Primary adenocarcinoma of the fallopian tube: A case report

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Summary

We report a case of a 75-year-old postmenopausal woman with primary fallopian tube carcinoma confined to the left fallopian tube in Stage IA-2, who is alive without evidence of disease three years after total abdominal hysterectomy, bilateral salpingo-oophorectomy, total omentectomy, pelvic and paraaortic lymph node dissection were performed. Histopathological examination revealed a poorly differentiated (grade 3) papillary serous adenocarcinoma of the left fallopian tube. Adjuvant irradiation was given. Primary fallopian cancer should be suspected by clinicians even if the presenting symptoms are atypical and the primary treatment remains surgical resection followed by adjuvant chemotherapy or radiation. Appropriate therapy for each stage of the disease should be defined and new studies are needed to better depict the clinical course and prognostic factors.

Key words: Primary fallopian tube carcinoma; Diagnosis; Therapy.

Introduction

Primary fallopian tube carcinoma is a very rare but highly aggressive disease and accounts for 0.3-1.1% of neoplasms of the female genital tract [1]. Because of its rarity, lack of diagnostic accuracy, nonpresenting symptoms and physical findings, primary fallopian tube carcinoma is seldom diagnosed before laparotomy and only a few and divergent reports exist on the value of adjuvant therapy and prognosis of this malignancy. Therefore, our aim was to evaluate a patient with primary fallopian tube carcinoma with regard to the impact of treatment modalities and factors influencing clinical outcome.

Case Report

A 75-year-old multiparous patient, menopausal since 25 years, was admitted to our clinic with complaints of lower abdominal pain and distension. On examination, the patient was obese and her vital parameters were stable. Systemic examination was within normal limits. Pelvic and ultrasonographic examinations revealed a multilobulary and solid cystic mass arising from the fallopian tube on the left side extending for about 7 x 6 cm. The ovaries could not be visualised separately. Sonography and computed tomography (CT) scan led to a preoperative diagnosis of ovarian cancer, until surgical and pathologic confirmation. We detected no ureteral obstruction before the surgery at intravenous pyelography or additional findings on computerised tomography scan. Fractional curettage showed normal endometrium. Tumour marker assay revealed raised CA125 levels (586.34 U/ml). With a presumptive diagnosis of carcinoma of the ovary, the patient underwent exploratory laparotomy. At surgery, the uterus, right fallopian tube and both ovaries appeared to be normal but the left fallopian tube was dilated with solid and cystic components measuring 10 x 5 cm. Frozen section diagnosis of the biopsies was atypical. Peritoneal washing, total abdominal hysterectomy, bilateral salpingo-oophorectomy, total omentectomy, selective pelvic and paraaortic lymph node dissection were performed. Histopathological examination revealed papillary serous adenocarcinoma of the left fallopian tube (Figures 1 and 2) extending into the submucosa, muscularis and without penetrating the serosal surface of the fallopian tube. Peritoneal washing was negative and biopsy from the pelvic and aortic lymph nodes showed no malignant involvement. The patient was diagnosed as a case of primary fallopian tube carcinoma Stage IA-2, poorly differentiated (grade 3).

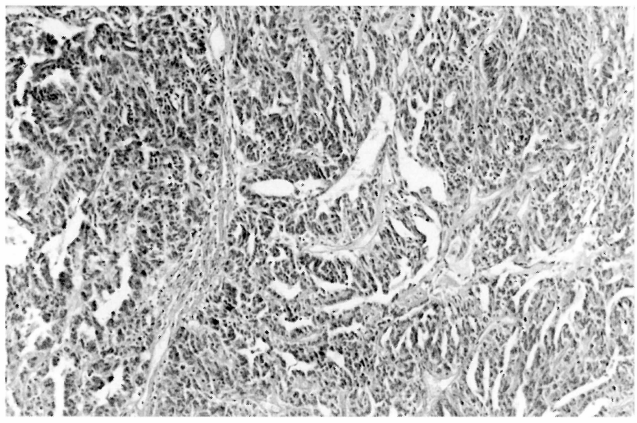
The patient was given postoperative radiotherapy consisting of daily fractions of 200 cGy via a four-field box technique, totalling 50 Gy to the whole abdomen using a 10 MV linear accelerator. The patient is still under follow-up after 36 months at the outpatient department and is asymptomatic. CA125 levels have been repeated and are within normal levels. Vaginal cytology is normal and regular mammographic and CT screening have shown no abnormality.

