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Role of different approaches to the abdominal retroperitoneum for aortic lymphadenectomy in patients with gynecological cancers

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Abstract

Background: Paraaortic lymphadenectomy (PALN) is a standard part of many interventions, but currently there are no established care protocols effective in preventing gastro-intestinal (GI) symptoms. The aim of our study was to retrospectively evaluate patients with gynecologic cancers submitted to PALN, in order to evaluate if different approaches to the retroperitoneum could influence the radicality of the procedure and the onset of GI complications.
Methods: We divided 121 patients with gynecologic tumors submitted to PALN into 3 groups according the used right, left or combined left–right approach to the retroperitoneum, comparing the groups according the main surgical-pathological parameters, such as the number of nodes removed and the incidence and severity of GI complications.
Results: The mean number of nodes removed did not significantly differ between the groups, while the mean number of positive nodes was significantly higher in combined approach. 39.8% of our patients experienced GI side effects, but those submitted to the combined approach had a significantly higher incidence of GI symptoms.
Conclusions: Our data demonstrate that the choice of the retroperitoneal approach could be the most important feature for the appearance of post-operative GI side effects, even if there is no significant difference on the radicality of PALN performed retroperitoneal approach.

Keywords: Gynecologic cancers; Lymphadenectomy; Retroperitoneum; Gastro-intestinal symptoms; Radicality

Introduction

Systematic para-aortic lymphadenectomy (PALN) is actually a standard part of both staging and therapeutic surgery for gynecological malignancies. Besides common side effects such as hemorrhage, deep vein thrombosis, embolism, lymphocele and lymphorrea, this procedure is also associated with a high risk of postoperative gastrointestinal (GI) problems, mainly consisting of nausea and vomiting.[1–3] Unfortunately, no established intra- and/or postoperative care protocols effective in preventing GI symptoms in patients undergoing PALN are currently available. Although GI side effects can usually be successfully and conservatively managed, they can cause a significant increase of the median length of hospital stay and a notable readmission rate.[4,5] In both cases, a significant increase of pathology-related costs and a reduction of the patients' quality of life are probable results. Two main theories have been proposed in order to explain the occurrence of GI symptoms in patients who underwent PALN: I) the anatomical disruption of the para-aortic autonomic fibers innervating the bowel during the dissection of aortic lymph nodes, and II) the surgical trauma specifically related to extensive intestinal mobilization and/or manipulation, length of the operation, blood loss, etc.

We previously demonstrated, in a prospective series, that up to 50% of patients submitted to PALN at our Institution experienced a late, but rapidly recovering bowel pseudo-obstruction, clinically characterized by nausea and vomiting, requiring hospital readmission in 4% of the patients.[5] Our data, however, contrast those reported by other authors

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who found half or less than half incidences of GI complications in their patients.[3–5] In order to explain the above mentioned discrepancy, we hypothesize that the extensive bowel mobilization we frequently perform could cause the stretching of the autonomous fibers afferent to the myenteric plexus that regulate bowel movements. Moreover, the radicality of the lymphadenectomy we usually carry out in our Department could cause the lesion of the autonomous nervous fibers innervating the bowel passing beside the aorta and vena cava. Although PALN is a standardized surgical procedure, in fact, it can be carried out by different retroperitoneal approaches and with different degrees of radicality according to the surgeon's preference, the anatomical characteristics of the patients, preoperative radiological examination and intra-operative histological findings. The aim of our study was to retrospectively review the clinical-pathologic data of 121 patients with gynecologic cancers submitted to laparotomic systematic PALN in order to evaluate if different surgical approaches to the aortic retroperitoneum may influence: 1) the occurrence and/or severity of intra- and post-operative complications and 2) the radicality of the procedure. We divided the patients in three groups according to the type of performed approach to the aortic retroperitoneum and we compared the main surgical-pathological parameters and perioperative complications with particular reference to GI symptoms.

