Secondary cytoreductive surgery: surgical approach to bulky aortic nodes, splenic metastases and mesenteric disease

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Ovarian cancer is the third most common gynecological malignancy and the second cause of cancer death worldwide. About 80% of women affected by advanced ovarian cancer is destined to suffer a relapse after completion of first-line treatment. Whereas, it is generally accepted, that treatment of primary disease should include cytoreductive surgery and platinum based chemotherapy, no unanimous acceptance on the treatment of disease relapse has been reached. In recent years, surgical treatment of ovarian cancer disease recurrence has acquired increasing consensus and since the first reports, Authors are defining appropriate indications and survival results. Comparative studies have suggested that women who achieve optimal residual disease after secondary cytoreduction (SCR) have better outcomes than similar patients treated with sole chemotherapy. Gynecologists that approach this type of surgery require a deep knowledge of the retroperitoneal, vascular and upper abdominal anatomy. Here we present the technique we adopt to remove disease recurrence from three common and most challenging sites.

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Ovarian cancer is the third most common gynecological malignancy and the second cause of cancer death worldwide. About 80% of women affected by advanced ovarian cancer is destined to suffer a relapse after completion of first-line treatment (1). Whereas, it is generally accepted, that treatment of primary disease should include cytoreductive surgery and platinum based chemotherapy, no unanimous acceptance on the treatment of disease relapse has been reached. In recent years, surgical treatment of ovarian cancer disease recurrence has acquired increasing consensus and since the first reports (2), Authors are defining appropriate indications and survival results (3-7). Comparative studies have suggested that women who achieve optimal residual disease after secondary cytoreduction (SCR) have better outcomes than similar patients treated with sole chemotherapy (8, 9). Currently, an international randomized trial with the objective to compare secondary cytoreduction to direct second line chemotherapy is ongoing [NCT01166737]. Surgical treatment in this setting of patients can be particularly challenging, due to iatrogenic and disease induced anatomic distortion, adhesions, fibrosis and tissue weakness (10-13). Gynecologists that approach this type of surgery require a deep knowledge of the retroperitoneal, vascular and upper abdominal anatomy. Here we present the technique we adopt to remove disease recurrence from three common and most challenging sites.

In the first case an ovarian cancer recurrence was found, after 25 months of disease free interval (DFI), in the spleen (Figure 1) of a 65-years-old patient and surgical approach has been offered to the patient. According to instrumental examination it was a single relapse measuring 35 mm and CA 125 was negative. Initially the spleen was freed from the splenic flexure of the colon by dissecting the splenocolic ligament. Superiorly the
spleen was further freed by dissecting the splenofrenic ligament. The gastrofrenic ligament was then divided cautiously due to the rich vascular supply of this anatomic area. At this point care should be always taken in the short gastric vessels which can retract and cause bleeding. A direct access to the splenic vessels was gained by securing and transecting the gastroplenic ligament. The recurrence was found to extend on the tail of the pancreas and a distal pancreatectomy, using a linear cutter, was performed in order to obtain complete resection of the recurrence with no evidence of macroscopic disease. The patient was submitted to 6 cycles of platinum-based chemotherapy and after 12 months instrumental examinations revealed no evidence of disease.

In the second case we describe the surgical treatment of an isolated ovarian cancer recurrence of 40 mm located in the mesentery (Figure 2) in a 63-years-old patient after 14 months from primary treatment. CA 125 was slightly increased. After cautious adhesiolysis and palpation of the mesenteric root the lesion was identified. It was a nodal intracapsular lymphatic recurrence which was isolated with the use of clipping and hemocoagulation. After removal of the recurrence pulsatility of the vessels was assessed. A suspicious area in the superior margin of the lesion was removed and frozen section analysis revealed positive surgical margins. Widening of the excision was performed till all margins of resection were negative and no residual tumor was obtained. The patient was submitted to 6 cycles of platinum-based chemotherapy and after 12 months instrumental examinations revealed no evidence of disease.

The third case was a 68-years-old patient with a recurrence of ovarian cancer presenting as bulky aortic nodes measuring 44 mm (Figure 3). Instrumental examination during follow up revealed an unique area of suspicious relapse in the paraaortic lymph nodes 26 months after primary treatment. Ca 125 measurement resulted normal. The incision went along the ileomesenteric root from the caecum to the Treitz’s ligament. Then, the avascular plane located between the Gerota’s and Toldt’s fascia was entered. At this point, ascending colon was mobilized free from the loose connective tissue that connects it to the renal capsule. The omentum, the small bowel and the transverse colon were exteriorized on the chest wall. The urether was then identified and displaced from the field of dissection. Complete isolation of the right ovarian pedicle was performed and lymphatic vessels were identified, coagulated and cut while main lymphatic vessels were clipped in order to avoid lymphorrea. The aorta was isolated medially while cau-
Figure 2 - Excision of a mesenteric ovarian cancer metastases.

Figure 3 - En bloc removal of para-aortic, para-caval and intercavo-aortic ovarian cancer lymph nodes recurrence.
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This was taken on small branches of the aorta which were coagulated and dissected. Care was also taken in order not to damage small lumbar arteries located in the dorsal aspect of the aorta. The lymphatic tissue was then separated from the vena cava by blind dissection moving caudocranially. The ovarian pedicle was then clipped and cut and complete isolation of the bulky intercavo-aortic lymph nodes was obtained by clipping and cutting the remaining lymphatic vessels. Deep intercavo-aortic nodes were also removed. No residual tumor was obtained and the patient had 6 cycles of platinum based chemotherapy after surgery and 10 months after surgery no evidence of disease resulted in clinic-instrumental examination. In all three cases no perioperative complications occurred.

Up to date, all recurrent ovarian cancer patients should be carefully evaluated before excluding the surgical approach. Tumor characteristics (size, number, site, histology, genetics) and patients' characteristics (age, BMI, performance status, comorbidity) should be taken in consideration. Residual disease after secondary cytoreductive surgery should be 0 and SCR should be performed in Referral Centres, where intra- and postoperative complications rate is significantly lower. Tissue specimens obtained during SCR may be studied thoroughly and used for determining optimum individualized therapy options.

Disclosure
The Authors report no conflict of interest.

References