

Endometriosis in Peritoneal Washings – A Potential Diagnostic Pitfall in a Patient with Known Endometrial Adenocarcinoma

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Received date: Feb 03, 2016; Accepted date: Feb 15, 2016; Published date: Feb 17, 2016

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Abstract

Endometriosis is characterized by the presence of ectopic endometrial tissue outside the uterus, and is an uncommon benign finding in peritoneal washing cytology. Diagnosis of this process is challenging, especially in the context of a known endometrial malignancy, where the presence or absence of peritoneal involvement is believed to have prognostic implications. In such cases, it is important to accurately distinguish between endometriosis and well-differentiated metastatic malignancy.

We discuss the case of a 68-year old woman who underwent staging surgery, including peritoneal washing cytology, for biopsy-proven endometrioid adenocarcinoma of the endometrium. Peritoneal washing cytology showed hallmark features of endometriosis, namely occasional ball-like clusters lined by columnar cells and containing central endometrial stroma-like cells, on a background of blood and haemosiderophages. Positive CD10 immunocytochemistry confirmed the presence of endometrial stroma. These findings, when taken together with cytological features and lack of significant cytologic atypia, further supported a diagnosis of endometriosis. Review of histopathology slides from the THBSO specimen confirmed the presence of ovarian and cervical endometriosis.

In conclusion, distinguishing between endometriosis and endometrial adenocarcinoma in peritoneal washing cytology requires a combination of identification of salient cytological features and correlation with clinical information and histopathological findings.

Keywords: Endometriosis; Peritoneal washings; Cytopathology; Cytology

Case Report

A 68-year old woman presented with post-menopausal bleeding and lower abdominal discomfort. Her past medical history was significant for previous lumbar surgery and right hip replacement. Ultrasound and magnetic resonance imaging (MRI) studies revealed a heterogeneous uterine mass with possible deep myometrial invasion. An endometrial biopsy yielded a diagnosis of endometrial adenocarcinoma, endometrioid subtype. She subsequently underwent a total hysterectomy with bilateral salpingo-oophorectomy (THBSO) and pelvic lymph node dissection, together with which 10 ml of peritoneal washing fluid was sent for cytological examination.

DQ and Pap stained smears of peritoneal washings showed a few tight ball-like clusters lined by uniform cuboidal-to-columnar cells and containing central endometrial stroma-like cells (Figure 1), with loose aggregates of haemosiderin-laden macrophages and blood in the background (Figure 2). CD10 immunocytochemistry (Figure 3) showed positive staining in the cell clusters with stromal-like cells, confirming their endometrial stromal nature. No overt atypical or malignant features were seen. The histopathology slides from the THBSO specimen were reviewed, confirming the presence of ovarian and cervical endometriosis (Figure 4). A diagnosis of involvement of peritoneal washings by endometriosis was rendered, with a comment of no evidence of malignancy. The primary endometrial tumour in the

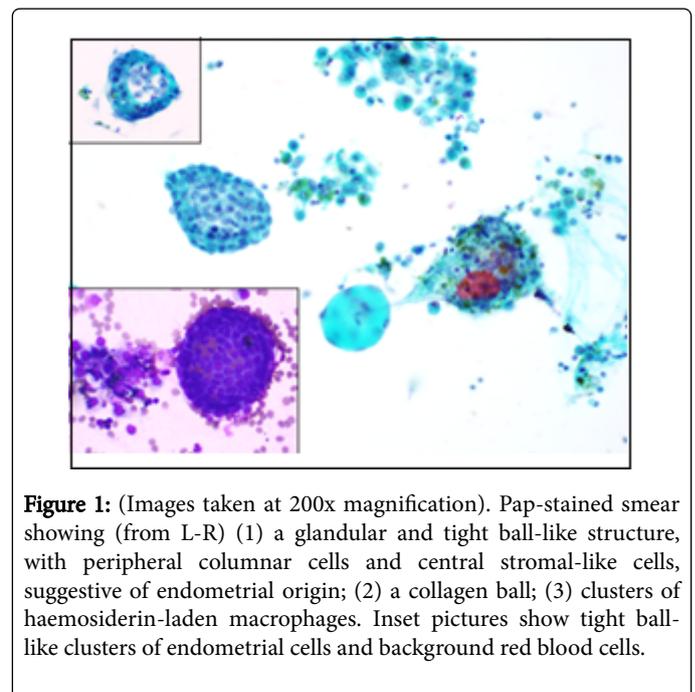


Figure 1: (Images taken at 200x magnification). Pap-stained smear showing (from L-R) (1) a glandular and tight ball-like structure, with peripheral columnar cells and central stromal-like cells, suggestive of endometrial origin; (2) a collagen ball; (3) clusters of haemosiderin-laden macrophages. Inset pictures show tight ball-like clusters of endometrial cells and background red blood cells.

involving less than 50% of myometrium with no cervical stromal invasion.

