MAR Oncology and Hematology (2026) 6:2

Case Report

Surgical technique article: Meticulous, Reproducible Technique of Bilateral Laparoscopic Pelvic Lymphadenectomy in Gynaecological Oncology Sparing Corona Mortis-a Case Report

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Received: 25 February 2026

Published: 01 March 2026

DOI: https://doi.org/10.5281/zenodo.18861809

Introduction

Gynaecological Oncology, and gynaecological cancer surgery has developed by leaps and bounds in the last few decades(1). There has been further development in this subspecialty, with trainees going for further ovarian cancer cytoreductive surgery fellowships after their subspecialization, to learn the nuances of upper abdomen, hepato-biliary steps to ensure complete debulking to no visible disease, and even further to Video Assisted Thoracic Surgery, along with Hyperthermic Intraperitoneal Chemotherapy(HIPEC), Normothermic Intraperitoneal Chemotherapy(NIPEC) and Hyperthermic Intrathoracic Chemotherapy(HITHOC). The other surgical subspecialisation in Gynae-Oncology, is the development of the minimally invasive route for uterine and cervical cancer surgeries including radical hysterectomies and retroperitoneal lymphadenectomies. Particularly, in cancer cervix, with the advent of the Querleu Morrow classification defining radicality of hysterectomy, developing pelvic spaces, to ensure good access to lymph nodes, avoid damage to ureters and iliac vessels, is now an absolute basic to gynaecological cancer surgery(1). The nerve sparing approach also depends on correctly developing the medial pararectal space of Okabayashi, and the fourth space of Yabuki(2). Recently, there has been lot of stress, on role of sentinel lymph node biopsy, to avoid complications of lymphocyst and lymphedema, with systematic pelvic lymphadenectomy. Bilateral sentinel lymph nodes is definitely advocated in the standard minimally invasive approach to uterine cancers, and has now also been accepted as a reasonable alternative in high risk uterine cancers. However, the art of opening the retroperitoneum and accessing the pelvic spaces, remain of paramount importance, particularly in resource poor settings, where the ICG detection camera is not available, or lack of Indo-Cyanine Green, or even in situations of failed mapping of sentinel nodes, where systematic retroperitoneal lymphadenectomy is mandated, to complete staging, and also improve survival, while removing bulky, likely metastatic nodes in advanced disease. Robotic platforms of minimally invasive surgery are becoming widely accessible, but is still not always available in resource poor countries, to add to the cost constraints with robotic surgery packages.

Hence this article highlights a step-by-step approach, to laparoscopic bilateral systematic pelvic lymphadenectomy, which is absolutely essential for complete staging surgery of cervical and low risk uterine cancers, and a starting point for complete staging of borderline ovarian tumours and high grade endometrial cancer surgeries. This particular lady was diagnosed, pre operatively as stage1b endometrioid uterine adenocarcinoma grade2, after biopsy, MRI pelvis and CECT chest and abdomen.

The role of radiologist is very important in pre-operative surgical staging in these patients, and psychologist in pre and post operative assessment of these patients regarding their expectations from the surgery and debriefing future repercussions.

Steps:

1. We do all laparoscopic gynaecological oncology surgeries as standard 3 secondary ports in addition to umbilical primary port-2 ipsilateral on patient's left-at left paraumbilical 4cm away and one 5mm left 2cm above and medial to anterior superior iliac spine and one contralateral 5mm port mirroring the midway of the 2 ipsilateral ports. 15mm Hg pneumoperitoneum with Trendelenburg 45 degrees head down is kept and both legs appropriately padded to avoid nerve injuries. As an initial step, the round ligament is coagulated and divided as lateral as possible(Fig-1), near ipsilateral umbilical ligament to open corresponding pelvic side wall, in triangular area between ipsilateral round ligament and infundibulo-pelvic ligament(IP ligament). Dissection is proceeded cranially, parallel to ipsilateral IP ligament revealing ipsilateral psoas muscle and genitofemoral nerve.

