

External iliac artery ligation due to late postoperative rupture after radical lymphadenectomy for advanced ovarian cancer - two case reports

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Summary

According to the present guidelines for advanced epithelial ovarian cancer (EOC), bulky lymph nodes should be removed as part of the routine surgical staging and the primary goal being removal of all macroscopic tumor residuals. Furthermore, EOC-patients with bulky lymph node relapse seem to benefit from lymphadenectomy in terms of recurrence and overall survival. We present two cases of severe postoperative hemorrhage due to external iliac artery rupture ten and 12 days after radical bulky lymph node removal in primary and recurrent EOC-patients. Both cases were successfully managed by ligation of the two arms of the external iliac artery achieving immediate hemostasis. No crossover bypass was required to maintain lower extremity perfusion. Late rupture of the iliac vessels is a rare complication of systematic lymphadenectomy in EOC. This complication can be managed by unilateral external iliac artery ligation without mandatory subsequent graft interposition or crossover bypass.

Key words: Hemorrhage; Ovarian cancer; Bulky lymph nodes; External iliac artery.

Introduction

Radical surgery with primary goal of maximal tumor reduction remains the cornerstone of the clinical management of advanced epithelial ovarian cancer (EOC).

Lymph node dissection is part of the clinical staging according the FIGO-classification, while various guidelines recommend systematic pelvic and paraaortic lymphadenectomy in patients without macroscopic residual disease [1-3]. Additionally, there is some indirect evidence to suggest that EOC-patients with bulky lymph node relapse can potentially benefit from secondary systematic lymphadenectomy in terms of progression free survival and overall survival, with hereby associated acceptable complications rates [4].

Lymphocele formation and intraoperative bleeding due to vessel injury are in general the two most common complications of lymphadenectomy [3]. We present two unusual cases of late severe abdominal bleeding one day prior to hospital discharge, respectively on the 11th and 12th postoperative days. Both patients had advanced EOC after systematic pelvic and paraaortic bulky lymph node dissection. Both cases were due to spontaneous rupture of the one external iliac artery and were successfully treated with emergent ligation of the vessel.

Case Reports

Case 1

A 58-year-old woman was referred to our institution for surgical cytoreduction. She initially presented with abdominal distention and stool irregularities. Computed tomography (CT)-scan examination and sonography revealed massive ascites, multiple retroperitoneal bulky nodes and peritoneal carcinomatosis as well as a large pelvic mass 15 cm in diameter. The patient did not have any significant comorbidity, except well controlled hypertension. She underwent a midline laparotomy with en bloc resection of the uterus, ovaries, rectum, Douglas- and bladder-peritoneum. In the upper abdomen, we performed an extensive peritonectomy of the right and left sides of the diaphragm, the omental bursa, the right Gerotta's fascia as well as an omentectomy. Since complete macroscopic tumor resection was achieved, we proceeded with systematic pelvic and paraaortic lymphadenectomy and removal of all retroperitoneal bulky nodes (Figure 1). No major intraoperative injuries of the retroperitoneal vessels occurred. The patient recovered quickly after an initial 3-day period in the intensive care unit. On the 5th postoperative day a negative barium enema showed an intact rectal anastomosis. The final histological examination revealed a FIGO IIIc serous cystadenocarcinoma of both ovaries with the tumor stage pT3b N1 (51/51) G3.

On postoperative day 11 the patient collapsed and complained of acute dyspnea. The abdomen was suddenly distended and the oxygen saturation fell to 35%. A CT-angiogram revealed bilateral pulmonary embolism of the caudal lobes as well as an active bleeding of the left external iliac artery just distally of the iliac bifurcation with massive hemoperitoneum. The patient underwent emergent laparotomy. Four liters of blood was drained out of the abdominal cavity. The left external iliac artery was completely and spontaneously ruptured just proximal to the iliac bifurcation, most likely secondary to arterial wall

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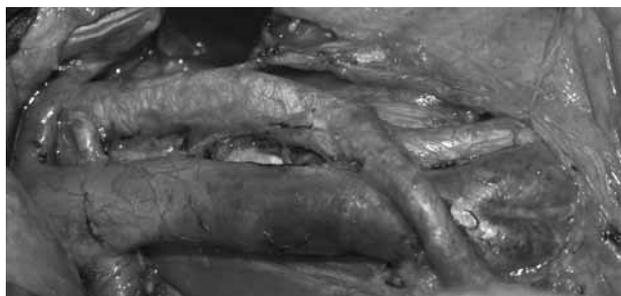


Figure 1. — Retroperitoneal situs after complete paraaortic lymphadenectomy. Both renal veins and the right renal artery are demonstrated.

weakness after debulking. The artery could not be repaired primarily due to severe damage. Both ends were suture ligated with prolene 4-0, the abdomen was irrigated and closed. The left lower extremity remained well perfused postoperatively. Two days later the patient developed peritonitis. A colonoscopy showed a 10 cm necrosis of the neorectum and perforation at the level of the anastomosis. The patient was taken back to the operating room and a Hartmann procedure was performed. Due to the infection, no interposition graft or crossover bypass could be performed. After full recovery the patient received systemic chemotherapy with paclitaxel and carboplatinum. She subsequently was able to ambulate, and did not develop any lymphedema, ischemic signs, or pain.