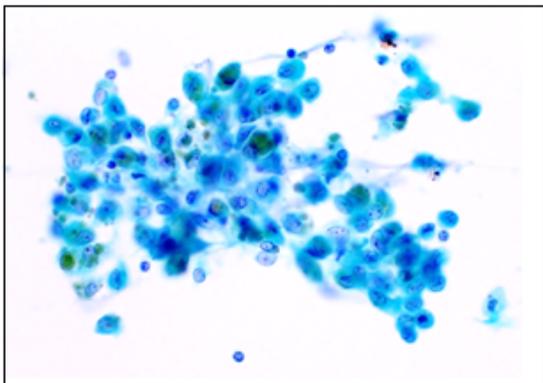


Figure 2: (400X) One of several clusters of haemosiderin-laden macrophages in the peritoneal fluid.

Endometriosis, or the presence of ectopic endometrial glands and stroma outside of the endometrial cavity and myometrium, is present in approximately 10% of women [1]. A few cases of endometriosis in peritoneal washing cytology have been reported in the literature [2,3], with diagnostic cytological features being the presence of haemosiderin-laden macrophages, with or without tight ball-like clusters lined by epithelial cells with a core of stroma-like cells [4-6]. It is estimated that in a third of patients with endometriosis, both these features are present in peritoneal washing cytology; and haemosiderin-laden macrophages alone are present in a further third of patients [7].

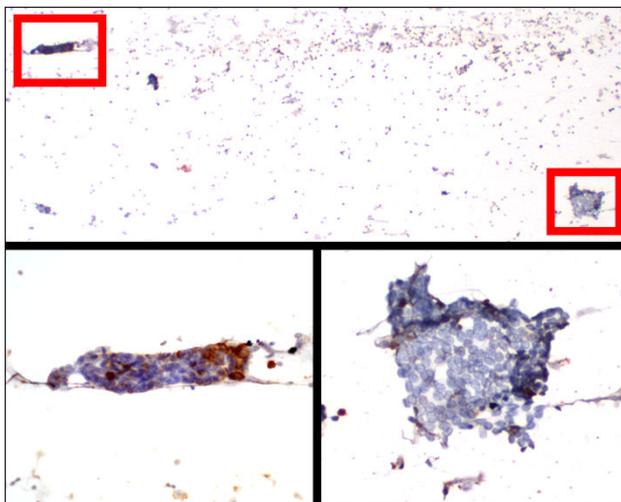


Figure 3: CD10 immunocytochemistry: Low-power view shown at top, with group at left showing immunoreactivity to CD10, confirming its non-mesothelial origin and supporting endometrial stromal accompaniment. Negatively-staining mesothelial clusters in centre and right of the picture. Areas in red boxes are shown at higher power below.

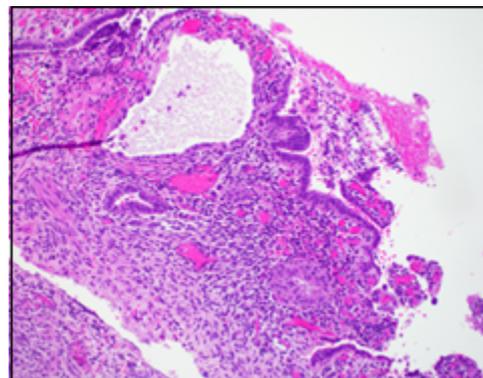


Figure 4: (100X) Focus of cervical endometriosis in the resection specimen.

Our patient had no known history of endometriosis, and, in the context of a peritoneal washing specimen obtained in conjunction with staging surgery for endometrial adenocarcinoma, the presence of endometriosis in peritoneal washing cytology is a potential diagnostic pitfall, with a misdiagnosis of metastatic adenocarcinoma carrying adverse prognostic implications for the patient [8].

The lesional cells in tight, ball-like clusters seen in the peritoneal washing specimen were cytologically benign, lacking the anisonucleosis, irregular nuclear contours, nuclear hyperchromasia, prominent nucleoli, and vacuolated cytoplasm that are usually seen in metastatic endometrial adenocarcinoma. The presence of haemosiderin-laden macrophages in the specimen also supported the diagnosis of endometriosis [4-7].

The other main differential diagnosis for ball-like clusters of cells in peritoneal washings is reactive mesothelial cells; however, CD10 positivity in these groups in addition to the very tight clustering favoured endometrial stromal over mesothelial origin [9].

In conclusion, a diagnosis of endometriosis, an uncommon benign finding in peritoneal washing cytology, can be made on the basis of salient cytomorphological features. The presence of suitable immunostaining can be helpful in differentiating endometrial clusters from background reactive mesothelial cells. In the context of a known endometrial adenocarcinoma, it is also important to determine, based on cytological features, if the endometrial cells identified represent a benign or a malignant process. Clinical, radiological and histopathological correlation is vital in such cases.

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This article was originally published in a special issue, entitled: "[Fine Needle Aspiration Cytology in Disease Diagnosis](#)", Edited by Borislav A. Alexiev