Nodular mass in the vaginal dome of a previously hysterectomized woman: A case study

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ABSTRACT

A total hysterectomy is a common surgical procedure consisting in the removal of the cervix and, consequently, the glandular constituent of the epithelium in vaginal smears. Therefore, post-operative women are not expected to have this type of tissue. However, this is not always the case.

This paper is about a 49 year-old woman who had undergone a hysterectomy six years before, and whose control vaginal cytology presented cylindrical ciliated cells with no atypia.

The descriptive cytological result was “presence of cylindrical ciliated cells”, which associated to other clinical data provided, were suggestive of probable tubal prolapse origin. A subsequent anatomical-pathology study confirmed the hypothetical cytological diagnosis.

Key-words: glandular cells post-hysterectomy, ciliated columnar cells, tubal prolapse

INTRODUCTION

A total hysterectomy is a common surgical procedure following the diagnosis of different diseases, namely those affecting the uterus[1]. This suggests that the several epithelial cells of the cervix, namely glandular endometrial, endocervical or isthmic cells, should not be present in the vaginal cytologies of post-hysterectomized patients.

The presence of glandular cells of endocervical origin in the cytological samples of previously-hysterectomized women occurs only in nearly 2% of the cases[2]. The morphology of these cells is similar to that of normal cells, with no criteria of dysplasia or neoplasia. Their presence can have several causes, and they can also be associated with a history of gynaecological neoplasia, to chemotherapy, to radiation therapy as well as to benign repair processes[2,3].

In the present work, we report the presence of cylindrical ciliated cells in a vaginal cytology of a patient who had been submitted to a hysterectomy following a diagnosis of leiomyomatosis and diffuse endometriosis of the uterine corpus.

CLINICAL HISTORY

A 49 year-old woman with two previous pregnancies and normal deliveries, and a history of total hysterectomy with right adnexectomy performed six years before, following a diagnosis of leiomyomatosis and diffuse adenomyosis of the uterine corpus.

In a follow-up appointment with a gynaecologist, the patient reported symptoms of occasional and scarce vaginal bleeding after physical exertion. A subsequent vaginoscopy showed an apparently ulcerated, granular red area in the vaginal dome, granuloma-type. The patient was then submitted to cytology test of the vaginal dome.

CYTOLOGICAL FEATURES

The studied sample was a liquid-based cytology (*ThinPrep*®) stained through the *Papanicolaou* staining method. The sample was considered satisfactory for diagnosis, without representation of the transformation zone. It was possible to observe a moderately cellular component, with an inflammatory background of polymorphonuclear neutrophils and blood (**Fig.1** and **Fig.2**)**,** as well as mature squamous cells. Scarce columnar cells were also observed; they were isolated, monomorphic, had small euchromatic basal nuclei and elongated cytoplasm with cilia in the apical pole (**Fig.3**, **Fig.4** and **Fig.5**).

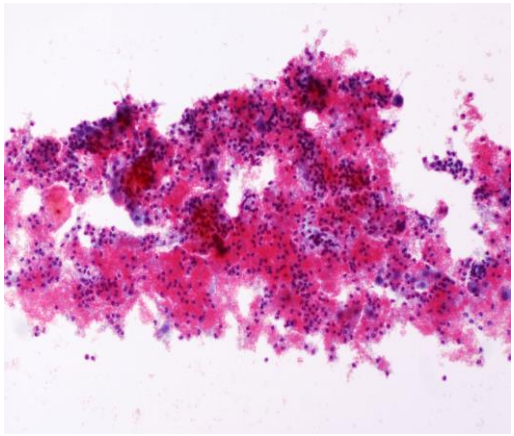

Fig.1 – Inflammatory and hematic background with polymorphonuclear neutrophils. *ThinPrep*®, *Papanicolaou* stain (100x).

