Mixed serous and endometrioid carcinoma of the fallopian tube: A case report with literature review

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Summary

Malignant neoplasms of the fallopian tube are the rarest of the gynecologic cancers. The frequency of histologic subtypes has been difficult to ascertain from the literature because most authors have not classified these tumors according to their cell types. Papillary serous adenocarcinoma appears to be the most common histologic type. On the contrary, mixed cell types of fallopian tube carcinoma have rarely been reported in the literature. A case of mixed serous and endometrioid carcinoma of the fallopian tube is presented and the related literature is reviewed.

Key words: Mixed serous and endometrioid carcinoma; Fallopian tube.

Introduction

Malignant neoplasms of the fallopian tube are the rarest of the gynecologic cancers. Primary fallopian tube carcinoma accounts for approximately 0.3 to 1.1% of all cancers of the female genital tract [1]. The frequency of histologic subtypes has been difficult to ascertain from the literature because these neoplasms are usually classified according to their cell types. Serous carcinoma appears to be the most common histologic type, followed by endometrioid and transitional cell carcinoma [2, 3]. Mixed cell types of fallopian tube carcinoma have rarely been reported in the literature [2]. We present a case of primary mixed serous and endometrioid carcinoma of the fallopian tube accompanied by carcinoma in situ and a review of the literature.

Case Report

A 43-year-old woman, gravida 7, para 1, presented to our hospital with a complaint of abdominal distension. Her medical history was noncontributory except for the presence of irregular menstrual cycles. Physical examination revealed massive ascites, thus the uterus and adnexa could not be evaluated. Abdomino-pelvic ultrasound also disclosed massive ascites. The uterus was normal in size and no endometrial thickening was noted. Abdomino-pelvic computed tomography confirmed massive ascites and a large, irregular, solid omental mass. Both ovaries were normal except for the presence of a cyst (2 cm in diameter) in the right ovary. Cervical cytology revealed no abnormalities, however, the ascitic fluid contained abundant malignant cells. Laboratory examination demonstrated an elevated CA-125 level of 244 U/ml (normal range < 35 U/ml). At laparotomy approximately 7000 ml of ascidic fluid was drained. There was a large omental mass. The left fallopian tube showed fusiform dilatation to about 2.5 cm. There were dense adhesions between the pelvic organs and multiple implants on the serosal surface of the bowel, the subdiaphragmatic region and the surface of the liver. A left unilateral salpingo-oophorectomy was performed and the omental mass was removed. Multiple peritoneal biopsies were taken. Because of the dense adhesions between the pelvic organs, hysterectomy and right salpingo-oophorectomy could not be performed. After microscopic examination, a diagnosis of primary fallopian tube carcinoma was made. Staging was performed in accordance with the International Federation of Gynecology and Obstetrics (FIGO) criteria. The tumor was Stage IIIC. Chemotherapy was planned with taxol (175 mg/m^2) and carboplatin (160 mg and when combined with cyclophosphamide after the fifth cycle; 300 mg/m^2) every four weeks for six cycles. However, after the fifth cycle, an allergy against taxol developed and taxol was replaced by cyclophosphamide (600 mg/m^2). After the chemotherapy, the CA-125 level decreased to 2.1 U/ml. The patient was alive without evidence of disease five months following the diagnosis.

Pathologic Findings

Grossly, the tubal segment showed a fusiform dilatation covered by smooth hemorrhagic serosa. Sections through the dilated portion revealed an intraluminal pinkish-tan, friable mass filling the lumen. The largest diameter of the tumor was 1.5 cm. The adjacent left ovary was not involved. The omental mass was solid and grayish-white in appearance.

Microscopically, on low-power examination, the tumor had a predominantly exophytic nature with little invasion into the lamina propria. The tumor consisted of endometrioid and serous carcinoma in approximately equal proportions. Areas of endometrioid carcinoma were characterized by variably sized glands lined by stratified non-mucin-containing epithelium. In some areas, the tumor exhibited squamous cell differentiation (Figure 1). The tumor also had areas composed of spindle-shaped cells merging with an overt epithelial pattern of growth (Figure 2). Areas of serous carcinoma consisted of complex papillae admixed with glands that were often slit-like (Figure 3). In some areas the tumor showed a solid growth pattern. Tumor cells were columnar with medium-sized atypical nuclei and prominent nucleoli. Mitotic activity was high. Psammoma bodies were rare. The tubal epithelium adjacent to the invasive tumor was replaced by cells with obviously malignant nuclear