Patients and methods

All patients with gynecologic malignancies submitted to PALN throughout transperitoneal laparotomic approach at the Division of Gynecologic Oncology of the Catholic University of Rome and Campobasso, between January 2006 and May 2008, were recorded using surgical and hospital records. Only patients who did not undergo intestinal resection have been included in the study and we retrospectively identified those patients with a minimum number of aortic nodes removed $\geq$15. All cases that required an operative time inferior to 60 min were also excluded.

Perioperative care

All patients were treated with bowel preparation (osmotic laxative solution p.o.), antithrombotic prophylaxis and short-term antibiotic prophylaxis, as previously described.[5] They all received balanced standard anesthesia (8–10 μ/kg fentanyl + 0.1 mg/kg vecuronium bromide and 3–4 mg/kg of sodium thiopental, with inhalation maintenance of O_2–N_2 O 40:60 and isoflurane 1–1.5%), standard postoperative analgesia (patient's controlled analgesia, PCA, with chloridrate morphine 0.4 mg/ml and topisetron 0.1 mg/ml, 2mg/h for 1 day, plus ketorolac 30 mg/24 h for 3 days) and infusional therapy (metoclopramide 30 mg/24 h plus ranitidine 200 mg/24 h intravenously for 24–48 h). Surgery was performed through a xifo-pubic incision and a transperitoneal approach in all cases. The access to the aorta and the inferior vena cava, was accomplished through three different retroperitoneal approaches, depending on surgeon's preference, the anatomical characteristics of the patients, preoperative radiological examination and intra-operative histological findings.

A brief description of the surgical techniques is reported for each approach, and patients were catalogued in groups according to the approach performed.

1) Right approach (Group 1) (Fig. 1, solid + hyphened lines): the incision of the peritoneum starts from the ciecum towards the Treitz fossa, along the origin of the mesentery and laterally is extended along the right paracolic gutter towards the epiploic foramen. This maneuver includes right parietal-colic detachment, mobilization of hepatic colic flexure, duodenum, and pancreas, thus exposing aorta, inferior vena cava and renal vessels, and ovarian pedicles at their origin (Kocher maneuver). This approach is electively performed in case of preoperative radiological suspect of paracaval nodal metastases, intraoperative finding of paracaval tumefaction(s) or in case of stage I tumors involving the right ovary.
2) Left approach (Group 2) (Fig. 1 hyphened + dotted-hyphened lines): the incision of the peritoneum starts from left common iliac artery and laterally is extended along the left paracolic gutter towards the

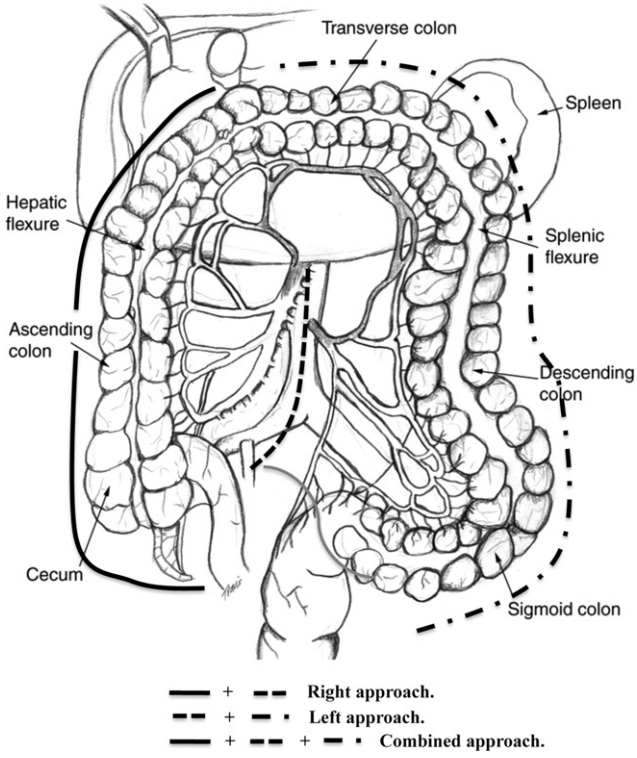

Figure 1. Lines show type of incisions to obtain a retroperitoneal approach.