Endometriosis mimicking glandular atypia in a cervical cytology

ABSTRACT
Endometriosis involving the uterine cervix is a rare condition that can lead to diagnostic errors in the interpretation of Pap smear. We report the case of a 41-year-old patient in whom the initial Pap smear revealed three-dimensional clusters of glandular cells with elongated nuclei, occasional mitosis, and atypia, which was interpreted as atypical glandular cells, not otherwise specified (NOS). The patient was taken to colposcopy and endocervical biopsy. Colposcopy was normal and the biopsy presented glands with elongated nuclei and surrounded by endometrial stroma admixed with normal endocervical glands. Immunohistochemical studies were reactive for CD10 in the stromal cells and vimentin in endometrioid glands. The findings were consistent with cervical endometriosis. Endometriosis in the cervix is an uncommon pathology that mimics malignancy and may be interpreted as atypical or glandular neoplasia in the cytology.

Key words: Atypical glandular cells of undetermined significance (AGUS); cervical cytology; endometriosis

Introduction
Endometriosis is defined as the presence of endometrial glands and stroma in ectopic localizations outer than the uterine cavity. The most frequent site of implantation is the ovaries and pelvic cavity, followed by the bowel, bladder, umbilical region, skin, and perianal region.[4] Endometriosis of the uterine cervix is uncommon and may have different morphologies, such as superficial, deep, and polypoid.[2,3] Superficial endometriosis can be detected in cervicovaginal metastasis of thyroid carcinoma. Study of 12 cases. J Neurosurg 1985;63:526‑31.

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cytology and lead to errors in interpretation as atypical glandular cells.\textsuperscript{4,5} We report the case of a patient with superficial endometriosis, detected incidentally on a routine cervical cytology interpreted as atypical glandular cells, and correlation with histopathology.

**Case History**

A 41-year-old patient, G3P0A0, with previous history of two obstetric curettages due to retained abortions and previous negative Pap smears, attended to her routine annual Pap smear screening. The cervical cytology revealed tridimensional hyperchromatic glandular groups with nuclear overlapping [Figure 1a], round nuclei in the center, and palisading nuclei on the periphery of the cluster with occasional mitosis [Figure 1b and c]; no feathering was seen. The atypical glandular cells were considered to be endocervical in origin, and were interpreted as atypical glandular cells, not otherwise specified (NOS).

Patient was subjected to colposcopy that was negative, following which she was taken for endocervical biopsy. The sample was fixed in buffered formalin 10\%, and slides were stained with hematoxylin and eosin. Tissue sections revealed foci of ectopic endometrial glands surrounded by endometrial stroma and lined in the periphery by unremarkable endocervical glands (H&E, x100). Immunohistochemistry, shows (e) reactive endometrial glands and negative endocervical glands with vimentin (Vimentin, x100) and (f) reactive endometrial stroma with CD10 (CD10, x100).

**Discussion**

Since 2001 when the Bethesda system was incorporated into the classification of glandular abnormalities, the need to classify endocervical or endometrial samples was investigated by multiple studies that reported the difficulty in the interpretation of these lesions and the high interobserver variability.\textsuperscript{6,7}

Incidence of cervical endometriosis has been reported to be between 0.7 and 2.4\% of colposcopic examinations.\textsuperscript{8} The morphology may range from shallow-to-deep and polypoid cells that can be detected in Pap smear and can lead to an interpretation of atypical glandular cells, mimicking endocervical neoplasia, as the morphology of endometrial cells may present a wide morphologic spectrum, making the histopathological examination definitive in defining the final diagnosis.

Similar to previous reports, the most common finding, as in the presented case, was the three-dimensional clusters of glandular cells and cytologic atypia with slight increase in nuclear size and occasional mitosis.\textsuperscript{1} The differential diagnosis of atypical glandular cells apart from endometriosis includes benign conditions such as tubal metaplasia and lower uterine segment sampling and malignant conditions as adenocarcinoma in situ of the endocervix, and endometrial adenocarcinoma.\textsuperscript{1,9}

To the best of our knowledge, there are only 48 cases reported of endometriosis initially observed in the cytology with definitive diagnosis in the biopsy. The history of previous gynecological procedures together with atypical groups lining the normal endocervix in the absence of apoptosis, mitosis, and feathering of the cytoplasm are useful to suspect that the findings are mimicking malignancy.

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**Conflicts of interest**
There are no conflicts of interest.

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ABSTRACT

Giant cell ependymomas (GCE) are extremely rare tumors, with 24 cases described in the literature. Squash cytology is a rapid, reliable, simple technique for intraoperative consultation in neurosurgical practice. We describe a rare case of GCE arising at level of L4-L5 in a 66-year-old woman and discuss the cytologic/histologic features. Intraoperative smears were highly cellular with a prominent fibrillary background and exhibited papillary structures and sheets composed of highly atypical and bizarre cells. Some of the cells showed nuclear pseudoinclusions and rarely formed pseudorosette-like arrays. Intraoperative diagnosis was high grade glial tumor. On paraffin sections, besides extensive polymorphism, there were no microvascular proliferation, necrosis, and mitosis and the final diagnosis was WHO grade II GCE. GCE may be a diagnostic challenge on intraoperative smears, frozen, and paraffin sections. It must be kept in mind in the differential diagnosis of giant cell exhibiting benign and malignant tumors of brain.

Key words: Cytology; ependymoma; giant cells; squash smear

Intraoperative squash cytology and histology of giant cell ependymoma: A diagnostic dilemma

Case Report

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