Discussion

The exact etiology is unknown and diagnosing these malignancies at an early stage is difficult because of the lack of symptoms or the presence of nonspecific symptoms. The most common presenting symptoms are perimenopausal or postmenopausal vaginal bleeding seen in about 50% of the patients, followed by yellowish watery vaginal discharge and abdominal or pelvic pain [1, 2]. However, this triad of symptoms are nonspecific, and consequently the disease is rarely diagnosed preoperatively, thus often causing a delay in diagnosis. The phenomenon of 'hydrops tubae profluens', which is characterized by colicky lower abdominal pain accompanied by a profuse, serous, watery and yellowish intermittent vaginal discharge, considered to be pathognomonic of tubal cancer, does not appear early nor commonly [1]. Cervical cytology is inadequate as an early diagnostic aid. Approximately 80% of the malig-

Revised manuscript accepted for publication May 5, 2004

Fig. 1



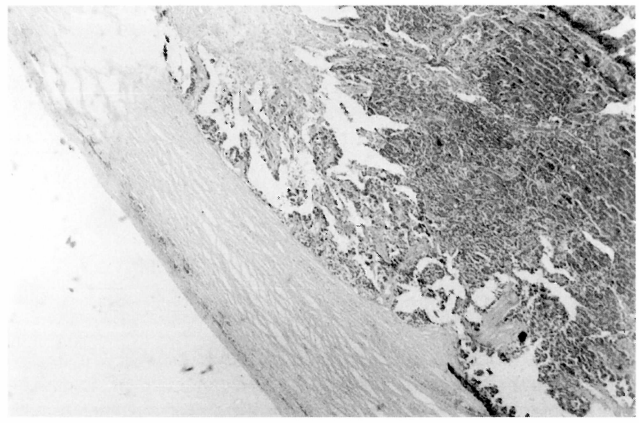


Fig.

Figure 1. — Neoplasm arranged in a solid adenoid and papillary pattern (H&E x 100).
Figure 2. — Neoplasm extending through the muscularis propria (H&E x 40).

nancies of the fallopian tube are from other sites most commonly from the ovary, endometrium, breast and gastrointestinal tract [3]. The presented case showed no postmenopausal bleeding, but due to a probable risk of malignancy, fractional curettage was performed routinely and was reported as benign.

Fallopian tube carcinoma is rarely diagnosed preoperatively and is often mistaken for benign pelvic disease or ovarian cancer. Sonography usually demonstrates a solid cystic mass in the adnexal region. The mass is rarely suggestive of tubal origin, unless the ipsilateral ovary is identified. Computed tomography may be helpful for localising spread to other intra abdominal or retroperitoneal structures [4]. In preoperative diagnosis, some reports indicate that transvaginal ultrasound examination with use of color and pulsed Doppler can detect areas of neovascularization within the tubal carcinoma [4] and three-dimensional ultrasound can help detect papillary protrusions, pseudoseptae and tumoral lakes [5].

As was seen in the presented case, detection of increased levels of antigenic determinant CA125 has been described in fallopian tube carcinoma. The serum CA125 level has been shown to correlate with tumour stage and histologic grade [6] and independently predicts the risk of disease recurrence in patients with primary fallopian tube carcinoma. Furthermore, the serum CA125 level has been found to be significantly associated with shorter overall survival. These promising findings indicate that the evaluation of serum CA125 levels may be clinically useful regarding further individualization of adjuvant therapy and follow-up design [6]. Preoperative diagnosis of fallopian tube carcinoma is seldom made as most diagnoses are determined on the operating table.

