

Cell Block Preparation – An Adjunct to Fine-needle Aspiration Cytology – Unveiled the Diagnosis

Abstract

Endometriosis is defined as the presence of functioning endometrium outside the uterus. Scar endometriosis is a rare entity reported in 0.03%–1.7% of women following cesarean section scars. The diagnosis is frequently made only after excision of the diseased tissue. We present a case of 28-year-old female who presented with mass on anterior abdominal wall adjacent to a previous surgical scar. Fine-needle aspiration cytology (FNAC) of the mass revealed sheets of epithelial cells, spindle-shaped cells, and hemosiderin-laden macrophages suggestive of endometriosis. Additional cell block preparation done with the aspirate material confirmed the diagnosis. The present case highlights the use of cell block preparation together with FNAC which consecutively helps in preoperative diagnosis of scar endometriosis and facilitates the best management strategy.

Keywords: Cell block, fine-needle aspiration cytology, scar endometriosis

Introduction

Endometriosis is defined as the presence of functioning endometrium outside the uterus.^[1] Endometriosis occurring in a surgical scar is called as scar endometriosis and the first case of scar endometriosis was reported by Meyer in 1903.^[1,2] Scar endometriosis is a rare entity reported in 0.03%–1.7% of women following cesarean section scars. The diagnosis is frequently made only after excision of the diseased tissue.^[1-3]

Case Report

A 28-year-old homemaker presented with a painful nodule on the anterior abdominal wall adjacent to a cesarean section scar of 1-year duration. She complained of pain and gradual increase in size of the nodule but did not report any cyclical pattern associated with these symptoms. She had undergone uncomplicated cesarean section surgery 5 years back. She was otherwise a healthy woman with no significant medical history. On physical examination, a single, ovoid, subcutaneous, firm, immobile, tender nodule was noted in the right iliac fossa measuring 3 cm × 2 cm at the end of a well-healed cesarean section scar. The skin over the swelling showed brownish discoloration, but there was no local rise in temperature and no discharge [Figure 1]. There was no

hepatosplenomegaly. Right-sided two soft and mobile inguinal lymph nodes were palpable each measuring 1 cm × 0.5 cm. Clinically, differentials were offered as suture granuloma, abscess, hypertrophied scar, skin tumors, or metastatic tumors. Ultrasound of abdomen and pelvis showed heterogeneous lesion measuring 2.5 cm × 1.5 cm in the parietal wall in the region of right iliac fossa suggestive of collection of thick fluid possibly abscess. Abdominal and pelvic organs were within normal limits [Figure 2].

Fine-needle aspiration cytology (FNAC) of the swelling was performed and revealed sheets of epithelial cells, spindle-shaped cells, and hemosiderin-laden macrophage and reported as suggestive of endometriosis [Figures 3-6]. FNAC of the lymph node showed reactive hyperplasia. A part of the material obtained from 10 ml syringe with 22-gauge needle during fine-needle aspiration procedure was fixed in formalin and processed for cell block preparation which confirmed the diagnosis of endometriosis as they revealed endometrial gland lined by columnar epithelium, compact endometrial stroma, and areas of hemorrhage [Figure 7]. Excision was done and histopathology also confirmed the diagnosis of endometriosis. She is doing well till date for a period of 1-year follow-up.

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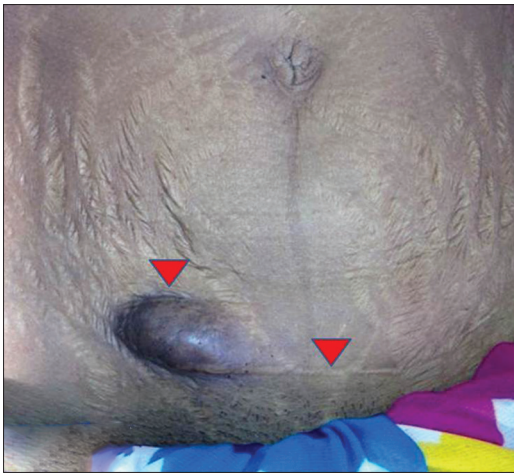


Figure 1: Gross image of nodule showing blackish discoloration and cesarean section scar

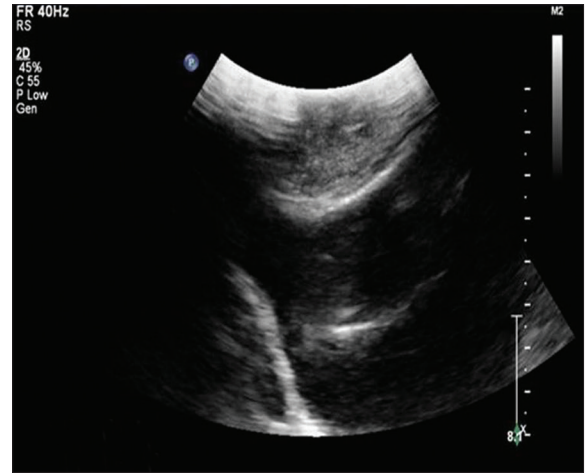


Figure 2: Heterogeneous lesion in parietal wall suggestive of collection of fluid-abscess

