Extraovarian peritoneal serous papillary carcinoma mimicking colonic obstruction

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Summary

Involvement of the colon by extraovarian peritoneal serous papillary carcinoma (EPSPC) is considered as rare. During a 10-year period the records of five female patients with a mean age of 73.4 years who were admitted for colonic obstruction due to EPSPC were reviewed. Preoperative and postoperative data were studied. All patients presented with symptoms of colonic obstruction and high concentrations of CA-125. Involvement of the sigmoid colon was demonstrated preoperatively both in CT and colonoscopy. Operative findings of multiple peritoneal implantations involving the surface of the ovaries in two cases, the greater omentum in three cases and invasion of the sigmoid colon in all cases prompted us to perform sigmoidectomy and omentectomy in all cases with bilateral salpingo-oophorectomy in four of them. All patients received adjuvant paclitaxel plus platinum-based combination chemotherapy.

Key words: Extraovarian peritoneal serous papillary carcinoma; Staging; Surgery; Chemotherapy.

Introduction

Extraovarian peritoneal serous papillary carcinoma (EPSPC) is a rare neoplasm mainly characterized by diffuse peritoneal spread while sparing or minimally involving the ovaries. Initially described by Swerdlow in 1959 [1] as a "mesothelioma" resembling ovarian cancer and further categorized by Feuer et al in 1989 [2] in "normal-sized ovarian carcinoma syndrome", the EPSPC is currently defined by criteria developed by the Gynecologic Oncology Group (GOG) [3]: a) both ovaries must be either normal in size or enlarged by a benign process (4 cm in largest diameter), b) involvement of extraovarian sites must be greater than that on the surface of either ovary, c) microscopically, the ovarian component must be nonexistent or confined to the ovarian surface with no evidence of cortical invasion or involving the ovarian surface and underlying cortical stroma but less than 5 x 5 mm or less than 5 x 5 mm within the ovarian substance associated with or without surface disease and d) the histologic and cytologic characteristics of the tumor must be predominantly of the serous type, similar or identical to ovarian serous papillary adenocarcinoma of any grade.

While distinct from malignant mesotheliomas these tumors are preoperatively diagnosed as ovarian malignancy with exploratory laparotomy revealing diffuse abdominal carcinomatosis without any obvious ovarian primary neoplasm. EPSPC are histologically indistinguishable from serous papillary ovarian carcinoma although the ovaries are minimally, if at all, involved on gross examination.

In the present study we retrospectively reviewed five cases presenting as colonic obstruction and eventually diagnosed as EPSPC.

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Materials and Methods

The medical records of female patients presenting with colonic obstruction due to EPSPC were retrospectively reviewed during the past decade (1996-2006). Clinical presentation, preoperative imaging workup with abdominopelvic computed tomography (CT) and flexible colonoscopy, as well as operative findings and surgical procedures performed were analyzed. Routine histologic sections (hematoxylin and eosin, H&E) and immunohistochemistry for cytokeratin, epithelial membrane antigen (EMA), carcinoembryonic antigen (CEA) and other markers (B72.3, WT1, Leu-M1, calretinin) were reviewed. Disease staging was determined according to the classification of the International Federation of Gynecology and Obstetrics (FIGO). Adjuvant combination chemotherapy was initiated in all patients one month after surgery in the form of paclitaxel (175 mg/m^2) plus cisplatin (75 mg/m^2) every three weeks for six cycles.

Results

Five female patients with a mean age of 73.4 years presented with clinical manifestations of colonic obstruction and were admitted to our department for further evaluation and treatment. Clinical presentation, past surgical history and findings of preoperative imaging workup are presented in Table 1, while operative findings and the surgical procedure carried out are presented in Table 2.

