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Primary Adenocarcinoma of the Fallopian Tube: Report of Two Cases

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Abstract

Primary fallopian tube cancer is the rarest cancer of female genital tract. In fact, it represents less than 1% of all the gynaecological and breast cancers. Adenocarcinoma is the most common histological type. This paper revels two cases of primary fallopian tube adenocarcinoma. They are diagnosed in pathology department. There are two patients to 53 years and 62 years respectively, with no significant personal or family history. They are consulted for chronic pelvic pain with pelvic mass. The clinical assessment revealed an abdomino-pelvic mass of hard consistency. We review the epidemiological, clinical, anatomo-pathological, therapeutic and prognosis specificities of this tumor. This cancer occurs in patients in their sixties, in a context of infertility, pauci-parity, chronic tubal infection or a genetic predisposition. The pelvic pain and the perception of a pelvic mass are the most frequent clinical manifestations. Paraclinical examinations (pelvic ultrasound, CT, MRI and serum markers) are not specific and diagnosis is often made peroperatively or postoperatively by anatomo-pathological examination. In fact, the tubal carcinoma is often confused with his ovarian counterpart which have several similarities. The prognosis is relatively dark, but still better than ovarian carcinoma. It mainly depends on the stage of disease and quality of surgical resection.

Keywords: Tumour; Primary fallopian tube; Vaginal bleeding; Ovarian cancer

Introduction

A malignant epithelial tumour of the tubal mucosa has usually a glandular differentiation. In order to be considered a primary carcinoma of the fallopian tube, the tumour must be located macroscopically within the tube or its fimbriated end, and the uterus and ovary must either not contain carcinoma (oms). Primary fallopian tube carcinomas are rare, amounting to 0.3-1.1% of gynaecological malignancies [1,2]. The risk factors appear similar to those of epithelial ovarian cancer. Serous adenocarcinoma is the most frequent tumour of the fallopian tube (>90%) [3-7]. Primary fallopian tube carcinoma as first described by Reynaud [4]. It is associated with chronic tubal inflammation, infertility, tuberculous salpingitis and tubal endometriosis [5]. The typical presenting symptoms include abdominal pelvic pain or symptoms of pressure and vaginal bleeding [6]. Primary fallopian tube carcinoma is often mistaken for benign pelvic disease or ovarian cancer. Compared with ovarian carcinoma, it more often presents at early stages, but it has a worse prognosis. This tumor is usually managed in the same manner as ovarian cancer [7]. We report in this study two cases of primary fallopian tube adenocarcinoma diagnosed in pathology department of the University Hospital Center Hassan II in Fez.

Cases Reports

Case 1

53-year-old woman, with no significant personal or family history. She consulted for pelvic mass. The clinical assessment of the patient revealed an abdomino-pelvic mass. On ultrasound of the abdomen and pelvis, the mass appeared tissue and cystic component, measuring 170/150 mm. Abdomino- pelvic CT scan showed mass with cystic component (Figure 1). An exploratory laparotomy showed a tumor of the left adnexa. A adnexectomy was done and sent to frozen section for histology (Figure 2). The result showed a fallopian tube adenocarcinoma. A total hysterectomy with controlateral adnexalectomy, omentectomy and staging was performed. The pathological diagnosis showed a papillary proliferation infiltrating fallopian tube with moderate atypical cells with a mitotic index at 20 mitoses/10 HPF. They were peritoneal nodules >2 cm, adnexa controlateral, uterine corpus and cervix were histologically normal. The final diagnosis was primary fallopian tube serous carcinoma stage pT3c of FIGO. Then patient addressed to oncology department for adjuvant chemotherapy.

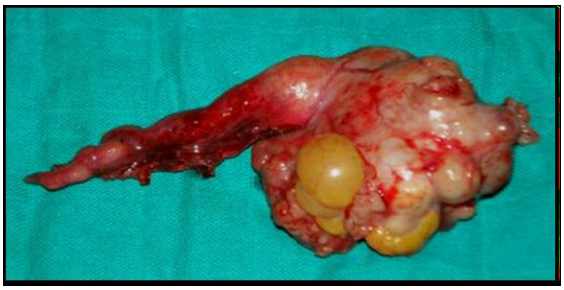

Figure 1: Macroscopic appearance of the adnexal mass depends on the fallopian tube.

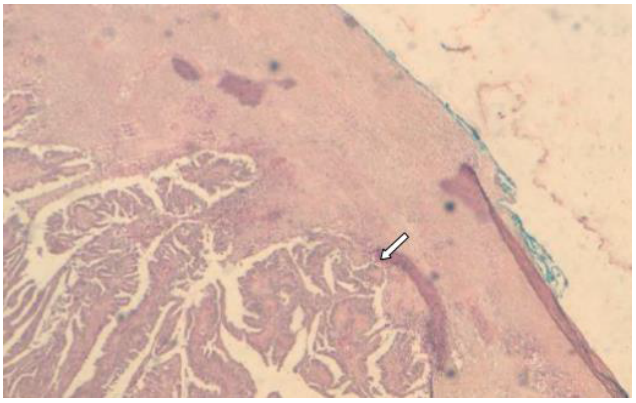

Figure 2: Histological section of a papillary tumor infiltrating the tube wall and arriving until the serous (Arrow) (HES X 5).

