Endometrioid Adenocarcinoma Arising from Endometriosis of the Mesenterium of the Sigmoid Colon

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This report presents a case of endometrioid adenocarcinoma arising from endometriosis of the mesenterium of the sigmoid colon following total abdominal hysterectomy and bilateral salpingo-oophorectomy for leiomyoma of the uterus and infiltrating pelvic endometriosis, and hormone replacement therapy. A 62-year-old woman presented with an abdominal tumor. Based on the diagnosis of mesocolonic tumor, sigmoidectomy with lymph node resection was performed. The tumor cells were immunopositive for cytokeratin 7, but negative for cytokeratin 20, and the tumor was histologically diagnosed as endometrioid adenocarcinoma of the mesocolon. Hyperestrogenism has been implicated as a risk factor for the development of cancer from endometriosis. The patient had been receiving high-dose unopposed estrogens for 14 years after a total abdominal hysterectomy and bilateral salpingo-oophorectomy. Physicians should recognize that endometriosis-associated neoplasms are able to cause symptoms or signs such as abdominal and/or pelvic pain, pelvic mass, and vaginal bleeding, especially if the patient has been treated with hormone replacement therapy. It is important to recognize the possibility of tumors arising from endometriosis when evaluating intestinal or mesenteric neoplasms in women, even in the patient who has previously undergone total abdominal hysterectomy and bilateral salpingo-oophorectomy, particularly if the patient has a history of endometriosis and has received hormone replacement therapy.

Key words: endometrioid adenocarcinoma – endometriosis – mesenterium – sigmoid colon

INTRODUCTION

Malignant transformation of endometriosis occurs in 0.7–1% of patients with endometriosis, with 78.7% of the cases occurring in the ovary (1). Among extragonadal sites, the colon-rectum is involved in only 5% of endometriosis-associated malignant tumors (2). Hyperestrogenism is a possible cause for the development of cancer from endometriosis (1,3–5). Here we present a case of endometrioid adenocarcinoma arising from endometriosis of the mesenterium of the sigmoid colon. The patient in this case received hormone replacement therapy during the period of malignant transformation of endometriosis.

CASE REPORT

A 62-year-old woman presented in March 2002 with an abdominal tumor. Her history included a total abdominal hysterectomy and bilateral salpingo-oophorectomy for leiomyoma of the uterus and infiltrating pelvic endometriosis in 1988. She had received hormone replacement therapy after the operation. She was 159 cm in height and 56 kg in weight. Her body mass index was 23.3 kg/m². Her menarche was at age 17, and her menstrual cycles were regular at 28 days. She had never been pregnant.

On physical examination at admission, a tumor was palpable in the left abdomen. Computed tomography of the abdomen demonstrated a multilocular tumor (Fig. 1). Endoscopic examination revealed no abnormalities of the colon. Angiograms of the abdomen showed a highly vascular tumor of the sigmoid colon (Fig. 2). The serum concentrations of carcinoembryonic antigen and carbohydrate antigen 125 were 3.8 ng/ml and 102 U/ml, respectively. Based on the diagnosis of mesocolonic tumor, sigmoidecctomy with lymph node resection was performed.

Grossly, a multilocular tumor measuring 6.0 × 5.0 × 5.0 cm was observed in the mesocolon of the resected specimen. The cut section revealed a fibrous cyst wall and a white, partially solid mass within the tumor (Fig. 3). No continuity between the tumor and the sigmoid colon was identified. Histologically, the tumor was invading the adipose tissue...
of the mesocolon (Fig. 4a), and the solid portion of the tumor showed tubular and papillary growth that was composed of high columnar cells with clear cytoplasm and swollen vesicular nuclei with prominent nucleoli (Fig. 4b). There were scattered areas of tumor necrosis and vascular invasion. Metastases were recognized in some adjacent mesocolic lymph nodes. The tumor cells lacked intracellular mucin and had an alcian blue-positive glycocalyx (Fig. 5a and b). The tumor cells were also immunopositive for cytokeratin (CK) 7, but were negative for CK20 (Fig. 5c and d). The tumor was diagnosed histologically as an endometrioid adenocarcinoma of the mesocolon. The patient has received adjuvant chemotherapy (cyclophosphamide, pirarubicin hydrochloride and carboplatin) after the surgery. The patient has been disease-free for 28 months since the surgery.

