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Technical Article

The role of pelvic avascular spaces in en-bloc hysterectomy and total pelvic parietal peritonectomy procedure with anatomical considerations

En-blok histerektomi ve total pelvik parietal peritonektomi prosedürlerinde anatomik açıdan pelvik avasküler alanların rolü

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Abstract

In most of the ovarian cancer cases, the pelvic parietal peritoneal viscera is fully attacked with the tumor implants, and the complete resection of the tumor sites could be achieved just by the excision of the parietal peritoneal structure. Here, we demonstrated the clinical pelvic anatomy with surgical steps of total pelvic parietal peritonectomy with an en-bloc hysterectomy procedure.

Key words: Ovarian cancer; pelvic anatomy; peritonectomy; pelvic avascular spaces; surgical education

Öz

Over kanseri vakalarının birçoğunda pelvik parietal periton tümör implantları ile tutulu olup, tümör alanlarının tam olarak çıkarılması ancak parietal peritoneal yapının tam olarak eksizyonu ile gerçekleşebilmektedir. Bu yazıda, total pelvik parietal peritonektomi ve en-blok histerektomi prosedürüne ilişkin cerrahi basamaklar gerçekleştirilirken bilinmesi gereken klinik pelvik anatomi anlatılmıştır.

Anahtar Kelimeler: Over kanseri; pelvik anatomi; peritonektomi; pelvik avasküler alanlar; cerrahi eğitim

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Introduction

In most of the ovarian cancer cases, the pelvic parietal peritoneal viscera is fully attacked with the tumor implants, and complete resection of the tumor sites could be achieved just by the excision of the parietal peritoneal structure. To excise the pelvic parietal peritoneal structure with an en-bloc hysterectomy specimen, the lateral, anterior, and posterior parts of the peritoneum surrounding the uterus should be de-attached from its extensions (1-3).

Surgical technique

Pelvic parietal peritoneum covers the entire pelvis. The critical point in the first step at the lateral point is de-attachment of the parietal peritoneum from the transversalis fascia where the tumor-free peritoneum is exposed to each paracolic gutter or at either side of the abdominal vertical incision. Afterward, the extraperitoneal area is presented, and the parietal peritoneum is elevated with excellent traction (bilaterally) (**Figure 1**).

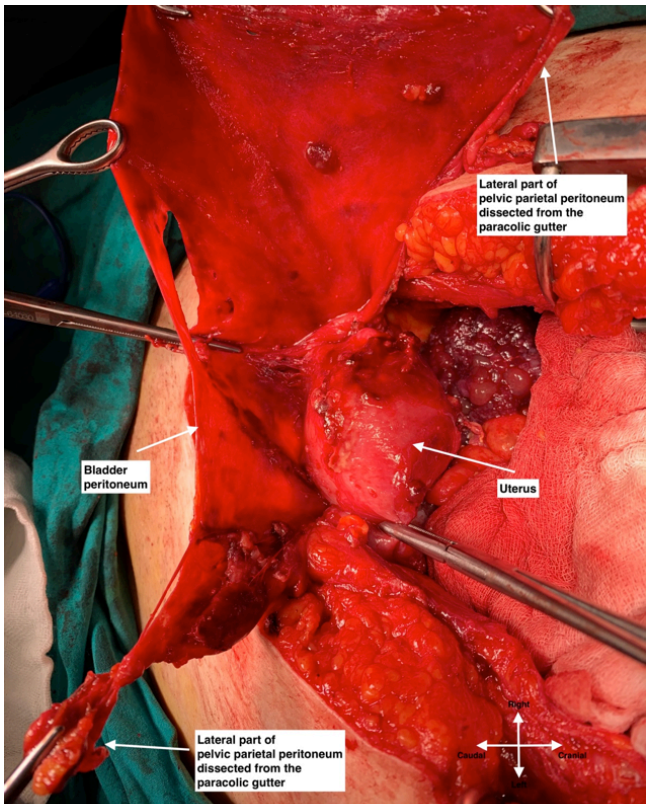

Figure 1: Dissected and elevated pelvic parietal peritoneum from the level of paracolic gutters and anterolateral abdominal wall.

The second step is the extraperitoneal ligation and cut of the round ligament, infundibulopelvic ligament, and the uterine artery where it lies over the ureter (bilaterally) (**Figure 2**).