Three patients (cases # 1, 3, 5) had a hysterectomy performed in the past for benign lesions. All female patients presented with abdominal discomfort, usually in the hypogastrium, constipation and abdominal distension. The concentrations of CA-125 were elevated in four patients. Abdominopelvic CT in all cases revealed a thickening of the sigmoid colon wall with concomitant diffuse nodularity of the parietal peritoneum and ascites in two patients. Double-contrast enema in two cases

Table 1. — *Clinical characteristics and preoperative diagnostic workup of female patients with EPSPC.*

n	Age (y)	Prior procedures	Presenting symptoms	Clinical Findings	Biological Markers (U/ml)	Imaging findings	Colonscopy
1	79	Hysterectomy (uterine proptosis)	Abdominal distension Change in bowel habits Lower abdominal flank discomfort	Abdominal distension	CA19-9: 68 CA125: 600 CA15-3: 190	CT*: Thickening of the sigmoid colon. DCE*: Stenosis of the sigmoid colon.	Extraluminal compression of the sigmoid
2	84	–	Abdominal distension Colicky abdominal pain Nausea - Constipation	Ascites Tenderness of the lower abdomen	CA125: 400 CA15-3: 100	CT: Nodular infiltration of the omentum and pelvic peritoneum, thickening of the sigmoid colon, Ascites.	Stenosis of the sigmoid colon.
3	67	Hysterectomy (bleeding uterine fibroids)	Lower abdominal discomfort Loss of appetite - nausea Change in bowel habits	Tenderness of the left lower quadrant of the abdomen	CA125: 500	CT: Smudgy, large mass involving the sigmoid colon. DCE: Irregularity of the sigmoid colon.	Stenosis of the sigmoid colon.
4	75	–	Abdominal distension Intermittent severe abdominal pain Constipation	Ascites	CA 125: 600 CA 19-9: 70	CT: Moderate ascites, Diffuse mural thickening of the sigmoid. Nodular parietal peritoneal thickening.	Extramural compression of the sigmoid.
5	62	Abdominal hysterectomy (uterine fibroids)	Anorexia Weight loss Constipation	Tenderness of the lower abdomen	CA 19-9: 80	CT: Mural thickening of the sigmoid colon, Fine nodular infiltration of the greater omentum and mesentery.	Stenosis of the sigmoid colon.

* CT: computed tomography, DCE: double-contrast enema.

Table 2. — *Operative findings and surgical procedure performed in patients with EPSPC.*

n	Operative findings	Surgical procedure
1	Free peritoneal fluid, multiple peritoneal and mesenteric implantations, strangling of the sigmoid colon. Ovaries were disease-free.	Bilateral salpingo-oophorectomy - Omentectomy - Low anterior resection of rectosigmoid
2	Multiple nodules of the peritoneum, mass encasing the sigmoid colon, small superficial lesions on both ovaries and fallopian tubes.	Total abdominal hysterectomy - Bilateral salpingo-oophorectomy - Omentectomy - Sigmoidectomy
3	A large omental tumor spreading to the sigmoid colon, multiple nodules scattered on the peritoneum and upon the surface of the ovaries.	Omentectomy - Sigmoidectomy - Bilateral salpingo-oophorectomy
4	Peritoneal seeding, a large omental tumor densely adherent to the sigmoid colon. No ovarian or uterine involvement.	Total abdominal hysterectomy and bilateral salpingo-oophorectomy - Omentectomy - Sigmoidectomy
5	An omental tumor obstructing the sigmoid colon, Multiple nodules on the peritomeum.	Omentectomy - Sigmoidectomy

revealed sigmoid colon stenosis. Finally, colonoscopy mainly demonstrated an external compression effect on the wall of the sigmoid colon.

Exploratory laparotomy revealed extensive abdominal carcinomatosis involving mainly the peritoneal surfaces and the large omentum, invasion of the sigmoid colon in all cases and only minimal involvement of the ovarian surface (Stage IIIC). Omentectomy and sigmoidectomy with end-to-end anastomosis of the descending colon with the rectum was carried out in all patients, while bilateral salpingo-oophorectomy was performed in four patients (cases # 1-4), with a total hysterectomy in those who had not had the uterus removed in the past (cases 2 & 4). A serous-type carcinoma indistinguishable from ovarian carcinoma moderately (FIGO grade 2) or poorly (grade 3) differentiated with the presence of psammoma bodies in four patients was the histological analysis of the surgical specimens (Figures 1, 2). Immunohistochemistry was positive for keratin, CEA and EMA in all cases with similar reactivity in the other antigens (B72.3, WT1 and Leu-M1) and negative in calretinin. The postoperative course was uneventful. Chemotherapy was received by every patient according to the protocol mentioned before. Four patients died after a survival time of 10-23 months (median 18 months), while one patient (case # 1) was asymptomatic and still alive one year after the initial diagnosis.