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Case 2

62-year-old woman, with no significant personal or family history. She consulted for chronic pelvic pain with pelvic mass. The clinical assessment of the patient revealed an abdomino-pelvic mass of hard consistency, measuring 15 cm, not mobilized from the uterus. On ultrasound of the abdomen and pelvis, the mass appeared tissue and vascular on color Doppler, measuring 180/150 mm. Abdomino- pelvic CT scan showed a left latero-uterine tissue mass with necrosis, slightly enhanced by injection of contrast (Figure 3). They were peritoneal nodules with an over density of mesenteric fat. An exploratory laparotomy showed a solid vegetating tumor of the left fallopian tube. Both ovaries and the contralateral fallopian tube were free of any gross lesions. A salpingectomy was done and sent to frozen section for histology. The result showed a poorly differentiated and invasive malignant carcinoma. A total hysterectomy with bilateral adnexalectomy, omentectomy and staging was performed. The pathological diagnosis showed a solid malignant proliferation with necrosis. It composed of poorly differentiated cells in sheets with small papillary clusters. Cells have atypical nuclei with a mitotic index at 24 mitoses/10 HPF. They were peritoneal nodules >2 cm, left ovarium, right adnexa, and uterine corpus and cervix were histologically normal. The final diagnosis was primary fallopian tube serous carcinoma stage pT3c of FIGO. Then patient addressed to oncology department for adjuvant chemotherapy (Figure 4).

Discussion

Primary fallopian tube cancer is the rarest gynaecological cancers that accounts less than 1% for most authors (0.14-1.8%) [8]. A study published in 2007 involving 3051 cases reported from the cancer registry in the USA between 1998 and 2003, reported an incidence of 4.1 per million women per year [9]. In Finland the incidence is 5.4 per million between 1993 and 1997 [10]. The true incidence is certainly underestimated. Indeed, the diagnosis can be made wrongly as ovarian cancer, it is during the initial surgery or during the examination and pathology [9,10]. Primary fallopian tube cancer is associated with chronic tubal inflammation, infertility, tuberculous salpingitis and tubal endometriosis [5], it is particularly common in familial forms of breast/ovarian cancer, especially in women with constitutional mutation BRCA 1-2 [11].

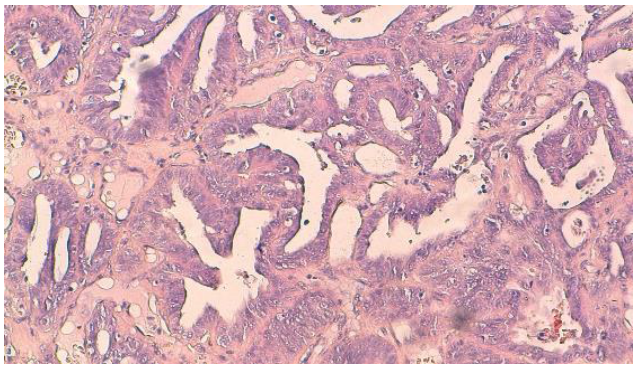

Figure 3: Histological section of a papillary serous adenocarcinoma of the fallopian tube (HES X 20).

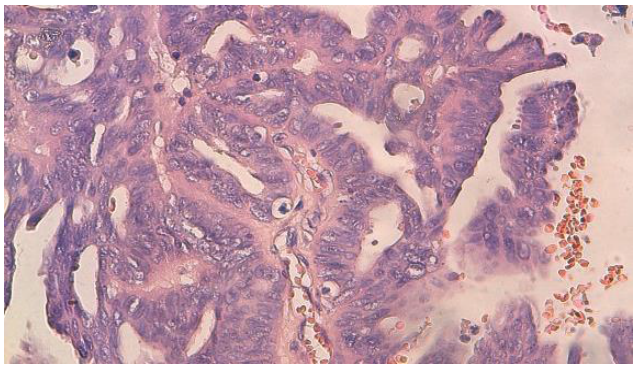

Figure 4: Histological section showing the presence of strong atypia in tumor cells (HES X 40).

The fallopian tube cancer usually occurs between 40 and 60 years with an average age between 52 years and 62.5 [8]. Exceptional cases have been reported during adolescence. The most documented being described by Gatto et al. about a 16 year old patient [8]. The age of our patients was 53 and 62 years, which are near to the literature data.

Abdominal pain, vaginal bleeding or discharge and palpable pelvic mass are the most common symptoms and signs in fallopian tube cancer [8]. A specific preoperative diagnosis of primary fallopian tube cancer (PFTC) is extremely difficult, and the usual clinical diagnosis is an ovarian neoplasm or pelvic inflammatory disease.

