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Lymphatic ascites after retroperitoneal lymphadenectomy in gynecologic cancer



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ABSTRACT

Objectives: The incidence, diagnosis, treatment and outcome of lymphatic ascites (IA) are studied on 85 consecutive patients with gynecologic cancer who had undergone pelvic and/or paraaortic lymphadenectomy by means of laparotomy or laparoscopy.

Methods: Patients were distributed in two groups depending in the access: Laparoscopy (study group: 44 patients) and laparotomy (control group: 41 patients). All surgical parameters were collected and patients underwent ultrasound examination on postoperative days 7, 14, and 28. The main outcome measure was the development of symptomatic or asymptomatic LA.

Design: Prospective cohort study.

Results: LA developed in 3 patients (6.8%) in the study group and 9 in the control group (22%), with statistical difference (p < 0.05). The relative risk to develop lymphatic ascites after surgery performed by laparotomy was 3.2 (95% CI 1.05–11.07). Mean nodes harvested during the surgery was 18.6 (SD 6.6) in the LA group and 20.4 (SD 9.1) in the group with no LA (p = 0.527).

Conclusions: The incidence of LA after retroperitoneal lymphadenectomy in gynecologic cancer patients is lower in the patients treated by laparoscopy.

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1. Introduction

Lymphatic ascites (LA) is the pathological accumulation of lymphatic fluid in the peritoneal cavity. This condition may occur due to congenital anomalies, tuberculosis, filariasis, trauma, cirrhosis, nephritic syndrome, or malignant diseases that occlude the retroperitoneal lymphatic drainage [1] or may be iatrogenic, after pelvic or abdominal radiotherapy or as a result of surgical lymphadenectomy [2].

Although not very high, there is an increase of published cases of LA cases after oncologic surgery [3,4]. The bibliography on the prevention of the LA is scant and up to our knowledge there are not prospective studies to determine it.

Many studies compared laparoscopic and open surgery for the

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management of gynecological cancer; however, few authors focused on LA as the primary outcome of their study [5].

The aim of this study is to determine the incidence of LA, the presenting symptoms, the diagnosis and treatment in a series of patients scheduled for retroperitoneal lymphadenectomy for gynecological cancer, comparing the laparoscopic and the open routes.

2. Material and methods

A prospective cohort study was designed in 85 patients scheduled for pelvic lymphadenectomy, paraaortic lymphadenectomy or both, as part of the treatment of gynecologic malignancy, including endometrium, cervical, and early-stage ovarian carcinoma, in the Puerta de Hierro University Hospital between January 2010 and December 2013. Patients with advanced-stage ovarian carcinoma were excluded of the study because all of them underwent laparotomy.

The selection criteria were:

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- 1. Patients with an endometrial or cervical neoplasia, or earlystage ovarian carcinoma requiring pelvic and/or paraaortic lymphadenectomy as part of their staging.
- 2. Definite diagnosis of LA.
- Rule out other causes of fluid as hemoperitoneum, urine, malignant ascites, congenital disease, renal or cardiac diseases or malabsortion.

Patients were distributed in two groups. The study group (44 patients) underwent the surgery by laparoscopy while in the control group (41 patients) the surgery was performed by laparotomy.

In the pelvic lymphadenectomy, fatty tissue around the pelvic vessels was removed including the common iliac vessels, the external iliac vessels, the obturatrix fossae and the internal iliac vessels. In the paraaortic region, lymphofatty tissue around cava and aorta was included, with the upper limit of the left renal vein. Hemoclips, bipolar energy and vessel sealers were used. Once completed the surgery, 2 30-Fr. drains were left *in situ* routinely. These drains were removed when the volume of the fluid recovered was less than 30 ml/day.

Interventions were performed by gynecologic oncologic surgeons. Approval from our Institution Ethic Committee was obtained.

The main variable to study was the development of LA, the means for diagnosis, and the need for treatment.

Lymphatic fluid for biochemical diagnosis was obtained in three ways:

- Excessive dark yellow fluid from the drains was collected and sent for analysis (Fig. 1).
- Patients reporting vaginal leakage were vaginally examined.
 Should the fluid was detected, this was recovered and sent for analytical, bacteriological and cytological analysis
- Patient with pelvic symptoms as abdominal bloating underwent sonographic determination of ascites (Fig. 2). The sonographic criteria to define LA were the presence of fluid collections with internal echoes and septa [6,7]. In these cases, the fluid was recovered by paracentesis and sent for biochemical analysis.

Lymphatic ascites is odorless, alkaline, and sterile. Typically it has a high triglyceride content that is 2–8-fold that of plasma (range 0.4–4 gm/dl), protein content greater than 3 gm/dl, and



Fig. 1. Different properties of fluids in the drainage: urine (right) and lymphatic fluid (left).



Fig. 2. Transvaginal sonography showing a characteristic image of lymphatic ascites.

creatinine similar that in serum (0.6–1.1 mg/dl) [8].

Detailed information on the clinical records regarding stage of the disease, surgery performed number of pelvic and paraaortic nodes removed, symptoms related to LA, means of diagnosis, and treatment.

All the LA patients were offered dietetic modifications (proteinrich, low-fat, rich in middle chain triglycerides). Patients with significant distention and patients with no improvement in spite of the diet were reevaluated by means of CT or sonography (Fig. 3).

In the conservative treatment, complete cure was defined as resolution of the ascites. Patients with progressive abdominal distention or with vaginal leakage were considered as no cure.

Postoperative visits were scheduled consisting in pelvic exam and ultrasonography to detect the presence of free fluid (LA) or compartmented fluid (lymphocele). All the patients underwent ultrasonography by the same ultrasonographer, blinded to the treatment, in the 7th, 14th and 28th postoperative days, to measure the volume of LA. Then, patients were visited monthly during the first three months, every three months for two years and every six months thereafter.

Statistical analysis was performed by means of SPSS 17.0. Continuous variables with normal distribution were expressed as

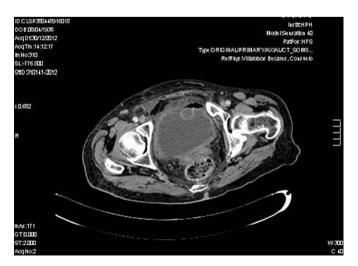


Fig. 3. CT scan showing a large fluid collection in the pelvic cavity, suggesting lymphatic ascites.

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