The prognostic factor that directly correlates with survival is stage of disease at the time of surgery. Staging is based on the ovarian carcinoma classification because of the similar spread pattern. The FIGO (International Federation of Gynecology and Obstetrics) 1992 staging system was applied for staging classification. Rosen *et al.* [7] indicated the prognostic value of correct staging in their multivariate analysis that showed FIGO stage to be the most important classical prognostic factor in fallopian tube carcinoma. However, Peters *et al.* [8] demonstrated the importance of the depth of invasion in Stage I disease as a prognostic factor. In addition, the presence of ascites and the patient's age do not seem to affect prognosis. Therefore, Navani *et al.* [9] in 1996 introduced a modification of the FIGO staging system by creating an additional subdivision of Stage I according to depth of tumour invasion of the tubal wall and location of the tumour within the tube (Table 1). The presented case was accepted as Stage IA-2.

Surgery is the mainstay of treatment. The procedure of choice is abdominal total hysterectomy, bilateral salpingo-oophorectomy, omentectomy, selective pelvic and para-aortic lymphadenectomy in any stage for fallopian tube carcinoma.

The role of postoperative therapy of fallopian tube carcinoma is still questionable. The need or benefit of postoperative radiation therapy has not been well substantiated by any study. Some studies have recommended postoperative irradiation covering the pelvis and the paraaortic lymph nodes. Klein M *et al.* [10] showed improvement of prognosis by postoperative irradiation in 24 patients compared with 49 who underwent adjuvant chemotherapy. They suggested that radiotherapy is superior to chemotherapy and this should be offered to all patients with Stage I disease [10]. Peters *et al.* found that among patients with disease limited to their fallopian tubes, there was no statistically significant improvement in survival with the addition of either pelvic irradiation or single-agent chemotherapy and among women with extrapelvic disease, survival improved significantly with the use of cisplatinum-containing multiagent chemotherapy [8]. Adjuvant radiotherapy of carcinoma of the fallopian tube seems to be indicated with the exception of small invasive tumours of FIGO Stage I [11]. The target volume should comprise the whole abdomen. A smaller treatment volume (pelvis alone or plus the paraaortal region) can only be of use in a palliative situation or as a salvage therapy [11]. Moreover, it has been shown that

Table 1. — *Modified FIGO staging for fallopian tube carcinoma [9].*

Stage 0	CA in situ (limited to tubal epithelium).
Stage I	Growth limited to tube.
Stage IA	Growth limited to one fallopian tube without extension through or onto the serosa, ascites containing malignant cells, or positive peritoneal washings.
Stage IA-0	Growth limited to one fallopian tube with no extension into the lamina propria.
Stage IA-1	Growth limited to one fallopian tube with extension into the lamina propria but no extension into the muscularis
Stage IA-2	Growth limited to one fallopian tube with extension into the muscularis
Stage IB	Growth limited to both fallopian tubes without extension through or onto the serosa, ascites containing malignant cells, or positive peritoneal washings
Stage IB-0	Growth limited to both fallopian tubes with no extension into the lamina propria
Stage IB-1	Growth limited to both fallopian tubes with extension into the lamina propria, but no extension into the muscularis
Stage IB-2	Growth limited to both fallopian tubes with extension into the muscularis
Stage IC	Tumour either Stage IA or IB, but with extension through or onto tubal serosa, with ascites containing malignant cells or with positive peritoneal washings
Stage I(F)	Tumour limited to fimbriated end of fallopian tube(s) without invasion of tubal wall
Stage II	Tumour involving one or both fallopian tubes with pelvic extension.
Stage IIA	Extension and/or metastasis to the uterus and/or ovaries.
Stage IIB	Extension to other pelvic tissues.
Stage IIC	Tumour either Stage IIA or IIB with ascites containing malignant cells or with positive peritoneal washings
Stage III	Tumour involving one or both fallopian tubes with peritoneal implants outside the pelvis, including superficial liver metastasis, and/or positive retroperitoneal or inguinal nodes; tumour limited to the pelvis except for histologically proven extension to the small bowel or omentum.
Stage IIIA	Tumour grossly limited to the pelvis with negative nodes but with histologically confirmed microscopic seeding of abdominal peritoneal surfaces.
Stage IIIB	Tumour involving one or both fallopian tubes with grossly visible histologically confirmed implants of abdominal peritoneal surfaces, none exceeding 2 cm in diameter; lymph node findings negative.
Stage IIIC	Abdominal implants larger than 2 cm in diameter and/or positive retroperitoneal or inguinal nodes.
Stage IV	Growth involving one or both fallopian tubes with distant metastases, including parenchymal liver metastases; if pleural effusion is present, fluid must be positive cytologically for malignant cells.