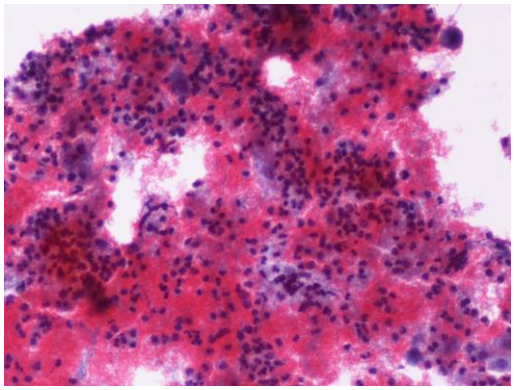

Fig.2 – Detailed representation of the inflammatory and hematic background with polymorphonuclear neutrophils. *ThinPrep*®, *Papanicolaou* stain (600x).

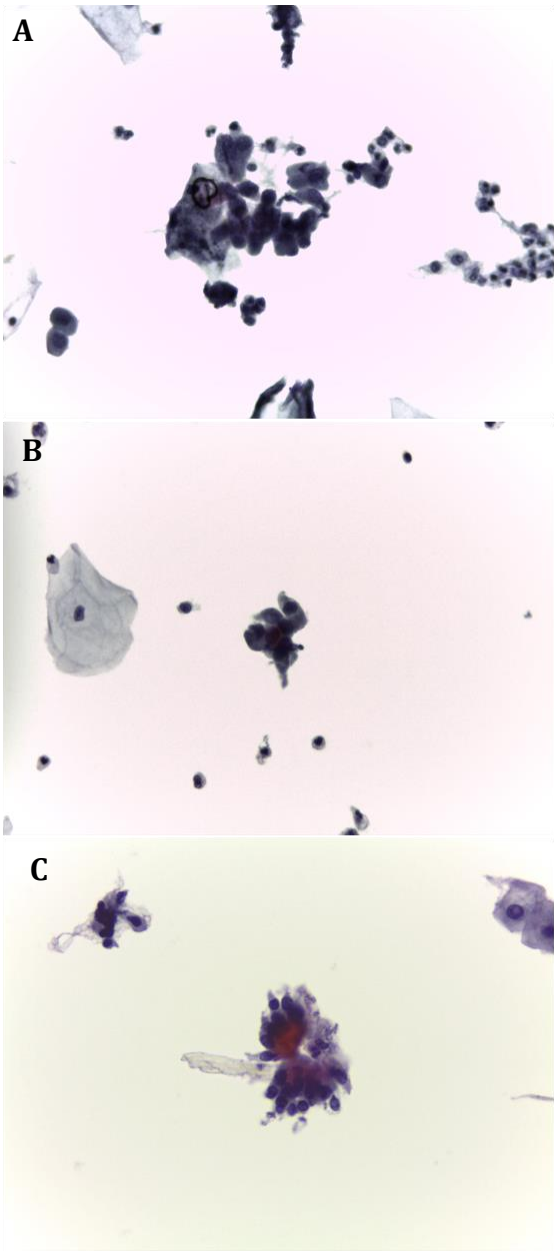

Fig.3 – (**A**) Three-dimensional clusters of cells with slightly inflammatory background (400x); (**B**) Ciliated columnar cells (400x); (**C**) Three-dimensional clusters of ciliated columnar cells (600x). *ThinPrep*®, *Papanicolaou* stain.

The cytological report had a note referring the presence of cylindrical and ciliated glandular cells (in a post-hysterectomy scenario). The fact that the patient still had her left adnexa, associated with the nodular bulging of the vaginal dome mucosa and no reference to any other loco-regional condition led to the assumption that the symptoms could be caused by an eventual Fallopian tubal prolapse. The hypothesis needed to be considered in association with the patient's clinical and vaginoscopy data, and confirmation through histology could be necessary.

After that, the patient went through a surgical excision of the nodular mass through the vagina.

MACROSCOPIC FEATURES AND MICROSCOPIC DIAGNOSIS OF THE SURGICAL SPECIMEN

Macroscopically, the surgical specimen consisted of three elongated tissue fragments with a granular surface and blood clots. The whole specimen was then embedded in paraffin to perform the histopathological study (**Fig.4**).

