Case report
Metaplastic Papillary Tumour of fallopian tube : A Case Report

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ABSTRACT: Metaplastic papillary tumour of fallopian tube (MPT) is an extremely rare condition having features making it difficult to categorize as metaplastic proliferative lesion or true neoplasm. Here we report the case of a 23 year old multipara female diagnosed as MPT after being operated for ectopic pregnancy. Microscopically it showed papillary configuration, epithelium consisting of non-ciliated plump columnar cells with abundant eosinophilic cytoplasm, atypical nuclei and focal budding. Mitotic figures were absent. The true nature of this tumour reactive or neoplastic is uncertain.

Introduction

The metaplastic papillary tumour of the fallopian tube is a rare lesion usually detected incidentally on routine examination of fallopian tube segments removed for sterilization in the immediate postpartum period.

This uncommon entity was first recognized by Saffos and associates [1], who reported four cases. To the best of our knowledge, only 13 cases of MPT have been documented in the literature to date. Only two cases have been reported to be unrelated to pregnancy [2]. Debate exists as to whether this lesion represents a true neoplasm or a metaplastic proliferative lesion.

Due to its rarity and small size these can be diagnostic challenge to pathologists as very little clinically useful information was found concerning this lesion.

CASE REPORT

The patient was a 23 year old woman gravida 4, para 2, admitted with bleeding per vaginum and severe anaemia with ectopic pregnancy of left fallopian tube at gestational age of 6 weeks 5 days, laparotomy with salpingectomy was done which coursed uneventful and without any remarkable findings. The tissue removed was submitted for histopathological examination.

Macroscopically, the tissue was received as multiple grey brown soft tissue pieces measuring 1.5×1.2×0.3cm having no gross abnormalities. Histopathologically, the lesion was composed of small papillary configurations (Fig. 1), the cores of the papillae were thin and consisted of loose fibrovascular tissue. Epithelium was made up of one or two plump columnar, nonciliated cells arranged either as single layer or uniform cells or a pseudostratified layer of cells with nuclei at various levels with eosinophilic cytoplasm. The nuclei of these cells are round to oval. Few areas showed nuclei displaying variable appearance, with either dense or vesicular chromatin and small nucleoli with focal budding. Mitotic figures were absent. The true nature of this tumour reactive or neoplastic is uncertain.

Fig. 1 Metaplastic papillary tumour. The papillary configuration is apparent. (Magnification 4x)
FIG. 2 PAPILLARY CONFIGURATION WITH FIBROVASCULAR CORES, PSEUDOSTRATIFICATION AND NUCLEAR BUDDING. (MAGNIFICATION 10X)

FIG. 3 FLOATING PAPILLARY TUFTS SEEN (MAGNIFICATION 40X)

FIG. 4 ROUND TO OVAL CELLS WITH PLEOMORPHISM AND VESICULAR CHROMATIN SEEN. (MAGNIFICATION 40X)

DISCUSSION

A group led by Saffos and Sculy in the 1980s described an unusual epithelial tumour incidentally discovered in four cases involving tubal ligation after delivery [1]. The morphology detailed in their report describes a papillary stalk lined by atypical oxyphil columnar cells with pseudostratification, budding elements, and focal adenomatous changes involving intramucosal mucin filled vacuoles, nonetheless, lacking invasion or mitotic activity. According to these features, the team coined a description of this singular pathological entity as Metaplastic papillary tumor of Fallopian tube (MPT).

MPT of the fallopian tube is typically recognized in postpartum state at the time of sterilization hence showing a close association with pregnancy. 11 out of the 13 tubal MPT cases were detected in intrauterine pregnancies or the postpartum period. These patients were aged 23-41 years. Of the other two cases, one was a 52 year old patient with hydrosalpinx from a previous tubal pregnancy, and the other was a 51 year old patient diagnosed with endometrial cancer. Three patients had a history of oral contraceptive use prior to MPT diagnosis, and one was taking L-thyroxine at the time of diagnosis. Five patients with tubal MPT had obstetric problems, such as premature rupture of membranes, respiratory and urinary tract infection during the second and the third trimesters, previous tubal pregnancy, subchorionic bleeding, preterm labor, intrauterine growth retardation, and podalic fetal presentation. None of the MPT
case reports involved bilateral fallopian tubes. All reported cases of MPT to date were smaller than 1.0 cm. Some cases including ours reported that MPT cells had enlarged, hyperchromatic, or vesicular nuclei with conspicuous nuclei. Two out of the 13 cases reported have a single mitosis with one having atypical (tripolar mitosis).

No somatic mutations were found in coding sequence of the 409 genes analysed, and no copy number alterations could be detected in the genome of this lesion [10].

The differential diagnoses considered include serous borderline tumour (SBT), serous tubal intraepithelial carcinoma (STIC) or low-grade serous carcinoma, as follows.

Serous borderline tumour of the fallopian tube is an extremely rare lesion, which resembles the ovarian counterpart, showing a hierarchical branching pattern with irregular papillae, branching from large to smaller papillae. The lining epithelium consists of non-stratified and stratified cuboidal to columnar cells. The tumour cells are polygonal or hobnail-like with eosinophilic cytoplasm and moderately enlarged nuclei. Borderline tumours of the ovary, spreading to the tube are more likely than borderline tumours of the tube. These lesions harbour KRAS and BRAF mutations [9,11].

Most serous tubal intraepithelial carcinomas are found in the distal tube, particularly in women with BRCA1 or BRCA2 mutation which confers a high risk of developing this neoplasm. The neoplastic epithelium shows pleomorphic stratified and non-ciliated cells with an increased nuclear-cytoplasmic ratio and loss of polarity; 92% of STIC show TP53 mutations [11].

Low-grade serous carcinoma of the fallopian tube is morphologically identical to its ovarian counterpart and is characterized by glands haphazardly infiltrating the stroma. It is usually associated with serous borderline tumour and harbours KRAS and BRAF mutations in 50–60% of cases [11].

Carrying a good prognosis, Fallopian metaplastic papillary tumours are truly exceptional and remarkable findings in light of their appearance in tubal ligation products and direct relationship to pregnancy. Unfortunately, neither electron microscopy, immunohistochemistry, nor molecular biology have completely unveiled the roots of this condition.

CONCLUSION

The fact that no recurrence or death has occurred due to the tumour in the available follow-up information in the data published and no demonstration of mutations, suggest the metaplastic nature of MPT [2,10]. Hence we emphasise the importance of recognising these tumours as benign and not misdiagnose them as SBT/STIC and low-grade serous carcinoma of fallopian tube and reporting them as such to clinicians in order to prevent drastic surgical resections or overtreatment among patients.

In summary, we report the 14th case of a patient with a metaplastic papillary tumour of Fallopian Tube, and provide brief insight about the topic.

References