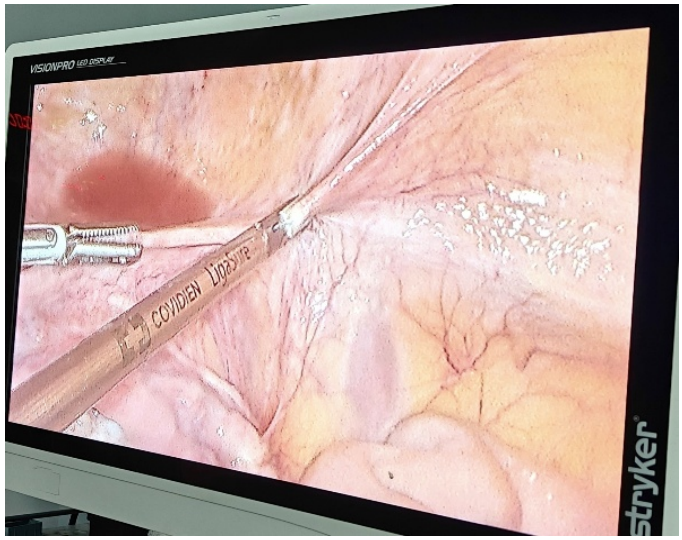

Fig-1: Opening right pelvic sidewall

2. In right side, the caecum and appendix and on the left, the sigmoid may need to be mobilized. The ureters are identified ipsilaterally on the medial leaf, coursing over the external iliacs(Fig-2). Spaces are created by gentle blunt dissection of the areolar tissue between the ureter and the external iliac vessels to reveal ipsilateral pararectal spaces.

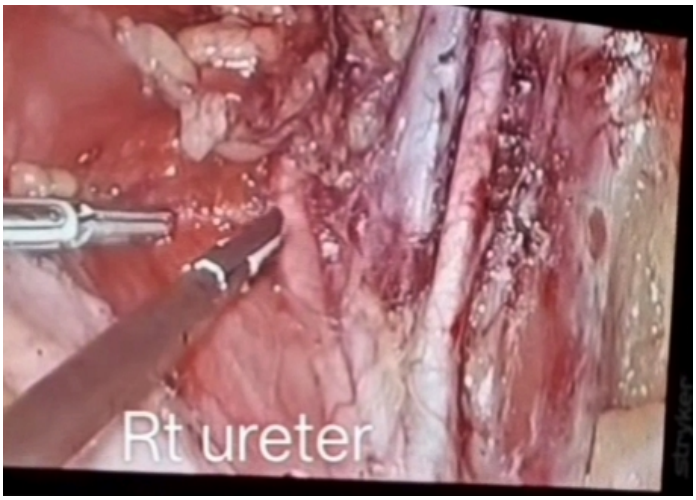

Fig-2: Right ureter seen in medial leaf

3. Cranially by dissecting below lateral cut end of round ligament, lateral and medial paravesical spaces are created by opening up loose areolar tissue(Fig-3). The uterine artery commencing at origin from internal iliac artery divides the ipsilateral paravesical and pararectal spaces(Fig-4).

