

## Successful management of evisceration occurred after exploratory laparotomy for bilateral ovarian micropapillary serous borderline tumors

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**SUMMARY:** Successful management of evisceration occurred after exploratory laparotomy for bilateral ovarian micropapillary serous borderline tumors.

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*Micropapillary serous borderline tumor of the ovary is characterized by a more frequent association with extraovarian, especially invasive, implants. The aim of this study was to report the clinicopathologi-*

*cal findings of a rare case of micropapillary serous borderline tumor of the ovary since there are less than 100 similar cases in the published literature. Additionally, the successful management of evisceration that complicated the postoperative stay of the patient is analyzed. The incidence of this severe complication is estimated between 0.29-2.3%. There are four main causes: suture tearing through the fascia, knot failure, suture failure, and extrusion of abdominal contents between sutures placed too far apart. At least 50% of the cases are due to technical error with a potentially lethal result.*

KEY WORDS: Ovarian borderline tumors - Micropapillary serous tumors - Ovarian cancer - Evisceration.

### Introduction

Micropapillary serous borderline tumor (MSBT) of the ovary represents a recent form of serous borderline ovarian tumors described in 1996 by Burks et al. (1) and Seidman and Kurman (2). These tumors are characterized by long thin micropapillae and cribriform structures that arise directly from large bulbous papillary structures. Clinically, a more frequent association of these tumors with extraovarian, especially invasive implants is recognized. Both Burks et al. and Seidman and Kurman termed it carcinoma because patients with this neoplasm had prognosis and mortality rate intermediate between typical ovarian serous papillary carcinoma and serous borderline tumors without invasive implants. On the other hand, Eichhorn et al. (3) suggested that it should remain as a subset within the serous borderline neoplasm category, with outcome which depends on the presence or absence of invasive peritoneal implants. MSBTs

are associated with higher occurrence of invasive peritoneal implants in comparison with similar stage, typical serous borderline ovarian tumors. So, exploratory laparotomy with peritoneal staging is necessary in order to identify the presence of extraovarian disease and histological examination remains the gold standard for differential diagnosis between invasive and non-invasive peritoneal implants. Staging of the disease after exploratory laparotomy and histological examination and differential diagnosis between invasive and non-invasive peritoneal implants is important in order to take the correct decisions about possible adjuvant therapy.

The aim of this study was to report the clinicopathological findings of a case of bilateral ovarian micropapillary serous borderline tumors that was diagnosed and treated in our Department, in order to investigate the behavior and prognosis of such lesions. There are less than 100 cases described in the literature, so this study could help to clarify the behavior of this neoplasm. Additionally, the successful management of severe evisceration that complicated the postoperative stay of the patient is analyzed.

The incidence of this major postoperative complication is reported between 0.29 – 2.3% (4,5). Evisceration is defined as the acute, complete disruption of the musculofascial layers, which results in herniation of the ab-

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dominal contents, usually the small bowel and omentum. Emergency surgical intervention is needed. This complication is potentially lethal and carries a mortality rate of approximately 25% (4). Cardiorespiratory failure accounts for 50% of deaths, while peritonitis has been reported as the cause in 15% of the cases (6). Risk factors associated with death from acute wound failure are mechanical ventilation, female sex and advanced age. There are four main causes of wound evisceration: suture tearing through the fascia, knot failure, suture failure, and extrusion of abdominal contents between sutures placed too far apart. The most common and important factor is suture tearing through the fascia. Tissue healing is adversely affected by several factors, such as obesity, diabetes, renal failure, anemia, malignancy, postoperative increased intra-abdominal pressure, wound infection, glyocorticoids, antineoplastic agents or radiation. However, careful review would suggest that at least 50% of the cases are due to technical error (6).