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Fig. 1

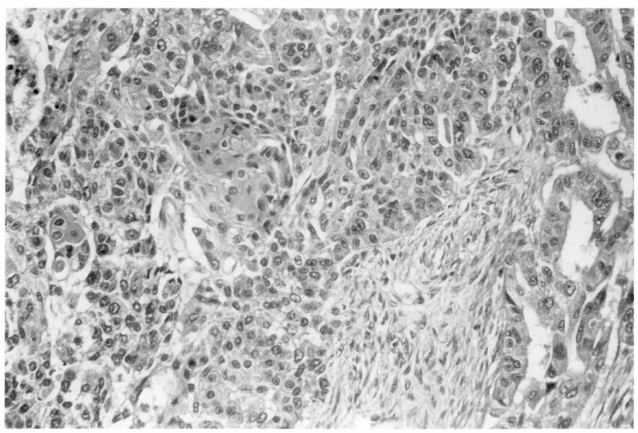

Fig. 2

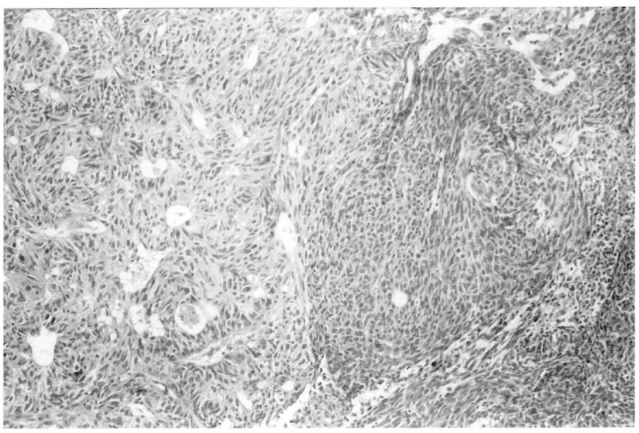

Fig. 3

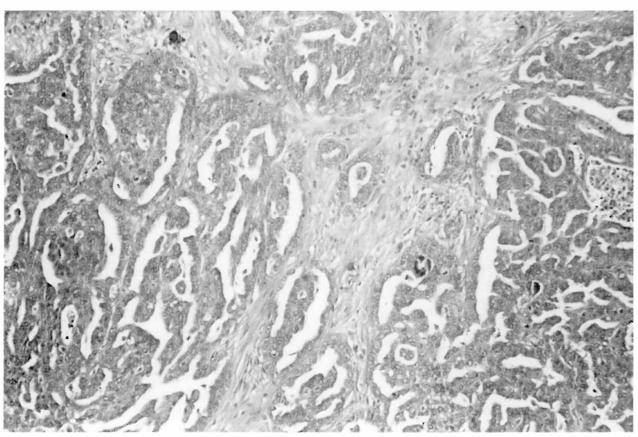

Fig. 4

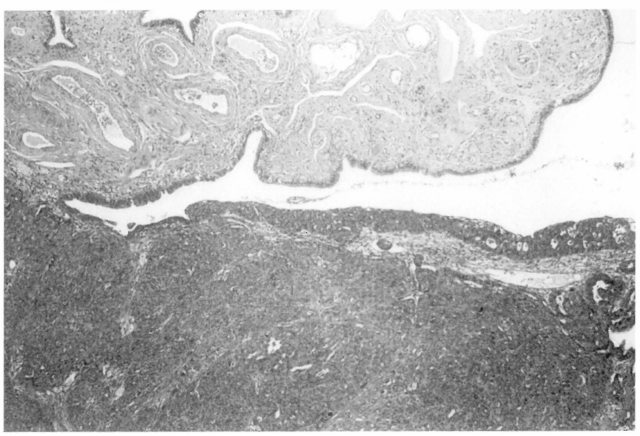

Figure 1. — Endometrioid carcinoma showing a glandular pattern with sharp luminal margins (left) and squamous differentiation (H&E, original magnification x 200).
Figure 2. — Endometrioid carcinoma exhibiting confluent glandular pattern (left) with area composed of spindle-shaped cells (H&E, original magnification x 100).
Figure 3. — Serous carcinoma showing slit-like glandular spaces admixed with complex papillae and psammoma bodies (H&E, original magnification x 100).
Figure 4. — Carcinoma in situ of the tubal epithelium adjacent to invasive carcinoma showing a predominantly solid growth pattern (H&E, original magnification x 40).

