

Early acute abdomen after pelvic lymphadenectomy: what is to be expected?

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Section: Genital (female) imaging

Area of Interest: Emergency Education

Procedure: Diagnostic procedure

Imaging Technique: CT

Special Focus: Acute Case Type: Clinical Cases

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Patient: 52 years, female

Clinical History:

A patient with HIV infection, cervical cancer (staging Ia) and vulvar papilomas was referred to our institution. A total hysterectomy, with pelvic lymphadenectomy and vulvectomy were performed.

The day after surgery the patient complained of abdominal pain, and had low haemoglobin values.

Emergency CT was performed.

Imaging Findings:

Before endovenous contrast administration, a spontaneous hyperdense fluid-fluid level was found in the pelvic cavity. This finding, in this setting, is consistent with the presence of fresh blood.

After endovenous contrast administration, the left ovarian vein was found to be in close contact with the blood pool. It was postulated that the left ovarian vein was the origin of the haemoperitoneum.

Air bubbles were found amidst the pelvic fat, and in obturator topography. These bubbles were not accumulated and were spread along the retroperitoneal fat.

Low density non-collected fluid was found along the retroperitoneal fat.

Discussion:

Background:

Radical hysterectomy refers to the excision of the entire uterus with the parametrium. In this procedure, the round, broad, cardinal, and uterosacral ligaments and the upper third to half of the vagina are removed. The surgeon usually also performs a bilateral pelvic lymph node dissection. [1] This surgery requires a good knowledge of the pelvic anatomy, and exquisite technique to allow manipulation of the ureters, bladder and rectum. [1] Particular care must be taken with the vasculature of the pelvic walls to avoid excessive blood loss.

Ovaries and Fallopian tubes may be preserved if clinically appropriate. [2]

Clinical perspective:

The amount of tissue removed, namely the parametrium, depends on the extent of the tumour. [3]

An important complication of pelvic lymphadenectomy is lymphocyst formation. Most gynaecologic oncologists leave the pelvic peritoneum open to allow lymph fluid to drain internally in the peritoneal cavity. [3]

Most sentinel lymph nodes of the cervix are found along the external iliac artery or vein, obturator space, or parametrium. Removal of lymph nodes in advanced cases improves overall survival. [1]

Imaging perspective:

Lymphocele formation is an important consideration, when lymphadenectomy is performed. Most commonly, the peritoneum is left open to allow lymph fluid to drain freely, therefore avoiding collections. Low density fluid can thus be found in non-enhanced CT scans where lymph nodes previously were. [1]

Air bubbles can also be found along the course of the lymphatic drainage, in consequence of recent surgical manipulation. These air bubbles are small and should not cluster together into bigger areas of pneumoperitoneum. Along with the lymph, these findings of small gas bubbles, typically do not show signs of complication, such as collection or enhancing wall. These can be considered normal, post-surgical findings.

Outcome:

The patient was started on a blood transfusion scheme, with clinical improvement after two days.

Teaching points:

Early post-surgical findings in CT may be normal, even if they look suspicious. The surgical protocol must be known, in order to correctly interpret these findings.

Differential Diagnosis List: Haemopneumoperitoneum from iatrogenic venous laceration, Iatrogenic pneumoperitoneum, Iatrogenic haemoperitoneum

Final Diagnosis: Haemopneumoperitoneum from iatrogenic venous laceration

References:

Querleu D, Morrow CP (2008) Classification of radical hysterectomy. *Lancet Oncol* 2008;9(3):297 (PMID: [18308255](#))

Morice P, Lassau N, Pautier P, Haie-Meder C, Lhomme C, Castaigne D (1976) The difficulties of complete pelvic lymph node dissection in radical hysterectomy for carcinoma of the cervix. *Gynecol Oncol* 1976;4(3):244 (PMID: [964691](#))

Morice P, Lassau N, Pautier P, Haie-Meder C, Lhomme C, Castaigne D (2001) Retroperitoneal drainage after complete Para-aortic lymphadenectomy for gynecologic cancer: a randomized trial. *Obstet Gynecol* 2001;97(2):243. (PMID: [11165589](#))

Figure 1

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Description: A high density fluid-fluid level was seen, one day after surgery, which indicated acute blood loss. **Origin:** JP Penedo, IPOLFG

Figure 2

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Description: The left ovarian vein was found to be in direct contact with the blood pool in the peritoneum, thereby being the probable source of the bleeding. **Origin:** JP Penedo IPOLFG

Figure 3

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Description: Air bubbles were found in the pelvic wall fat, one day after surgery. This was found to be a normal finding in the early post-operative period. **Origin:** JP Penedo IPOLFG

Figure 4

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Description: Low density, homogeneous, fluid build-up was found around the external iliac vessels. These findings turned out to be lymphoceles in the early post-surgical period. **Origin:** JP Penedo
IPOLFG