## Case report

The patient, a nulliparous post-menopausal 76-years old Greek woman, was admitted to our Department because of abnormal findings during ultrasound examination of the pelvic organs. She had a history of hypertension and anxiety disorder under medical therapy. Her past surgical history was unremarkable. She was presented asymptomatic, but pelvic examination revealed bilateral non-motile ovarian masses and a second degree rectocele. Transvaginal ultrasound examination confirmed the diagnosis of bilateral ovarian masses, with a maximum diameter of 9 cm for the right and 7 cm for the left ovarian tumor. Their ultrasound characteristics were suggestive of cystic masses but with solid components. The ultrasound examination revealed also micropapillary elements into the tumor of the right ovary. The uterus was found normal with an endometrium thickness of 3 mm.

Cytological examination of cervical/vaginal smear (Papanicolaou examination) was negative for presence of malignant cells. The levels of serum cancer antigen CA-125 were elevated at 60.7 U/ml (normal ranges 0 – 35 U/ml), while the others serum cancer antigen markers were into normal ranges. The appearance of the tumors at the computed tomography (CT) examination was similar with that of the ultrasound examination. The possibility of ovarian malignant disease was high according to the results of CT.

Additionally, the tumor of the left ovary was found in contact with the sigmoid colon, so a colonoscopy was then performed in order to exclude the possibility of bowel involvement. Only diverticulosis of the sigmoid colon and no invasion was found during colonoscopy. After chest X-ray, mammography, cardiological and appropriate blood preoperative examinations the patient underwent exploratory laparotomy in order to exclude the possibility of ovarian cancer.

Under general and epidural anesthesia, a midline abdominal incision was made. The macroscopic appearance of the peritoneum, omentum and the organs of the upper abdomen was negative for disease. Para-aortic lymph nodes were not palpable. Peritoneal washings were sent for cytological examination. Total hysterectomy with bilateral salpingo-oophorectomy was performed. The gross appearance of the tumor of the right ovary during frozen section was suggestive of malignancy. Omentectomy, bilateral pelvic lymphadenectomy and multiple biopsies from the peritoneum followed. No intraope-

rative complications were noted and the patient did not received blood transfusion. The surgical wound was closed via mass closure technique (all layers incorporated with stitch, executed by using a continuous PDS loop). The surgical time was about 160 minutes and the patient recovered normal.

The cytological examination of the peritoneal washings revealed groups of small to medium adenocytes with papillary formation and low degree of nuclear atypia, characteristics suspicious for malignancy. Final histological examination showed bilateral ovarian borderline micropapillary serous tumors (maximum diameter 9.5 cm for the right and 7.5 cm for the left ovary, without stromal invasion) with superficial, non-invasive implants to the uterus and the omentum. The 26 totally removed pelvic lymph nodes (9 from the right and 17 from the left side), were found negative for malignant disease. According to the FIGO staging system the case was staged as IIIA with non-invasive peritoneal implants.

Unfortunately, the patient underwent a second operation at the fifth postoperative day because of acute wound failure. Surgical intervention on an emergency basis was performed after recognition of a serosanguinous discharge from the wound. An injury of the small bowel with a length of 2 cm, in contact with the suture of the fascia, which was not disrupted, was found. This part of the small bowel was removed and an end to end anastomosis of the small bowel was performed. All the necrotic tissue of the wound and the old suture were removed. The surgical wound was closed without tension via interrupted technique using 1-0 monofilament delayed absorbable suture material.

The patient recovered well, after a short postoperative stay in the intensive care unit were hypokalemia and hypertension as well as respiratory problems were successfully managed. No adjuvant therapy was decided and the patient remains well, without signs of recurrence eight months after initial surgery.