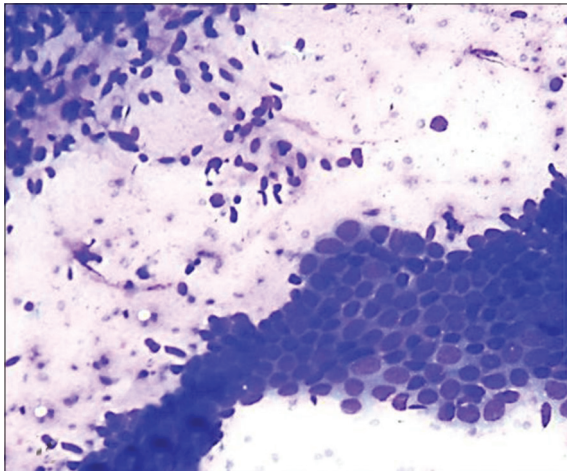


Figure 3: Giemsa-stained smear showed sheets and clusters of epithelial cells and spindle stromal cells (×10)

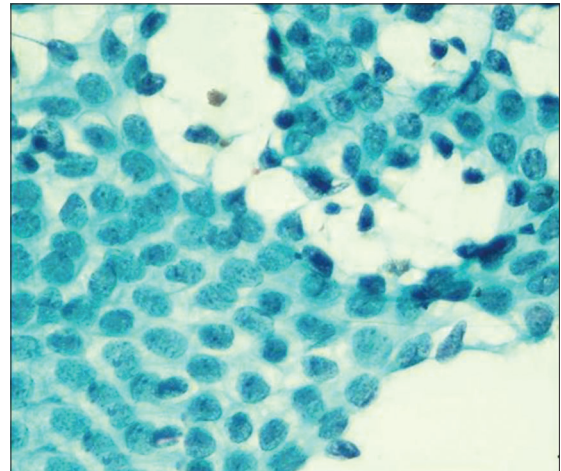


Figure 4: Pap-stained smear showed monolayered sheets of benign epithelial cells (×40)

Discussion

Endometriosis was first described by Rokitansky in 1860 as growth of ectopic endometrial tissue either within the pelvic or extrapelvic sites.^[1-3] Pelvic location of endometriosis is more common like in the ovaries, fallopian tubes, and the tissue lining the pelvis. Extrapelvic localizations are rare like in the bladder, kidney, bowel, omentum, lymph nodes, lungs, pleura, extremities, umbilicus, hernia sacs, and abdominal wall.^[1-4] Endometriosis occurring in a surgical scar is called as scar endometriosis and the first case of scar endometriosis was reported by Meyer in 1903.^[1,5-7] It is a gynecological entity that affects up to 22% of all women, 8%–15% of women of reproductive age, and 6% of premenopausal women. Most of the reported cases occurred in gynecologically or obstetrically induced abdominal or pelvic scars including hysterectomy, episiotomy, cesarean section, and laparoscopy. The incidence of scar endometriosis is 1% after abdominal hysterectomy, 0.03%–1.7% after a cesarean section, and

0.06%–0.7% after episiotomy scars.^[5-8] Various theories have been proposed regarding the etiopathogenesis of endometriosis which includes retrograde menstruation, metaplasia, direct implantation, and venous or lymphatic dissemination. However, direct implantation of endometrial cells to the wound edges at the time of the operation is the most accepted theory.^[3-10]

Diagnosis of scar endometriosis poses a diagnostic dilemma due to its diverse presentations.^[1,2,7] If feel its correct, if u can suggest any correction do let us know. Literature search reveals that the mean size of the nodules is 3.1 cm (range 1.5–4.8 cm) which is similar to our case.^[1,9] Time interval between last obstetric/gynecologic surgery and presentation of the lesion has varied from 3 months to 10 years in different series.^[1,5-9] In our case, the patient presented with nodule after 4 years of cesarean section. Menstruation-related cyclical pain and change in the size of the nodule is pathognomonic of scar endometriosis. However, in the reported series up-to-date, only 20% of the patients exhibited these symptoms.^[8-10] Patients usually

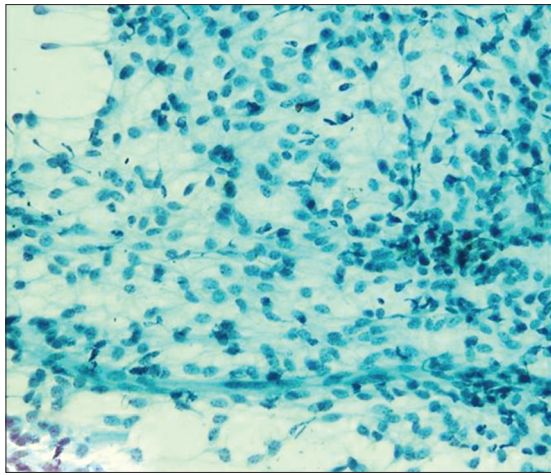


Figure 5: Pap-stained smear showed sheets of spindle-shaped stromal cells ($\times 10$)