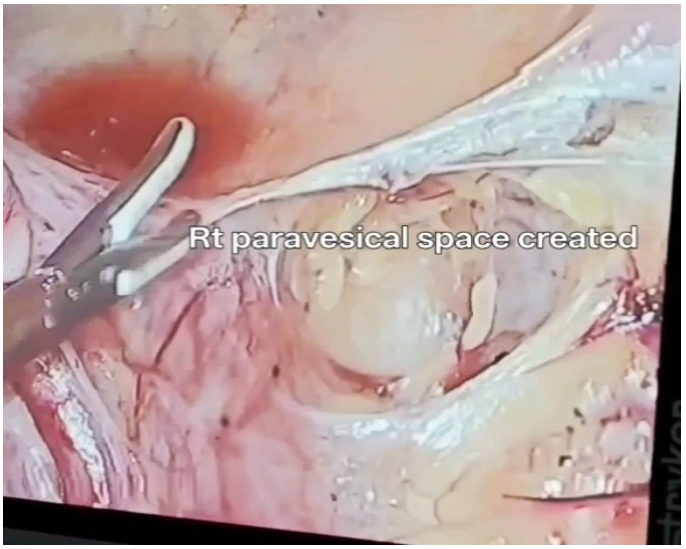

Fig-3: Creation of right paravesical space

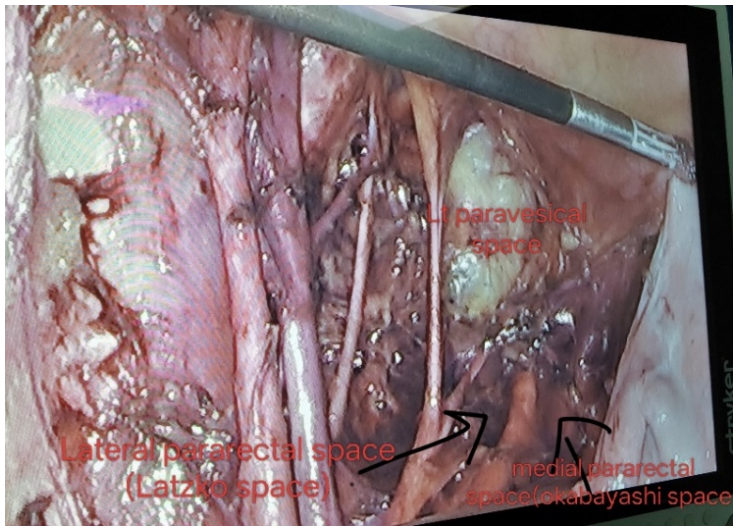

Fig-4: Left pelvic sidewall depicting the pelvic spaces-left pararectal and paravesical spaces divided by left uterine artery

4. Lymphadenectomy is commenced caudal to cranial or vice versa, over external iliac vessels, ensuring camera man holds the external iliacs perpendicular in the field of view. The assistant from a contralateral port, initially provides counter traction in upward direction, to release the enlarged external iliac node caudally, just below inguinal ligament, that reveals the deep circumflex iliac vein(the caudal limit of pelvic lymphadenectomy)-(Fig-5).

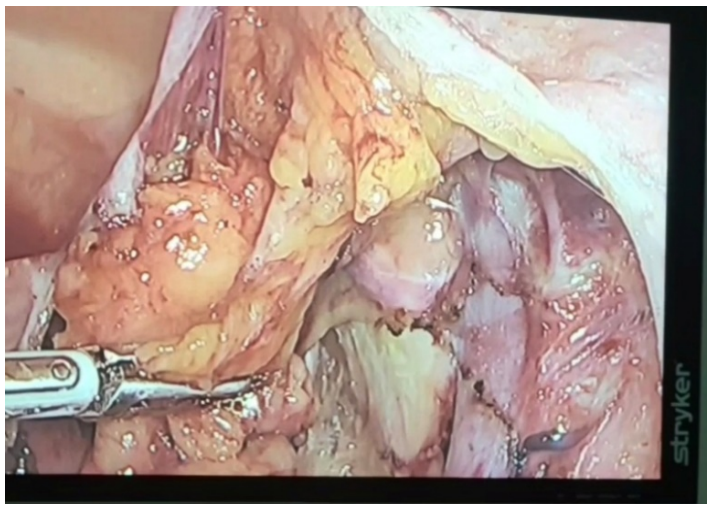

Fig-5: Depicting right deep circumflex iliac vein

5. The external iliac nodes are then stripped off the artery and vein in a contiguous fashion, as depicted in video, till the bifurcation of internal and external iliac vessels, which serve as cranial boundary of lymphadenectomy.

6. The focus next shifts onto the internal iliac group of nodes, which are stripped off the bifurcation cranially, till over the obliterated umbilical ligaments, caudally, revealing the ipsilateral uterine arteries at their origin(Fig-6).