Fig.4 – Image of the two paraffin blocks with the embedded specimen. On the right, it is possible to observe a representation of the Fallopian tube; on the left, there is a part of the same tube with an ulcerated area and a fragment of the vaginal wall.

The histology confirmed the presence of the Fallopian tube in association of and ulcerated granulation tissue. The congested luminal shreds of the tube exhibited a lining mucous epithelia in a single layer, with ciliated and non-ciliated columnar cells featuring euchromatic nuclei, endorsing the diagnosis of tubal prolapse (**Fig.5A** and **Fig.5B**).

No ovarian structures were observed in the surgical specimen.

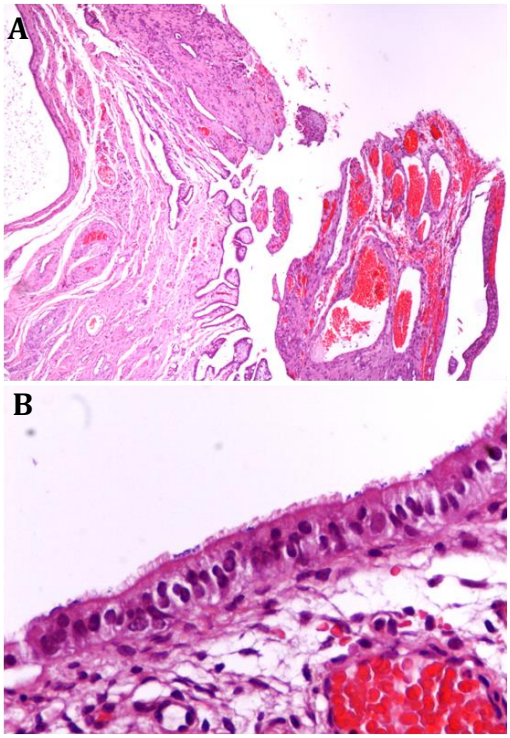

Fig.5 - (**A**) Histological representation of the tube wall associated with the presence of ulcerated granulation tissue (40x); (**B**) Histological representation of a typical tubal lining epithelia with alternation between ciliated and non-ciliated cylindrical cells with euchromatic nuclei (400x). Haematoxylin-eosin stain.

DISCUSSION

This paper narrated the case of a previously hysterectomized 49 year-old woman whose control vaginoscopy (performed after reported scarce vaginal bleeding) showed an area which was interpreted as “granuloma of the vaginal dome”. The cytological study revealed the presence of cylindrical ciliated cells with unapparent nuclear atypia, as well as non-ciliated columnar cells in a patently inflammatory background. These cytological findings, particularly the presence of cylindrical ciliated cells, typical of a tube tissue, in association to the fact that the patient kept one of her adnexa, led to a cytological diagnosis of a likely Fallopian tube prolapse.

A subsequent anatomical-pathological study of the surgical specimen confirmed such diagnosis.

Hysterectomy is one of the most frequent gynaecological procedures performed in the world. However, it can also be associated with potential pre- and post-operative complications[1]. The most common hysterectomy-related complications are lesions of the bladder and urinary tract, vaginal infections and hematomas of the vaginal dome. The first two are less common in laparoscopic hysterectomies[4].

The vaginal Fallopian tube prolapse is a rare post-operative complication[1]. *Silverberg et al*. were the first to describe its microscopic morphological, cytological and anatomical-pathological characteristics in 1974. Potential risk factors for Fallopian tube prolapse are vaginal infection, post-operative local bleeding, inadequate or aggressive surgical techniques, a bad physical status of the patient, the fact that the peritoneum was open during surgery and vaginal drains[4]. It can also result from a surgical defect of the vaginal dome[5]. In all cases, a communication between the peritoneal cavity and the vagina will be established, which might result in a Fallopian tube prolapse[4,5].

