Synchronous fallopian tube and breast cancers: case report and literature review

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Summary

A case of fallopian tube cancer was intraoperatively diagnosed in a patient submitted to laparoscopic hysterectomy and bilateral salpingo-oophorectomy because of an ultrasound diagnosis of a probable endometriotic cyst of the right ovary. Postoperatively a complete staging was performed and a synchronous carcinoma of the breast was diagnosed. Consequently the patient completed laparotomic debulking and a left mastectomy.

A case of a premenopausal woman with fallopian tube cancer and synchronous breast cancer is reported together with a review of the most recent literature.

Key words: Synchronous cancers; Breast cancer; Fallopian tube cancer.

Introduction

Fallopian tube cancer is a statistically extremely rare neoplasia, accounting for only 0.2-0.5% of all the malignant neoplasias of the female genital tract with a prevalence equal to 2.9-3.6 cases per million women/year. The tumor may appear at any age, even if two-thirds of the cases have been described in postmenopausal women, and the higher incidence has been observed in women 50-60 years old.

In the literature starting from 1968, metastasis of breast cancer to the fallopian tube [1] or viceversa, fallopian tube cancer metastic to breast cancer [2], has rarely been reported. More frequently, the association between fallopian tube cancer and a second primary metachronous breast cancer has been reported. Referring to 27 patients affected by a carcinoma of the fallopian tube treated from 1971 to 1985, Maggi [3] reported seven cases of second primary genital cancer: in two patients breast carcinoma had been previously diagnosed. A case of second primary metachronous bilateral adenocarcinoma of the fallopian tube in a woman with invasive ductal carcinoma of the breast in her antecedents was reported in 1984 by Decorsiere [4]. Sonnendecker reported the first case of primary fallopian tube adenocarcinoma in situ in a patient receiving tamoxifen adjuvant therapy for breast carcinoma [5]. One more case of second primary metachronous fallopian tube carcinoma in a tamoxifen-treated woman for breast cancer it has been reported by Seound *et al.* in a retrospective study [6].

Multiple primary synchronous neoplasms have previously been reported by many authors; in particular, the associations more frequently reported are between lung and breast cancer [7], endometrial and breast cancer [8], ovarian and breast cancer [9, 10], and ovarian and endometrial cancer [11]. However, in the more recent literature we have not found any reports on the association between synchronous primary breast and fallopian tube cancer.

An interesting consideration is the recent evidence that a substantial fraction of fallopian tube cancer patients may present a genetic predisposition depending on inherited mutations in BRCA1 and /or BRCA2 [12, 13]. Since 1997, two cases of fallopian tube cancer in BRCA2 families have been reported by Schubert [14]; in addition, Tong [15] reported the first case of primary tubal carcinoma associated with a germline BRCA1 mutation, and this finding was also confirmed by Zweemer [16]. More recently, many authors have stressed that the occurrence of fallopian tube carcinoma should alert the gynecologist-oncologist of the possibility of a genetic mutation in BRCA1 or BRCA2, thus determining an abnormal susceptibility to breast, ovarian or peritoneal cancer. This observation may also have an important implication regarding surgical prophylaxis in these high-risk women. [17, 18].

Case report

In October 2001, P.P., a 46-year-old white woman was admitted to our Gynecologic Department due to bilateral ovarian cysts and dysmenorrhea previously diagnosed. Her antecedents were negative and no case of malignant neoplasms in her family were referred by the patient. Following our routine preoperative work-up, the patient underwent a transvaginal ultrasound examination: a normal uterus, a probable endometriotic cyst in the

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right ovary, and a doubtful cyst in the left ovary were diagnosed. Following the Ferrazzi ultrasound scoring system [19], a score value equal to seven (positive if more than 8) has been attributed to a left ovarian cyst because of a thin capsule, hypoechogenic aspect and the absence of septa or vegetation. Laboratory exams were negative except for the positive CA125 value that was equal to 219 KU/L.

Considering the presence of bilateral ovarian cysts, the secondary dysmenorrhea and the age of the patient, a laparoscopic hysterectomy associated with bilateral salpingo-ophorectomy was proposed.

At the abdomen inspection, both the adnexa appeared adherent to the posterior wall of the uterus; in particular, removing the adhesion between the left adnexa, the uterus and the sigmoid bowel, spillage of cerebroid material was determined. Considering the macroscopic aspect, an intraoperative pathological examination of the left adnexa was requested; in the meantime a laparoscopic hysterectomy and right salpingo-orphorectomy were completed. The pathological intraoperative diagnosis was poorly differentiated carcinoma in the fallopian tube of predominantly papillary type with solid areas, slit-like glandular spaces, necrosis and vascular space invasion.