Usually imaging carried out for suspected gynecologic malignancies includes ultrasound, computed tomography (CT) scan and magnetic resonance imaging (MRI) of the abdomen. Transvaginal and transabdominal ultrasound is an important imaging technique in everyday practice for the evaluation of patients with a possible malignancy [12]. Different ultrasound findings that may indicate the presence of PFTC, but which also mimic other pelvic pathologies such as tubo-ovarian abscess, ovarian tumour and ectopic pregnancy. Threedimensional ultrasonography improves the pre-operative diagnosis via multiple findings such as tubal wall irregularities (papillary protrusions), pseudosepta and vascular abnormalities.

The lesion can have the appearance of a small, solid, lobulated mass on CT scan or on MRI. On CT scan, the lesion has attenuation equal to that of other soft tissue masses and enhances less than the myometrium. On T1-weighted MR images, the tumor is usually hypointense; on T2-weighted MR images the tumor is often homogeneously hyperintense. Imaging can most often detect solid and cystic components with papillary projections, which on MRI can be remarkably enhanced by the administration of gadolinium. MRI seems to be better than CT scan or ultrasound in detecting tumor infiltration of the bladder, vagina, pelvic sidewalls, pelvic fat, and rectum [13].

On macroscopic examination, the tube shows abnormal dilatation or nodular thickening resembling a hydrosalpinx or haematosalpinx and contains a dominant localized tumour mass. When found in the proximal part of the tube, the tumour may protrude through the fimbriated end. On the sectioned surface the adenocarcinoma usually consists of soft, grey-brown, villous or polypoid tissue. The tumour spread is very similar to that of ovarian carcinoma and involves adjacent organs, the peritoneum and region- al lymph nodes. Involvement of the adjacent ovary may make it difficult to determine whether the tumour is primary in the tube or ovary. When the origin remains unclear, the tumour is classified as tubo-ovarian carcinoma [1]. Sedlis [12] reported the following criteria for distinguishing PFTC from other gynaecological malignancies: (1) the main tumour arises from the endosalpinx; (2) the histological pattern reproduces the epithelium of tubal mucosa; (3) transition from benign to malignant tubal epithelium is demonstrable; and (4) the ovaries or endometrium are either normal or contain a tumour that is smaller than the tumour in the tube.

Histological Type	%
Serous	45-90
Endometrioid	8-50
Mixed	4-20
Undifferentiated	7-12
Clear cell	1.9
Transitional	12
Mucinous	3-8

Table 1: Frequency of different histological subtypes of primary fallopian tube carcinoma.

All carcinoma subtypes documented in the ovaries have been identified in the fallopian tube. Serous carcinoma is the most common cellular subtype. In one series of 151 cases, 80% of the tumours were serous [14]. It has papillary, solid, glandular and micropapillary architectural. High grade forms are characterized by very atypical nuclei (multinucleated cells), with a mitotic index over than 12 mitoses/10 HPF. Fallopian tube serous carcinomas high grade as well as ovarian ones, overexpress p53 (intense and diffuse nuclear staining in more than 75% of the cells) [1,8,15]. The second histological type of fallopian tube is endometrioid carcinoma, accounting for 12-25% of cases, the histological appearance is identical to ovarian endometrioid carcinoma with cribriform or solid areas, and areas of squamous or mucinous metaplasia [1]. The other histological types, clear cell, mucinous, transitional and undifferentiated carcinoma are also described in the fallopian tube [16] (Table 1).

Serous tubal intraepithelial carcinoma (STIC) is characterized by replacement of the tubal epithelium by malignant glandular epithelial cells with pleomorphic nuclei, florid epithelial proliferation, sometimes even with a cribriform or sieve-like pattern, may occur in association with salpingitis and should not be mistaken for carcinoma in situ [1,16,17]. Tubal intraepithelial carcinoma overexpress p53 and KI67. Based on the study of prophylactic annexectomies in patients with mutation of the BRCA genes, the Boston team found carcinogenesis sequence describing the precursor lesions infra-histological of serous fallopian tube carcinomas preceding the STIC. In this sequence, the STIC is preceded by a step called "signature p53" where the histology of the fallopian tube is normal, but immunostaining with anti-p53 antibody reveals a succession of more than 12 cells consecutive overexpressing p53 and a MiB1 index of 0%-30% [15,17].

Surgery is the most appropriate treatment for cancer of the fallopian tube. The surgical principles are the same as those of ovarian cancer. The cytoreductive surgery taking as much as possible of the tumor is warranted in patients with advanced disease. Because of the rarity of this cancer, there is no consensus on treatment. Some groups recommend to complement the surgery with pelvic radiotherapy, while others argue that a combination with chemotherapy, improves short-term survival [14,16].

In most previous studies, primary fallopian tube carcinoma has been graded subjectively rather than according to the more objective Silverberg criteria. Rosen et al. found no correlation between tumour grade and patient outcome, but Hellstrom et al. reported a marginally significant correlation [12]. The survival rates of patients with PFTC are reported to be poor, and worse than those of patients with equivalent stages of epithelial ovarian carcinoma or other early-stage of gynaecological malignancies [12,18].

Conclusion

Primary fallopian tube cancer is rare, of unknown etiology and sometimes mistaken for ovarian tumor. The clinical signs are no specific. The diagnosis is done preoperatively with frozen section examination or on histology. Because of its histopathological similarities with ovarian cancer, its treatment is similar.

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