## Discussion and conclusions

Micropapillary serous borderline ovarian tumors are often bilateral. In the study of Laurent et al. (7), 77% of patients were diagnosed with bilateral MSBTs. This rate of bilateral ovarian spread ranges between 56 – 72% in different series (3,8-10). In our case also, MSBTs were present in both ovaries. This could be a major intraoperative problem, with difficulties in decision when we have to treat nulliparous women of reproductive age. Fertility should be maintained trying to preserve a healthy part of at least one ovary, performing unilateral salpingo-oophorectomy with a contralateral cystectomy and peritoneal staging. The questions about the outcome of patients treated conservatively for MSBTs have not yet been answered because of the small published number of such cases. In general, in cases of unilateral MSBT a salpingo-oophorectomy and peritoneal staging should be preferred over a unilateral cystectomy. Peritoneal staging is always necessary as extraovarian spread is often and most patients have peritoneal implants and stage III disease. The most important prognostic factor in patients with advanced-stage disease is the peritoneal implant histology. Differential diagnosis between invasive and non-invasive implants is basic for prognosis and further treatment, as well as the absence or presence of ovarian stro-

mal invasion (11-13). Morice et al. (13) suggests that the only prognostic factor in cases of MSBTs was peritoneal implant histology (invasive/non-invasive). Thus, the prognosis of patients with non-invasive implants remains good, and conservative surgery can be considered in such patients. Both Eichhorn et al. (3) and Goldstein et al. (14) support that ovarian MSBTs that do not have ovarian stromal invasion or invasive peritoneal implants should be classified with usual-type serous borderline tumors rather than low-grade serous carcinomas. On the other hand, the prognosis of patients with invasive implants is much poorer in the literature.

It seems that MSBTs with non-invasive peritoneal implants behave as similar staged non-micropapillary serous borderline tumors without invasive peritoneal implants, while in case of invasive peritoneal implants, they behave as low-grade carcinomas. According to these data, conservative management of patients with MSBTs and peritoneal implants should be cautiously considered, especially when the type of implants cannot be clearly classified by the histological examination.

In our case, the patient was post-menopausal so there was no reason for fertility preservation surgery. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed. After the result of the frozen section which was suggestive for malignancy, omentectomy, multiple peritoneal biopsies and bilateral pelvic lymphadenectomy followed. Even in the absence of macroscopic disease, the final histological examination revealed non-invasive implants in the omentum and the uterus. The surgical intervention was extended but the possibility of recurrence was minimized.

On the other hand, these extended surgical procedures increase the risk of postoperative complications. Although rare, evisceration occurred on the postoperative day 5 in this patient and emergency intervention in the operating theatre followed. Evisceration may occur at any time from the original wound closure to postoperative day 21. Most eviscerations occur on postoperative day 7. The initial bedside management should be aimed at stabilization

of the patient and preparation for a return to the operating room. When evisceration is evident, the abdominal contents should be carefully and gently replaced by using a sterile technique. The wound should be covered with a sterile dressing moistened with warm saline. Cultures should be taken and the patient administered prophylactic antibiotics. The successful management of evisceration depends on attention paid to long-standing surgical principles: careful dissection, appropriate choice of materials and techniques, closure without tension and meticulous postoperative care (15). Additionally, synchronous treatment of hypoproteinemia and anemia that often complicate cases of evisceration is necessary in order to avoid the high risk of morbidity and mortality. It is generally believed that the severity of the general condition of the patient plays the more important role in the outcome (16).

Rodriguez-Hermosa et al. (17) reported in a study of 12.622 patients who underwent laparotomy, 57 eviscerations (0.45%). Emergency surgery was performed in 48 patients and postoperative complications such as wound infection and paralytic ileus were present in the vast majority of the cases. Laboratory investigations revealed leukocytosis, hypoproteinemia and anemia. High percentage of the patients (45.6%) required admission to the intensive care unit, while the mean length of hospital stay was 28.5 days. The overall lethality in this study ranged-up to 28%.

In general, up to 3% of laparotomy incisions are associated with dehiscence, with or without evisceration, and more than half of repaired laparotomy dehiscences will go on to form incisional hernias, entering many patients into a cycle of surgical repair, reherniation, and acute and chronic wound complications (18). Postoperative wound dehiscence is associated with an additional 9 days of hospitalization, often in the intensive care unit, \$40.000 in excess charges, and 10% in-hospital attributable mortality (19). The best treatment for evisceration remains prevention. Even after the most successful and technically exquisite surgical procedure, due diligence must be paid to the closure of the incision.

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