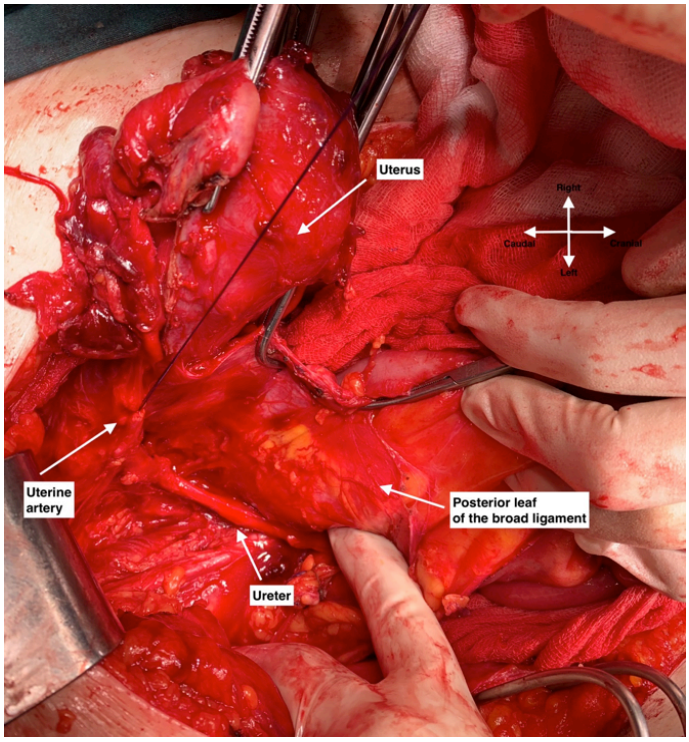

Figure 2: The uterine artery and posterior leaf of the broad ligament are dissected from the ureter (left side).

The third step is developing the pararectal space between the ureter and internal iliac artery and paravesical space between the bladder and external iliac vessels (bilaterally) (1) (**Figure 3**).

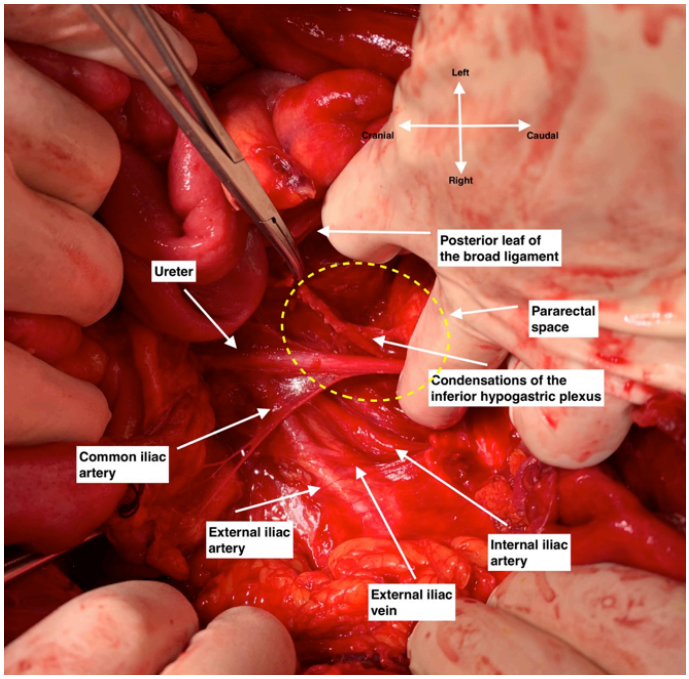

Figure 3: Pararectal space, internal iliac artery, ureter and condensations of the inferior hypogastric plexus.

The fourth step is complete lateralization of the ureter from the

posterior leaf of the broad ligament, which is a part of the pelvic parietal peritoneum (bilaterally).

The fifth step is the dissection of the posterior leaf of the broad ligament from the level of the pelvic brim to the posterolateral part of the uterus where the uterosacral ligament attaches to the uterus (bilaterally).

The sixth step, at the anterior point, is grasping the parietal peritoneum over the dome of the bladder just under the pyramidal muscle, and mobilization of the bladder towards the vagina caudally. So that the vesicovaginal space is opened and the peritoneum of the bladder is dissected. Developing the paravesical space facilitates this step (2) (**Figure 4, 5**).