**DISCUSSION**

Malignancy can arise in any extraglandular site of endometriosis. The most common sites are in the pelvic peritoneum, rectovaginal septum, vagina and colorectal serosa. Among the endometriosis-associated intestinal tumors (EAITs), the rectosigmoid colon is the most common site. The most common presenting symptoms or signs are abdominal and/or pelvic pain, pelvic mass and vaginal bleeding (4,5). In the present case, the site of the tumor was the mesenterium of the sigmoid colon, and an abdominal mass was the chief complaint.

Hyperestrogenism, either endogenous or exogenous, has been implicated as a risk factor for the development of cancer from endometriosis (1,3–5). Zanetta et al. (3) reported that when obesity and the use of unopposed estrogens are considered together, there is a significant risk for the development of cancer from endometriosis. In their study, the median duration of unopposed estrogen replacement therapy before the diagnosis of cancer among women with a previous history of endometriosis was 10 years. The patient in our case had been receiving high-dose unopposed estrogens (1.25 mg conjugated estrogens per day) for 14 years after a total abdominal hysterectomy and bilateral salpingo-oophorectomy. The body mass index of the patient was within normal range, and our patient was not obese.

Tumors arising from endometriosis are predominantly low grade malignancies and limited to their site of origin (1). Heaps et al. (1) reported a 5-year survival rate of 82% for estrogen-stimulated endometriosis-associated neoplasms arising in all sites. However, disseminated intraperitoneal disease has a poor prognosis. Most patients with disseminated disease die within 2 years; the 5-year survival rate is only 12.5% (6).
Figure 4. Histopathological findings (hematoxylin–eosin stain). The tumor is invading the adipose tissue of the mesocolon (a). The solid part of the tumor showed tubular and papillary growth that was composed of high columnar cells with clear cytoplasm and swollen vesicular nuclei with prominent nucleoli (b).

Figure 5. The tumor cells lacked intracellular mucin (a) (periodic acid Schiff stain) and exhibited an alcian blue-positive glycocalyx (b) (alcian blue stain). The tumor cells were also immunopositive for cytokeratin 7 (c) but negative for cytokeratin 20 (d).
Endometrioid adenocarcinoma arising from endometriosis often mimics primary colonic adenocarcinoma. However, a number of features distinguish them. Primary colonic adenocarcinomas have a significant mucosal component, but endometrioid adenocarcinomas usually involve the outer layers of the colon; the mucosa is, therefore, frequently normal or shows only minimal changes endoscopically (2,4,5). In our case, the mucosa of the sigmoid colon was normal on endoscopy, and the tumor was located in the outer wall of the sigmoid colon histologically. Immunohistochemical examinations are also useful to distinguish these two tumor types. Endometrioid adenocarcinomas typically form tubular glands with ‘clean’ luminal contents, and the tumor cells lack intracellular mucin and exhibit an alcin blue-positive glycocalyx (5,7). Immunohistochemical staining for CK7 and CK20 is also useful in the differential diagnosis of some carcinomas of epithelial origin. CK7 and CK20 are low molecular weight cytokeratins with anatomic distributions that are generally restricted to the epithelia and associated neoplasms. Among primary colonic adenocarcinomas, 75–95% have a CK7-negative, CK20-positive phenotype, whereas 80–100% of endometrioid adenocarcinomas have a CK7-positive, CK20-negative phenotype (8). The differential diagnosis between endometrioid adenocarcinoma and colonic adenocarcinoma is difficult histologically, but immunohistochemical staining for CK7 and CK20 is useful in the differential diagnosis of them. In the present case, the tumor cells were negative on periodic acid Schiff staining for mucin, and had an alcin blue-positive glycocalyx. In addition, the tumor cells were positive for CK7 but negative for CK20. These results support the determination that the tumor originated from endometriosis of the mesocolon.

Physicians should recognize that endometriosis-associated neoplasms are able to cause symptoms or signs such as abdominal and/or pelvic pain, pelvic mass and vaginal bleeding, especially if the patient has been treated with hormone replacement therapy. It is important for medical doctors to recognize the possibility of tumors arising from endometriosis when evaluating intestinal or mesenteric neoplasms in women, even in the patient who has previously undergone total abdominal hysterectomy and bilateral salpingo-oophorectomy, particularly if the patient has a history of endometriosis and has received hormone replacement therapy.

References