Discussion

EPSPCs are embryologically considered as mullerian-type tumors due to a common heritage of the ovary and the peritoneum [4], which can explain the similar aggressive clinical behavior and associated poor prognosis of EPSPC and ovarian carcinoma. EPSPC is found in 7-21% [5-10] of patients who undergo laparotomy for ovarian cancer. In several published series, age at the time of diagnosis was found to be greater in patients with EPSPC than in patients with ovarian cancer, without any differences regarding parity, menopausal status or age at menopause [11]. In other studies [12, 13] it has been demonstrated that in patients with EPSPC the concentrations of CA-125 were five times greater than in the group of patients with ovarian cancer.

Patients with EPSPC have similar clinical manifestations as with ovarian cancer, usually presenting with abdominal distension, pain or pressure often associated with ascites [14]. EPSPC tends to present in advanced stages where exploratory laparotomy reveals extensive

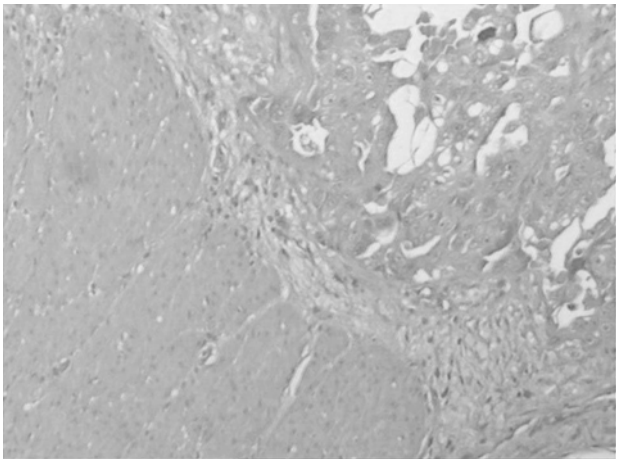

Figure 1. — Histological section of large bowel with the muscular wall infiltrated by a papillary adenocarcinoma (H & E, x 100).

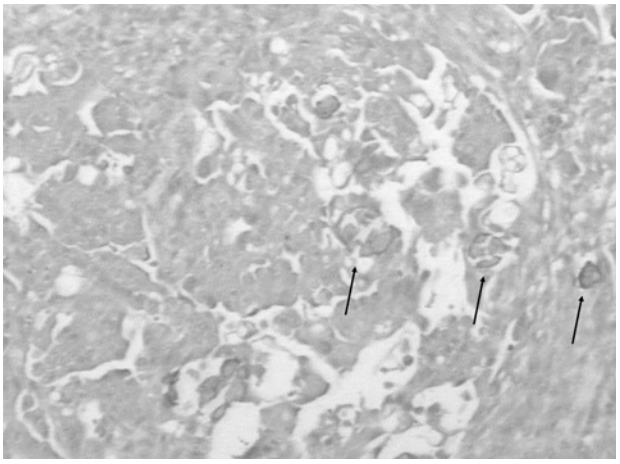

Figure 2. — Histological section of an extraovarian peritoneal carcinoma showing papillary morphology and psammoma bodies (arrows) (H & E, x 250).

peritoneal spread, and debulking surgery can be successful in approximately 38-41% of patients [7, 15]. However, Dubernard *et al.* [16] reported that in patients receiving neoadjuvant chemotherapy the percentage of patients who underwent debulking surgery was greater (63%) and optimal cytoreductive surgery (residual disease measuring < 2 cm) was obtained in 89%.

Adjuvant combination chemotherapy (paclitaxel plus platinum) seems to offer a survival advantage similar to ovarian cancer in advanced disease, especially when initial cytoreductive surgery is optimally performed [11]. Median survival in patients with EPSPC has been reported to range from 17 to 24 months [7, 8, 13, 17]. The median survival for our group of patients was 18 months.

Conclusion

EPSPCs are considered aggressive tumors, usually mimicking ovarian cancer and even rarely presenting with colonic obstruction. Optimal debulking surgery in combination with adjuvant chemotherapy seems to have a survival advantage for patients with advanced stages of the disease.

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