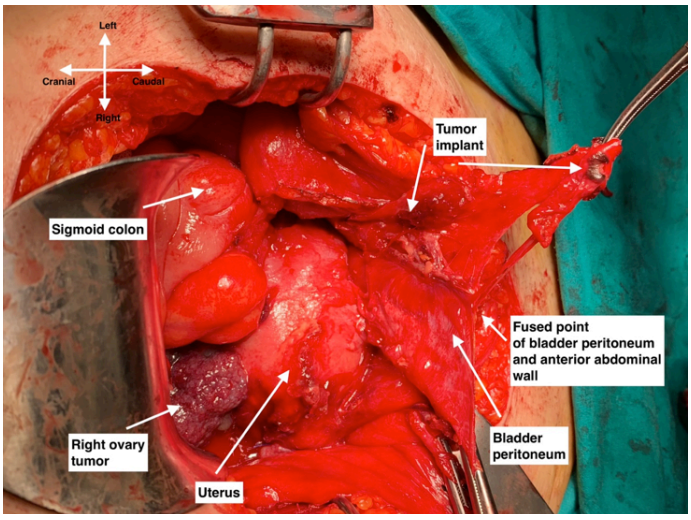

Figure 4: The bladder peritoneum and the anterior abdominal wall.

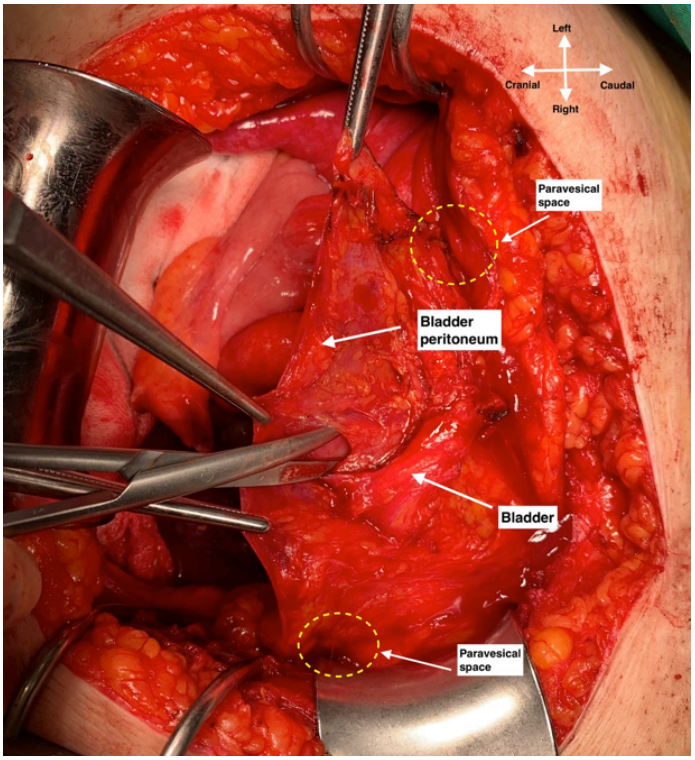

Figure 5: Paravesical space and dissection of the bladder to open the vesicovaginal space.

The seventh step is performing colpotomy from the anterior vagina, and after circumferential cut of the vagina, the Douglas peritoneum is exposed and preserved (3).

The eighth step is developing the rectovaginal space inferior to the Douglas peritoneum, so the rectum is mobilized posteriorly.

The ninth step, at the posterior point, is the dissection of the Douglas peritoneum over the rectum (**Figure 6**).

