Role of fine needle aspiration cytology and cell block in diagnosis of scar endometriosis: A case report

ABSTRACT
Presence of endometrial glands and stroma in places other than the uterus is called endometriosis. It can be pelvic or extra-pelvic. Abdominal scar endometriosis is an extra-pelvic endometriosis that can occur after surgery involving the uterus. Post-caesarean section, scar endometriosis is a rare event. The diagnosis is frequently made only after excision of disease tissue. We present a case of post-caesarean section abdominal scar endometriosis presenting as a tumor on the abdominal wall, which was diagnosed by fine needle aspiration cytology and confirmed by cell block preparation.

Key words: Cell block; endometriosis; FNAC; scar

Introduction
Scar endometriosis is a rare entity reported in the gynecological literature, and is present in women who have undergone an abdominal or pelvic operation.[1] The diagnosis of endometriosis is usually established by a biopsy. Because endometriotic lesions can be present as a mass lesion, it seems feasible to investigate them by the non-invasive method of fine needle aspiration cytology (FNAC).[2] We present a case of abdominal wall scar endometriosis in a woman who presented as a tumor on the abdominal wall. She underwent a caesarean section 4 years prior to her presentation. It was a case of endometriosis suspected by FNAC, but confirmation was performed by cell block preparation, and subsequently by histology.

Case Report
A 27-year-old woman presented with a nodule at the lower abdominal caesarean section scar. She had undergone surgery 4 years before. The tumor appeared over the caesarean section scar 4 years after surgery, which gradually increased in size. The patient described cyclical pain at the site of the mass, which coincided with her normal menstrual cycle. She had no previous history of endometriosis. On physical examination, the patient had a firm mass with restricted mobility along the right upper lateral aspect of the caesarean section scar with a black appearance. The mass measured about 5 cm × 5 cm in size and was clinically diagnosed as a tumor on the abdominal wall. It was clinically diagnosed as either metastatic deposit or skin appendage tumor. The patient was found physically fit otherwise.

FNAC was performed and the aspirate was obtained using a disposable 10 mL syringe and 22 gauge needle. The material was collected on glass slides and was wet fixed and then stained by the Papanicolaou method, while the remaining aspirate was allowed to clot. To facilitate clotting, few drops of blood from the finger prick of the patient was added on the aspirate and the clot was transferred to a formalin vial. This method of cell block preparation has been practiced in our institute since long.[3]
A cell block was made from formalin-fixed sediment. Sections were cut and stained with the hematoxylin–eosin stain.

Smear preparation of the FNAC sample showed extensive areas of hemorrhage and scattered small cells with compact nuclei and scanty cytoplasm, resembling stromal cells and columnar epithelial cells, which represented the endometrial glands. Hemosiderin pigment-laden macrophages were also seen [Figure 1a]. The diagnosis given on FNAC was suggestive of scar endometriosis.

The cell block findings were confirmatory of endometriosis as they revealed endometrial lining columnar epithelium with subepithelial dense and compact endometrial stroma along with extensive areas of hemorrhage [Figure 1b].

Histopathological findings after complete excision of the nodule also confirmed endometriosis [Figure 1c and d].

**Discussion**

Endometriosis is defined as the presence of functioning endometrium outside the uterus. The pelvis is the most common site. But, extrapelvic endometriosis is an uncommon disorder. It rarely involves the bladder, kidney, omentum, bowel, lymph node, pleura, umbilicus, hernial sac and abdominal wall. Endometriosis in an operative scar is also rare. In spite of being relatively common, endometriosis remains a diagnostic and therapeutic enigma even today, largely due to its variable presentations. Clinically, the features diagnostic of scar endometriosis are lump in the scar, pain, increasing size of lump, bleeding and skin discoloration. In the literature, the mean size of the masses has been 3.1 cm (range 1.5–4.8 cm). In our case, the size of the mass was 5 cm × 5 cm, which was relatively large and confused with development of tumor on scar endometriosis. Patients may present from months to years (mean 21 months) after their last obstetric/gynecologic surgery. In our case, the patient presented after 4 years of surgery. The skin coloration at the site of endometriosis was black, which may be due to recurrent hemorrhage.

The symptoms are non-specific, typically involving abdominal wall pain at the time of menstruation. Clinical examination and other investigations also give non-specific results. In our case, the patient described cyclical pain at the site of the mass, which coincided with her normal menstrual cycle.

The diagnosis of endometriosis is usually established by a biopsy. Because endometriotic lesions can present as a mass lesion, it seems feasible to investigate them by the non-invasive method of FNAC. Gupta also stated that the remaining aspirate was spun and a cell block was made from the sediment and sections cut and stained with hematoxylin–eosin stain.

In our case, FNAC was carried out. The cytology smear was prepared from half of the aspirate material while the remaining aspirate was allowed to clot. To facilitate clotting, few drops of blood from the finger prick of the patient was added on the aspirate and the clot was transferred to a formalin vial and cell block was made. This method of cell block has been practiced in our institute since long.

Smear from the abdominal mass shows varying cellularity comprising epithelial and spindle stromal cells, with a variable number of hemosiderin-laden macrophages and inflammatory cells. The presence of any two of three components (endometrial glands, stomal cells and hemosiderin-laden macrophages) has been used for the cytological diagnosis of endometriosis. In our case, the cytology smear showed extensive areas of hemorrhage and scattered small cells with compact nuclei and scanty cytoplasm, resembling stromal cells and columnar and hemosiderin pigment-laden...
The diagnosis given from FNAC was suggestive of scar endometriosis.

Gupta[2] stated that the FNAC report was further confirmed on examination of cell block, which showed histological features of endometriosis characterized by endometrial glands separated by endometrial stroma and rare siderophages. In our case, the cell block findings were confirmatory of endometriosis, as they revealed endometrial columnar epithelium, with subepithelial dense and compact stroma along with extensive areas of hemorrhage [Figure 1b]. Histopathological findings after complete excision of the nodule also confirmed endometriosis [Figure 1c and d].

**Conclusion**

In our case, the abdominal wall mass was larger (5 cm × 5 cm) in size and clinically thought to be a metastatic deposit or skin appendage tumor. The history of caesarean section and FNAC from nodule on caesarean scar was suggestive of endometriosis. The additional finding of cell block confirmed the diagnosis of endometriosis. This pre-operative diagnosis facilitated surgical removal of the mass in our case.

Therefore, although endometriosis is diagnosed by FNAC, cell block preparation is a good method for the diagnosis of endometriosis before excision of the mass.

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