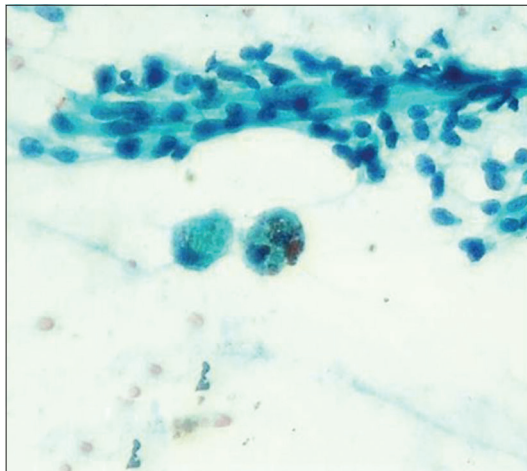


Figure 6: Pap-stained smear showed hemosiderin-laden macrophages ($\times 40$)

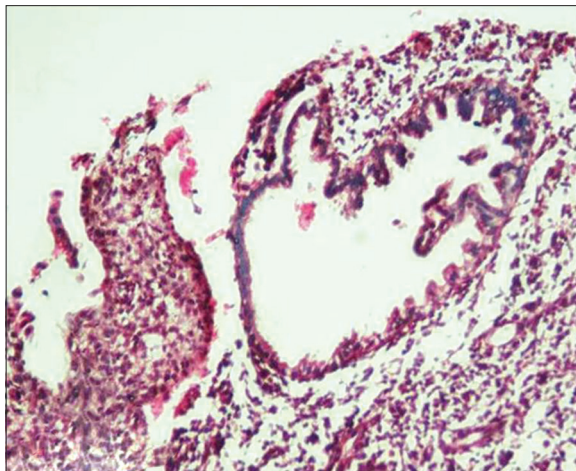


Figure 7: H and E-stained cell block preparation showed endometrial gland lined by columnar epithelial cells, compact stromal cells, and areas of hemorrhage ($\times 10$)

complain of tenderness on palpation and nodule^[8] similar to our case. These clinical symptoms resemble other abdominal wall lesions^[8-10] analogous to our index case.

Imaging techniques such as ultrasound, CT, and MRI show very nonspecific features. They aid only to exclude either there is incisional hernia or the deep infiltration of the lesion. Studies reveal a hypoechoic heterogeneous lesion with internal echoes indicating scar endometriosis.^[4,5,11] In the present study, ultrasound was done and revealed it as abscess contents which posed difficulty in the diagnosis.

In clinically doubtful cases, FNAC has been a valuable diagnostic tool. Cytology smears show sheets of epithelial cells, stromal spindle cells, and a variable number of hemosiderin-laden macrophages. The presence of any two of these three components is required for the diagnosis of endometriosis.^[1,2,12-15] In our case, FNAC showed epithelial cells, stromal cells, and hemosiderin-laden macrophages and was diagnosed as suggestive of endometriosis. FNAC of the lymph node showed reactive hyperplasia. The importance of FNAC lies in excluding other lesions such as metastatic deposit, lipomas, hernias, cysts, fat necrosis, hypertrophied scar, hematoma, abscess, or other soft-tissue tumors.^[1,2,12-15] The diagnosis is frequently confirmed only after excision of the diseased tissue. However, in our case, a part of the FNAC material was fixed in formalin and processed for cell block preparation which helped in confirmative diagnosis. Cell block sections showed histopathological features of endometriosis characterized by endometrial glands separated by endometrial stroma and siderophages similar to studies done by Gupta and Dash *et al.*^[1,2]

Management of scar endometriosis includes both medical and surgical excision. Medical treatment with use of oral contraceptives, progestational and androgenic agents results in only symptomatic relief and may not ablate the lesion. Hence, complete excision of the lesion together with approximately 1 cm of healthy tissue to prevent local recurrence is the treatment of choice for scar endometriosis.^[1-15] In the present case, also, the patient was subjected to wide excision and histopathology also confirmed the diagnosis of endometriosis. After a 12-month follow-up, she is disease free without any recurrence.

The incidence of malignant transformation in scar endometriosis is 0.3%–1%. Extensive search reveals 41 cases of clear-cell carcinoma arising from long-standing endometriotic foci in the scar. Management of these malignant transformations needs combination of neoadjuvant chemotherapy and excision of the mass with negative margins followed by adjuvant radiotherapy.^[11,16,17] In such instances, prior preoperative confirmative diagnosis is of paramount importance for establishing an appropriate therapeutic protocol. Hence, cell block preparation together with FNAC should become part of our diagnostic armamentarium for the better management of the entity.

Conclusion

The present case highlights the use of cell block preparation together with FNAC which consecutively helps in

preoperative diagnosis of scar endometriosis and facilitates the best management strategy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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