Case 2

A 32-year-old patient, referred to our institution due to a pelvic tumor relapse of a clear-cell ovarian carcinoma, initially presented two years before with an endometrial carcinoma. She was at that time suboptimally debulked, without systematic lymphadenectomy, and then systemically treated with platinum-based chemotherapy. The initial FIGO stage of the ovarian cancer was a clear cell carcinoma FIGO IIIc and following pTNM stage: pT3c,G3,N1 (6/33), L1,V0. The initial stage of the endometrial cancer was of endometrioid histology, pT1b, G1, R0. The patient had no other metastatic site and was highly sensitive to platinum. An operative tumor debulking was indicated. The patient did not have any comorbidities.

A midline laparotomy was performed. Both pelvic walls were infiltrated by tumor, with large bulky lymph nodes; 90% tumor resection could be obtained after tumor debulking and radical pelvic lymphadenectomy. Additionally, a low anterior rectal resection was performed to reestablish continuity. No tumor was detected in the upper abdomen. The patient did not require any intensive care stay and was transferred to the recovery floor. An intraabdominal drain was placed. On postoperative day 12, continuous bleeding from the drain was noticed. A sonography showed blood clots in the pouch of Douglas and the patient was emergently reexplored. The right external iliac artery was found to be disrupted and actively bleeding. Primary repair of the artery could not be performed and arterial ends were suture ligated with 4-0 prolene to control hemorrhage. Also in this case, no interposition graft or crossover bypass was possible due to diffuse tumor erosion of the pelvic vessels. The patient recovered with no limb ischemia. She was discharged ten days after systemic platinum-based chemotherapy. On 10-month follow-up she had no claudication or lymphedema.

Discussion

Radical surgery in advanced ovarian cancer is widely accepted since postoperative tumor residual disease is the most relevant prognostic factor in ovarian cancer [5]. Multivisceral techniques such as diaphragmatic resection or stripping, splenectomy, distal pancreatectomy, and liver resection are being routinely employed in many centers during cytoreductive surgery for primary ovarian cancer [6]. Furthermore, even if the therapeutic impact of systematic lymphadenectomy in primary epithelial ovarian cancer is still under debate in multicenter prospective randomized studies, systematic pelvic and paraaortic lymphadenectomy is currently recommended in cases of complete tumor resection because of the high incidence of lymph node metastases, especially in the high paraaortic region [2].

Despite the continuously increasing trend towards radical operations, current aspects of modern perioperative patient care imply early patient mobilization and early discharge by means of a “fast track surgery” protocol. “Fast track surgery” shows no differences in patient morbidity while significantly reducing patient discomfort and duration of hospitalization. Reported experiences on gynecologic oncology services have demonstrated that early patient discharge was possible in most cases and was associated with a low rate of readmission [7].

Lymphocele formation is considered to be the most common postoperative complication of the lymphadenectomy procedure, with an average incidence of 22-48.5% [8].

Intraoperative bleeding also constitutes a common complication, especially in the event of bulky disease fixated to the great retroperitoneal vessels. High levels of operative skills are required not only to perform complete and adequate lymph node dissection, but also to successfully treat any iatrogenic injury.

In a prospective observational study of ovarian-cancer patients with pelvic/aortic lymph node relapse, Benedetti Panici *et al.* reported the following results after lymphadenectomy performed on 29 patients: four (14%) severe complications in terms of intraoperative hemorrhage (two), caused by lumbar and common iliac vein bleeding. One pulmonary embolism and one bowel occlusion. Nine patients (31%) had mild complications such as lymph cyst (two), chylous ascites (two), pneumonia (one), wound infection (one), leg edema (one), and deep vein thrombosis (two) [4].

In the present article we report two rare cases of late postoperative bleeding due to spontaneous rupture of the external iliac artery 11 and 12 days after radical cytoreductive surgery and lymphadenectomy for epithelial ovarian cancer. Although the iliac vessels are considered to be the most common sites of iatrogenic operative injury during pelvic cancer surgery [9, 10], to our knowledge these are the first cases of such late postoperative bleeding complication reported after surgery for ovarian cancer.

Due to the fact that the rupture of the vessel was com-

plete and the hemorrhage was massive both patients had to be treated immediately surgically with no option of embolization or stenting. Extraordinary was also the fact that in both patients no bypass operation was necessary and both patients recovered well without any signs of ischemic dysfunction or pain. A possible explanation for this can be the fact that due to the chronic compression of the pelvic vessels by large bulky nodes and tumor, both patients had developed sufficient collateral arteries, which were able to maintain the arterial supply of the leg.

We conclude that after extensive lymphadenectomy techniques in advanced ovarian cancer, especially in cases of bulky lymph nodes, serious and life-threatening bleeding complications can be expected even two weeks after the procedure. The external iliac artery can be ligated in emergency situations and, in contrast to many reported experiences, an interposition graft or crossover bypass can potentially be avoided in palliative patients due to the collateralization induced by the chronic arterial compression through the bulky nodes or the tumor.

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