whole abdominal radiotherapy is effective in patients with Stage II or III primary fallopian tube carcinoma with no more than 1 cm of postsurgical residual tumour [7, 12].

Due to the high rate of upper abdominal and extraperitoneal relapses in radiation therapy, with the introduction of new cytostatic agents such as cisplatin, some authors favour postoperative chemotherapy, as in ovarian cancer. The role of chemotherapy is limited to advanced stage disease or recurrent tumour [13]. Various chemotherapy cycles are recommended including cyclophosphamide, doxorubicin and cisplatin [14]; cyclophosphamide and cisplatin [14]; paclitaxel and cisplatin [15]; topotecan [16] alone (used for first-line chemotherapy and can be used for recurrent disease). Although there is a trend towards adjuvant and palliative cytostatic chemotherapy in the recent literature, there is no proof of a significant benefit from these regimens [17-19]. In addition, the benefit of adjuvant therapy for early stage disease has not been defined. This might be most likely due to the rarity of the condition, limited number of cases in published studies, variations in staging procedures, the wide range of different cytotoxic agents used, their combination and doses without controlled clinical trials, their retrospective nature and because most series are compiled over long periods during which treatment fashions have changed. We used radiotherapy as adjuvant treatment in the presented case because it was an early-stage cancer with a suspicion of microscopic residual disease, because of the high grade of the tumour, and because of decreased creatinine clearance, considering its limited performance. Although chemotherapy or radiotherapy after surgery depends on individual preferences, it is very difficult to say that radiotherapy is a very effective adjuvant treatment modality for patients with primary fallopian tube carcinoma. There is also no consensus about irradiation fields, fractionation, radiation sources and doses. Although the majority of relapses have occurred in the upper abdomen and have been in advanced stage, and although the presented case has been disease-free over three years with no apparent problems, it seems reasonable to consider adjuvant chemotherapy in early-stage disease. Additional investigations are indicated to determine the optimal subset of patients who might benefit from such treatment.

Compared with ovarian carcinoma, fallopian tube cancer more often presents in early stage but seems to have a worse prognosis, stage for stage. The overall 5-year survival rate is 30-50% [12]. Survival probability at five years is 62% for fallopian tube cancer patients with Stage I disease; however, this is significantly worse compared to patients with other types of Stage I gynecological cancer. A residual tumour mass < 2 cm in size also has a positive independent impact on survival. In contrast to the influence of ascites in the presence of ovarian cancer, ascites have not negatively influenced the survival of patients with cancer of the fallopian tube [7, 12]. Stage and grade have been confirmed as prognostic factors. The usefulness of adjuvant treatment, either chemotherapy or radiotherapy, remains to be proven.

In conclusion, clinical suspicion of fallopian cancer is an important first condition and should result in a more aggressive investigation of even atypical symptoms. The primary treatment remains surgical resection followed by adjuvant chemotherapy or radiation. Appropriate therapy for each stage of disease should be defined and new studies are needed to better delineate the clinical course and prognostic factors.

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