features consistent with carcinoma in situ (Figure 4). Microscopic examination of the omental mass revealed exclusively serous carcinoma with abundant psammoma bodies. There was no evidence of tumoral infiltration on microscopic evaluation of the left ovary. Microscopic examination of peritoneal biopsies revealed tumoral infiltration.

Discussion

Carcinomas of the fallopian tube are the least common of gynecologic malignancies. The annual incidence of fallopian tube carcinoma is about 3.6 per million women per year [4]. The peak incidence of fallopian tube carcinomas is between the ages of 60 and 64 years [4]. The most frequent clinical symptoms at presentation are vaginal bleeding, unexplained vaginal discharge, pelvic mass, and pelvic pain [2]. A pelvic mass is the most common physical finding, occurring in approximately 65% of patients [1]. However, the diagnosis of fallopian tube carcinoma is rarely made before surgery because of its nonspecific presentation and nonspecific findings and is often discovered as an incidental finding during surgery for unrelated conditions. A correct diagnosis of fallopian tube cancers was made preoperatively in only 4.6% of cases in the series of Alvarado-Cabrero *et al.* [2]. Similarly, our case presented with abdominal distension and abdomino-pelvic computed tomography demonstrated a large omental mass. The diagnosis of primary carcinoma of the fallopian tube could be made only after microscopic examination.

In most series or case reports, reporting authors have generally used the histologic pattern of the carcinoma proposed by Hu *et al.* in 1950 [5], instead of the modern histologic terminology based on cell types. Microscopically, fallopian tube carcinomas may be classified as epithelial, mixed epithelial-mesenchymal, or mesenchymal. Serous carcinoma is the most common histologic type, followed by endometrioid and transitional cell carcinoma [2, 3]. Other histologic types of invasive fallopian tube carcinoma are mucinous, clear cell, squamous,

adenosquamous, hepatoid, small cell, lymphoepithelioma-like, giant cell, and undifferentiated carcinomas [2, 6, 7] and these histologic subtypes are rarely reported. Mixed cell types of fallopian tube carcinoma are extremely rare and are not included in the WHO classification of fallopian tube tumors [8]. In the series of Alvarado-Cabrero *et al.* [2] consisting of 105 cases of fallopian tube carcinoma, only four tumors were of mixed cell types, containing both serous and transitional components.

Carcinomas of the fallopian tube must be differentiated from lesions that are secondary from the ovary, uterus or elsewhere, which are by far the commonest malignant lesions found in the fallopian tube. Exploration of the abdomen as well as careful microscopic examination of the tubal tumor and other female genital tract organs should establish the correct diagnosis. In our case, the presence of carcinoma in situ in the tubal epithelium adjacent to the invasive tumor and the normal appearance of both ovaries assisted in the diagnosis of primary fallopian tube carcinoma. Furthermore, the mixed histology consisting of both serous and endometrioid carcinoma helped to distinguish this tumor from the metastasis of primary peritoneal serous carcinoma.

Stage is the most consistent prognostic factor associated with survival [9-12]. Other clinicopathologic prognostic factors include residual disease after cytoreduction [9-11], the presence of ascites [10], and histologic grade [12].

Initial management of fallopian tube carcinomas is surgery. The surgical therapy includes abdominal hysterectomy and bilateral salpingo-oophorectomy, omentectomy, and selective pelvic and paraaortic lymphadenectomy with selective peritoneal biopsies [4]. Aggressive cytoreduction and chemotherapy in advanced disease may yield complete responses for more than three years [13]. The value of postoperative radiation therapy is unclear. The CA-125 level may be useful in patient follow-up if its level was initially high. In our case, the level of CA-125 decreased from 244 U/ml to 2.1 U/ml after the treatment.

In conclusion, fallopian tube carcinoma is a rare gynecological malignancy. Mixed cell types of fallopian tube carcinoma are even rarer. Fallopian tube carcinomas must be distinguished from lesions that are secondary from other organs.

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