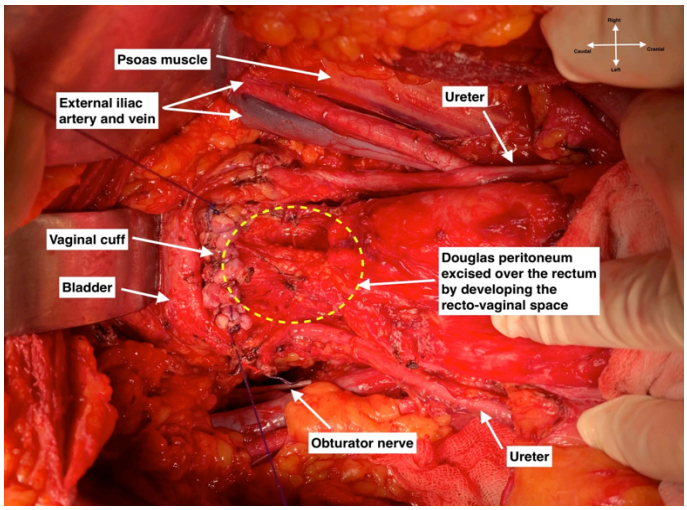

Figure 6: Rectovaginal space after excision of the Douglas peritoneum.

The tenth step is the resection of the uterosacral and the cardinal ligaments (bilaterally). By the way, the pelvic parietal peritoneum with en-bloc hysterectomy specimen could be excised (**Figure 7**).

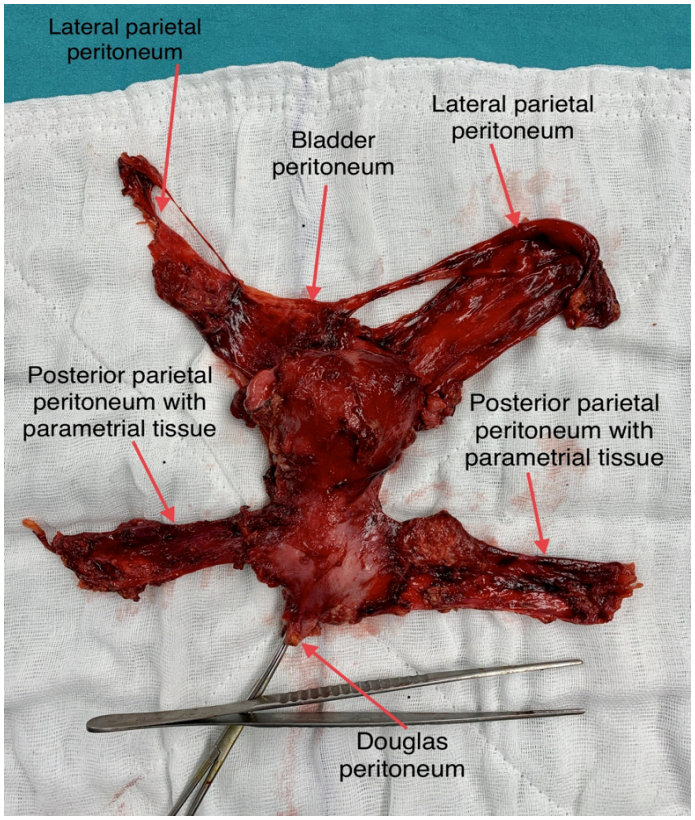

Figure 7: Total pelvic parietal peritoneum with en-bloc hysterectomy specimen.

Conclusion

The medial umbilical ligament (obliterated umbilical artery) divides the paravesival space into two parts. The ureter divides the pararectal space into two parts after its complete lateralization from the posterior leaf of the broad ligament (lateral part of the rectum). Here, the ureter is dissected with condensations of the inferior hypogastric plexus lying under it parallel to the sacrouterine ligament, and these nerve bundles are preserved. While opening the vesicovaginal space, the superior vesical artery on the medial part of the paravesical space could be preserved, and opening the rectovaginal space is a safe guide to mobilize the rectum posteriorly while dissecting the Douglas peritoneum. Accurate knowledge of these anatomical structures which are related to pelvic avascular spaces will yield better pelvic surgery.

Declaration of Interest

The authors declare no conflict of interest.

References

1. Selcuk I, Ersak B, Tatar I, Gungor T, Huri E. Basic clinical retroperitoneal anatomy for pelvic surgeons. Turk J Obstet Gynecol 2018; 15:259-269.
2. Kim HS, Bristow RE, Chang SJ. Total parietal peritonectomy with en bloc pelvic resection for advanced ovarian cancer with peritoneal carcinomatosis. Gynecol Oncol 2016; 143:688-689.
3. Xiang L, Ye S, Yang H. Total pelvic peritonectomy for ovarian cancer with extensive peritoneal carcinomatosis in pelvic cavity. Gynecol Oncol 2019; 154:651-652.