Considering the diagnosis we decided to stop the intervention and wait for the definitive diagnosis to determine the real origin of the neoplasia. In the postoperative course the patient underwent the following exams: a colonscopy that resulted negative, a CT scan of the abdomen that showed the probable positivity of the lumbo-aortic nodes, and a mammography with fine needle aspiration due to the presence of two probable malignant nodes of the left breast less than 1 cm in diameter. Pathological diagnosis of the fine needle aspiration of the breast was as follows: abundant cancer cells singly or in clusters loosely arranged with nuclear hyperchromasia and eccentric cytoplasm, diagnostic for mammary carcinoma.

Definitive diagnosis of the pathological exam of the left adnexa was: tubal serous papillary adenocarcinoma with necrosis and vascular space invasion deeply infiltrating the tubal wall (Figure 1).

In consideration of the diagnosis of synchronous adenocarcinoma of the fallopian tube and of the left breast we proposed laparotomic debulking to the patient which was performed two weeks after the first laparoscopy and consisted of pelvic and lumboaortic lymphadenectomy, appendectomy, omentectomy, random biopsies and pelvic washing. The definitive pathological diagnosis was metastases of serous papillary adenocarcinoma isolated to 13 out of 31 lumboaortic lymphnodes; the pelvic nodes were negative.

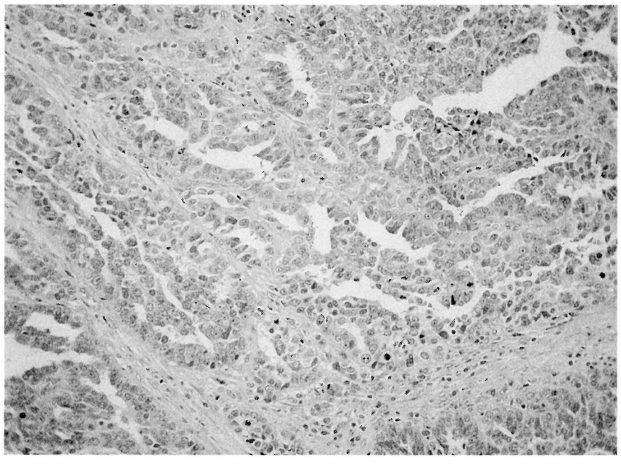

Figure 1. — Left adnexa showing tubal serous papillary adenocarcinoma.

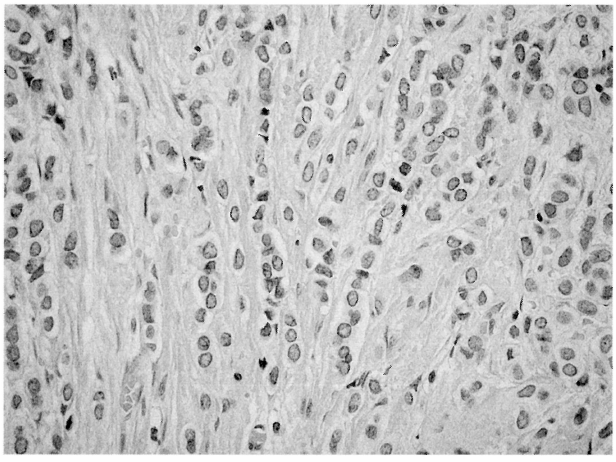

Figure 2. — Left breast showing invasive lobular carcinoma.

Two weeks later the patient underwent a left mastectomy with axillary lymphadenectomy and the pathological diagnosis was multifocal invasive lobular carcinoma associated with in situ lobular neoplasia (> 25%) involving the fascia and deep resection margins, with vascular space invasion and metastases to four out of 23 isolated axillary nodes (Figure 2).

In consideration of the pathological confirmation of synchronous breast and fallopian tube neoplasias with lymphatic metastases, the medical oncologist programmed six cycles of adjuvant chemotherapy starting from December 2001 as follows: Cisplatin 50 mg/m^2, Epirubicin 75 mg/m^2, Cyclophosphamide 600 mg/m^2.

At the end of the fourth cycle of chemotherapy, adjuvant radiotherapy of the breast was also performed. The clinico-radiological restaging was still negative at the ninth month of follow-up.

Conclusions

We believe the case we have presented is the first one of synchronous fallopian tube and breast cancer reported in the recent literature. Fallopian tube carcinoma is an extremely rare neoplasia and in the majority of the cases reported in the literature the correct diagnosis has been performed intraoperatively because of the difficulty to obtain a correct differential diagnosis with other pelvic masses during the preoperative set-up. Moreover in this particular case, the diagnosis of synchronous breast cancer was not possible because of the non-papable diameter of the breast nodes; consequently, only mammography detected the breast cancer when we were looking for the possible origin of the cancer primarily diagnosed in the fallopian tube

These considerations and the particularity of this rare association of two neoplasias may explain the clinical-surgical approach to this patient, thus confirming the necessity to perform an intraoperative pathological examination of doubtful adnexal masses, particularly when performing laparoscopy in a young patient.

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