The time of occurrence of such complication varies greatly (between 15 days and 28 years after surgery), with most cases occurring in the first 6 months[2,5]. The symptoms of a Fallopian tube prolapse are uncharacteristic, consisting in a small pelvic or abdominal pain, leucorrhoea, vaginal bleeding and dyspareunia[3].

The diagnosis is rarely made before the anatomical-pathological study, since the gynaecologist usually observes a “granulation tissue” in the vaginal dome through the vaginoscopy. A cytology of the vaginal dome might contribute to raise a suspicion of this complication, as it happened in this case. The cytological findings might correspond; besides to the inflammatory background typical of an ulcerated area, there are also isolated cells or oligocellular clusters of small epithelial cells

with basal, monomorphic, occasionally hyperchromatic nuclei and "striated aplical plate", typical of cilia. Non-ciliated columnar cells might also be present. Some authors consider such association, both ciliated and non-ciliated columnar cells, in an adequate context (previous hysterectomy with preservation of one or both adnexa), a decisive factor for the diagnosis of this condition[5].

In its last edition, Bethesda established some criteria to consider certain cells as "post-hysterectomy glandular cells". The criteria refer specifically to glandular cells of endocervical, endometrial and cuboid type. It also added that only "atypical" cells have clinical significance, and that their mention in the cytological report is optional, since it would not change treatment[2]. In the present case-report, the patient's symptoms seemed to cease after surgery as a consequence of the cytological proposal. Thus, we think it is important to always refer unexpected cytological findings in the report, even when they are not atypical, in order to allow their clinical contextualization.

Concerning to the observed glandular cells post-hysterectomy, most of them is of endocervical type (60%), followed by goblet cells (38%) and ciliated cells (2%)[6].

Glandular cells post-hysterectomy can have benign or malignant features. **Table 1** indicates the lesions where such features are more relevant[6].

Table 1. Lesions associated with the presence of glandular cells post-hysterectomy

Benign	Malignant
Rectovaginal fistulae	Relapse of cervical-endometrial adenocarcinoma
Endometriosis	Metastasis of adenocarcinoma (colorectal, bladder)
Metaplasia of cylindrical cells of the vaginal mucosa	
Fallopian tube prolapse	

Rectovaginal fistulae are common after severe trauma of these organs and after surgeries or radiation therapy for cervical or rectal cancer; as a consequence of some chronic inflammatory lesions or eventual malignant neoplastic lesion involving an adjacent organ (bladder, rectum). In these cases, the cytological findings and the clinical history are sufficient to make a diagnosis[7].

The ciliated cell metaplasia of the vaginal mucosa with mucinous epithelium, with or without goblet cells, is very rare. It can occur after a severe atrophy of the mucosa as a protective/adaptive metaplastic phenomenon, or as consequence of radiation and chemotherapy. It should be noted that the differential diagnosis between metaplastic changes and those induced by radiation therapy is challenging[7,8].

In the case of glandular cells with malignant neoplastic features, the clinical history of previous tumours is relevant. Thus, face to a previous diagnosis of colorectal adenocarcinoma, less frequently bladder cancer or cancer in other organs, this possibility should always be considered[6]. The use of remnants of cytological material of *ThinPrep*® might be useful to assess cytokeratin 20 and CDX2. If the neoplasia corresponds to an endometrial adenocarcinoma, the use of anti-vimentin and anti-oestrogen receptor antibodies is appropriate.

Treatment for tube prolapse should be directed to each patient, comprising essentially surgery, through a total salpingectomy (or adnexectomy) via vagina or the abdomen[5,6].

CONCLUSION

In this paper, we presented a case of Fallopian tube prolapse, a diagnosis suggested by the results of a vaginal cytology and confirmed through histology. When making a diagnosis, it is essential to consider every

possibility, trying, whenever possible, to correlate all of the patient's clinical data, in order to exclude malignant conditions. This is especially important if the patient has a history of malignant gynaecological neoplasia. Opinions tend to differ regarding the usefulness of cytology in the follow-up of patients submitted to hysterectomy following a diagnosis of benign neoplastic or non-neoplastic condition; however, in this case, it proved very useful.

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