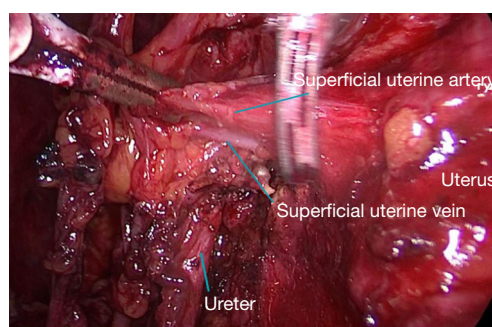


Figure 5 Ureter and uterine vessels.

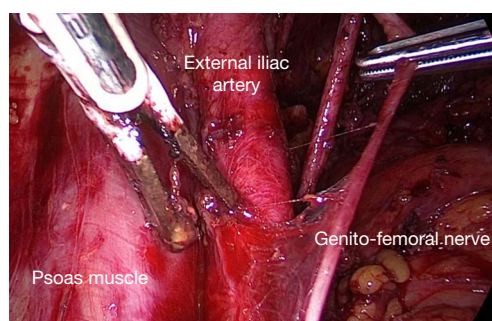


Figure 6 Genito-femoral nerve.

This article aims to show a possible and dangerous vascular complication that may occur during pelvic lymphadenectomy for OC surgical staging.

Operative technique

(I) Develop the paravesical and pararectal spaces to gain a good exposure of the surgical field (*Figures 1-3*). (II) Furthermore, the main anatomical structures should be identified: ureter, obturator nerve, uterine vessels, umbilical artery (*Figures 4,5*). (III) Perivascular lymphatic tissue should be dissected for systematic removal of the pelvic lymph nodes, paying attention to not injure the genito-femoral nerve (*Figures 6,7*). The lower limit of pelvic lymphadenectomy is represented by the deep iliac circumflex vein (*Figure 8*).

(IV) In case of accidental vascular injury, a quick clamping of the vessel must be promptly performed (*Figures 9,10*). The assistant must move the camera away and keep a correct view of the entire surgical field, preventing the optics from getting soiled with blood.

(V) Once the bleeding has been stopped, better exposure of the vessel could be necessary before applying the suture's

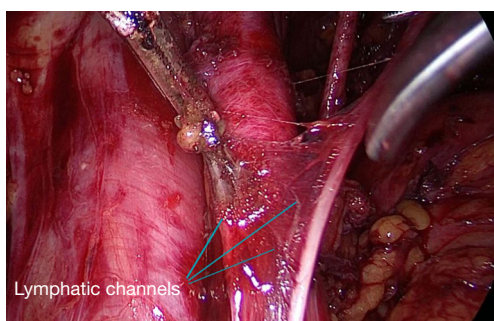


Figure 7 Lymphatic channels.

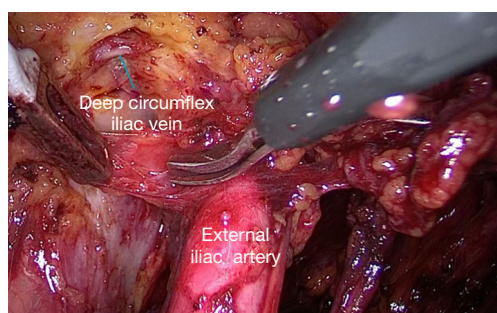


Figure 8 Deep circumflex iliac vein.

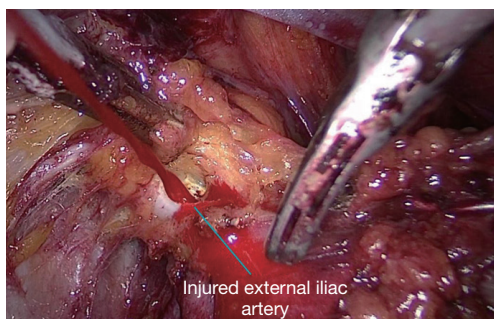


Figure 9 Injured external iliac artery.

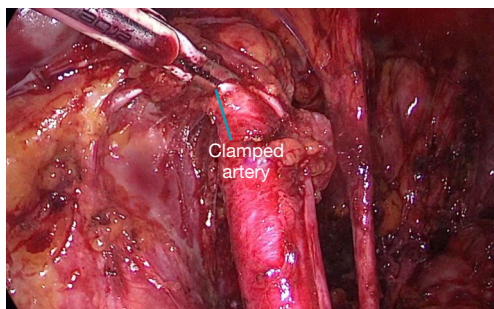
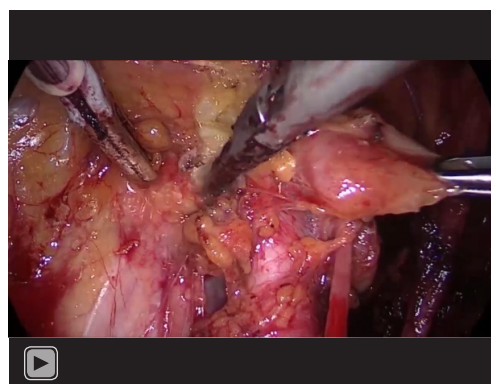


Figure 10 Clamped external iliac artery.



Video 1 External iliac artery injury during staging lymphadenectomy in early-stage ovarian cancer patient.

stitches. The repair of the vessel can take place both in laparoscopy and in laparotomy (9). In our case, a median longitudinal sub-umbilical incision was made and the artery was repaired with two 3-0 Vicryl stitches. Thanks to the rapid intervention, the patient had an estimated total blood loss of 1200 milliliters (*Video 1*).

Comments

International guidelines recommend OC treatment in referral centers with dedicated gynecologists with expertise in gynecologic oncology (3). Accidental internal iliac artery injury may require life-saving interventions. When complications occur during minimally invasive surgery, the surgeon's surgical skills are essential for quick and correct management of the hurdle.

Nowadays, a specific consensus regarding the best surgical approach to adopt when managing possible complications is still missing (10). The surgeon should always use his/her most comfortable and confident surgical approach (11).

Taking this scenario into account, we strongly believe that it's essential for these surgeries to take place in a cancer center and to be performed by highly skilled and dedicated surgeons.

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