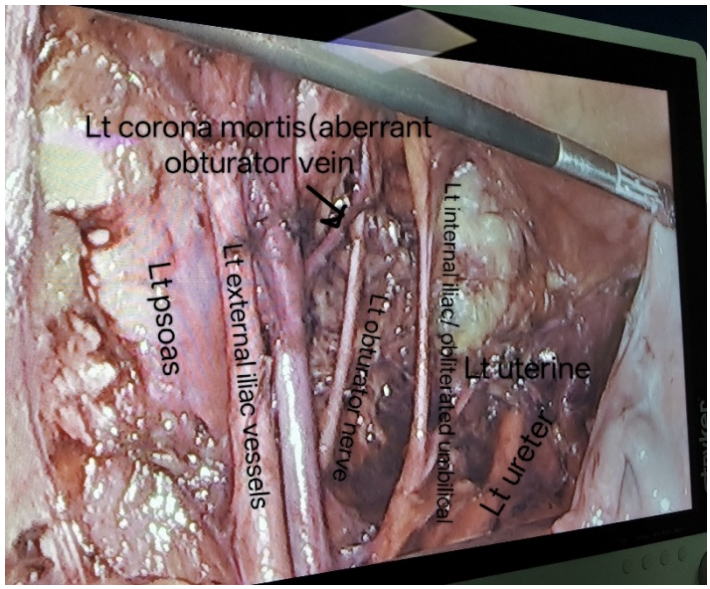

Fig-6: Depicting detailed anatomy of left pelvic sidewall

7. Simultaneously, medial to the external iliac vein, the obturator space is created and the obturator node is removed, with the obturator nerve as the deep limit of the pelvic lymphadenectomy(Fig-6). It is ill-advised to go dorsal to obturator nerve as the obturator vein and lumbosacral trunk lie deep to it, and this may damage vital structures.

8. Occasionally, an aberrant/accessory obturator vein may be seen liying ventral to the obturator nerve, arising from external iliac vein and communicating to internal iliac or main obturator vein(Corona mortis)(Fig-7). If accidentally transected, this may cause torrential bleeding. Sparing this reduces chances of lymphocyst, with some amount of lymphatic venous drainage maintained

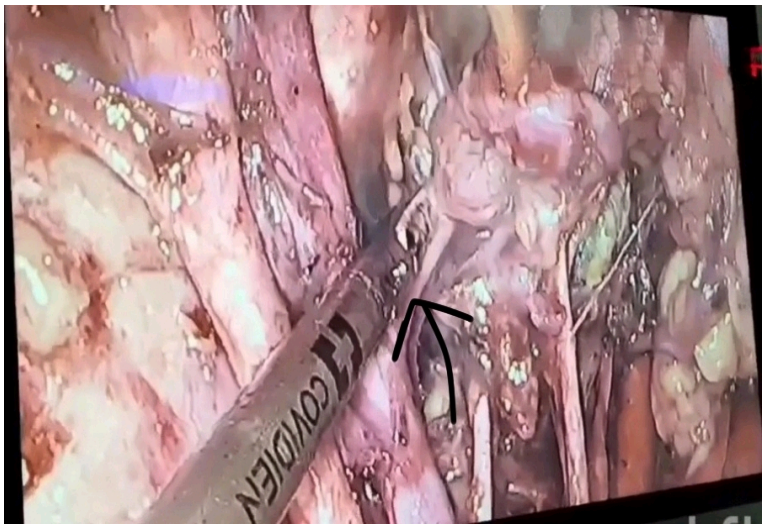

Fig-7: Black arrow depicts left aberrant obturator vein (corona mortis) with node being resected off it, with left obturator nerve and left obliterated umbilical respectively seen more medial to it.

9. As a final step, the lymph nodes are removed en bloc, from over the internal iliacs/obliterated umbilical ligament as anchor, and removed through colpotomy incision, following hysterectomy and intracorporeal suturing of vault.

10. An abgel can be placed, based on surgeon preference, post-operatively in bilateral obturator spaces, with a pelvic drain in situ. The drain is removed mostly after 4-5 days with drain output less than 50-100ml.

The final histopathology was stage pT1b N0 M0 with no LVSI with 30 pelvic nodes removed (14 on right and 16 on left) and all were negative for malignancy. There was no lymphocyst or lymphedema post-operatively.

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