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Case report

Metaplastic Papillary Tumour of fallopian tube : A Case Report

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ABSTRACT

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 has 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 6weeks 5days, 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. Mitosis and apoptosis were absent.

Floating papillary tufts were observed. These tufts also contained fibrovascular cores showing small blood vessels and lymphocytic infiltration.

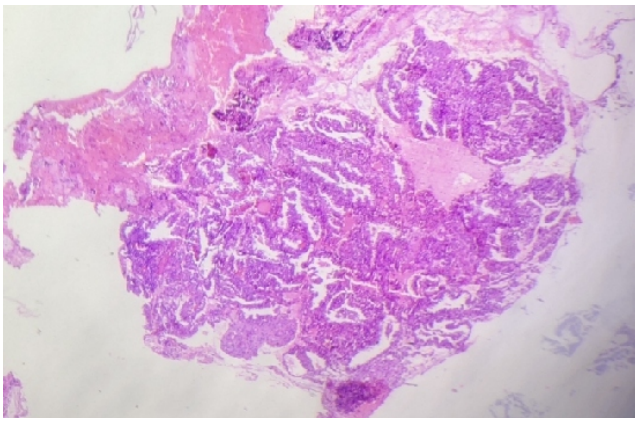

FIG.1 METAPLASTIC PAPILLARY TUMOUR. THE PAPILLARY CONFIGURATION IS APPARENT. (MAGNIFICATION 4X)

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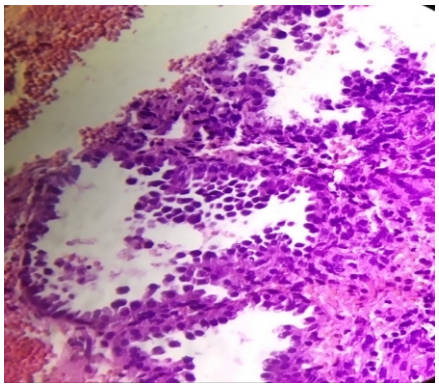

FIG.2 PAPILLARY CONFIGURATION WITH FIBROVASCULAR CORES, PSEUDOSTRATIFICATION AND NUCLEAR BUDDING. (MAGNIFICATION 10X)

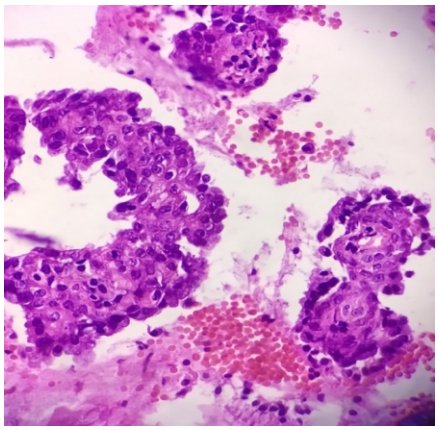

FIG.3 FLOATING PAPILLARY TUFTS SEEN (MAGNIFICATION 40X)

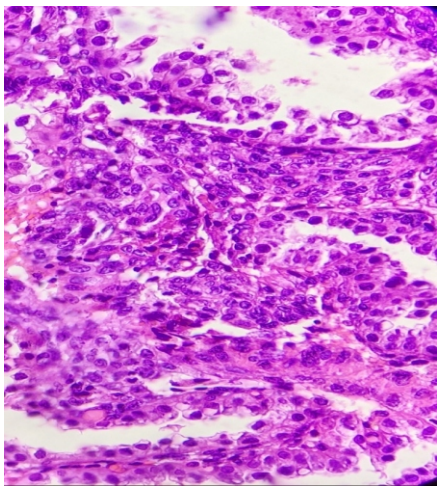

FIG.4 ROUND TO OVAL CELLS WITH PLEOMORPHISM AND VESICULAR CHROMATIN SEEN. (MAGNIFICATION 40X)

Case	Author (reference)	Gross finding	Location and extent	Size (cm)	Architectural feature	Cytological feature	Mitotic count and atypical mitotic figure	Coagulative tumor cell necrosis
1	Starr *et al.* [3]	slight luminal dilatation	Left; confined to the mucosa	NA	Papillary configuration	Misdiagnosed as grade 1 papillary adenocarcinoma	NA, no atypical mitotic figure	NA
2-5	Saffos *et al.* [1]	No gross abnormalities	Confined to the mucosa	NA	Papillary and adenomatous configuration, small cysts deep to the papillae, single or pseudostratified cell layers, epithelial budding	Non-ciliated, columnar cells with abundant, eosinophilic cytoplasm and large pale to vesicular nuclei, prominent nucleoli, some mucin-containing cells, extracellular mucin	1 (1/4), 0 (3/4), no atypical mitotic figure	NA
6	Keeney and Thrasher [4]	No gross abnormalities	Unilateral; confined to the mucosa	NA	Papillary and adenomatous configuration, glandular and papillary proliferation with one to two cell layers	Non-ciliated, columnar cells with abundant acidophilic cytoplasm and large vesicular nuclei, mucin-containing cells	1 (1/4; tripolar mitosis)	NA
7	Bartnik *et al.* [5]	Intraluminal pale yellow, mucoid material	Right; confined to the mucosa	NA	Papillary configuration predominantly single or pseudostratified cell layers	Oxyphilic columnar cells and mucin-containing cells with basal nuclei, extracellular mucin	0	NA
8	Pang [6]	Luminal dilatation	Right	NA	Papillary configuration one to two cell layers, edematous stroma	Non-ciliated, columnar cells with eosinophilic cytoplasm, a few mucin-containing cells, extracellular mucin	NA	NA
9	Solomon *et al.* [7]	No gross abnormalities	Left	0.2	Papillary configuration, single cell layer with occasional pseudo-stratification	Simple columnar cells with abundant eosinophilic cytoplasm, elongated vesicular nuclei, some mucin containing cells, extravasation of mucin	0	NA
10	D'Adda *et al.* [8]	Small nodule on the tubal surface	Left	0.9	Papillary configuration, epithelial budding	Abundant, eosinophilic cytoplasm with slight nuclear pleomorphism	0	NA
11	Salazar *et al.* [9]	Luminal dilatation with caramel-like substances	Unilateral	NA	Branching papillae, epithelial budding and pseudo-stratification	Non-ciliated, columnar cells with plump, eosinophilic cytoplasm, enlarged nuclei with prominent nucleoli, nuclear pseudoinclusion, groove, mucin-containing cells with occasional cyst-like change, extracellular mucin	0	NA
12	Jang *et al.* [2]	Intraluminal exophytic, papillary lesion	Right; confined to the mucosa	0.5	Papillary configuration, single cell layer with pseudo-stratification, floating papillary tuft, myxoid stroma	Non-ciliated, columnar cells with plump, eosinophilic cytoplasm and slight nuclear pleomorphism, pseudoinclusion and groove in few area, extracellular mucin, psammomatous microcalcification, intracytoplasmic basophilic granules, apical cytoplasmic blebs or snouts in occasional	0	Absent
13	Sunitsch *et al* [10]	Exophytic Lesion in lumen	Right	NA	Papillary configuration with loose fibrovascular connective tissue	Non ciliated plump cuboidal cells with eosinophilic cytoplasm. nuclei round to oval,centrally located vesicular chromatin,variable appearance scant extracellular mucin observed	0	NA

NA - NOT APPLICABLE

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 1.0cm . 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 counter-parts 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 case [11] .

Carrying a good prognosis, Fallopian metaplastic papillary tumors 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.

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