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MISFORTUNE IN FORTUNE: A CASE SERIES ON SCAR ENDOMETRIOSIS

Pathology

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ABSTRACT

Introduction: Endometriosis is defined by the presence of functionally active "ectopic" endometrial tissue. Scar endometriosis is defined as endometriosis at the site of surgical scars, such as those from lower segment cesarean section (LSCS), appendicectomy, or episiotomy. **Objective:** To study the cytomorphological features of scar endometriosis and its confirmation by histopathology where ever needed. **Materials And Methods:** Here we reporting a case series on scar endometriosis diagnosed by fine needle aspiration cytology (FNAC) and cell block in women of reproductive age. **Results:** FNAC- Showing combination of "endometrial glands, endometrial stromal tissue", and hemosiderin laden macrophages amidst the altered hemorrhagic background. **Conclusion:** Scar endometriosis can clinically mimic non neoplastic lesions like suture granuloma, hematoma, abscess and neoplastic lesions like lipoma, sarcoma. But the confident cytological diagnosis through conventional FNAC is possible by finding any 2 out of 3 key cytomorphological features. These are 1. endometrial glands spread as honey comb sheets ,2. Spindle shaped endometrial stromal fragments with delicate vasculature traversing through and evidence of hemorrhage in the form of hemosiderin laden macrophages amidst hemorrhagic background.

KEYWORDS

LSCS scar, FNAC, Honey comb sheets of endometrial glands, Endometrial stroma, Hemosiderin laden macrophages.

INTRODUCTION:

Endometriosis is defined as presence of functionally active endometrial glands along with stroma outside the uterine endometrium and myometrium. It is a common gynecological condition that affects up to 10% of women in their reproductive life [1,2]. The most common sites reported for endometriosis are ovary, fallopian tube, pelvic peritoneum, utero-sacral ligament [10]. Extra pelvic endometriosis is a rare entity and scar endometriosis is unusual, accounting for less than 1% of cases of endometriosis [3]. Most of the reported cases occurred in gynecologically-induced abdominal or pelvic scars, including hysterectomy, caesarean section (CS), laparoscopy and episiotomy [5]. Here we are reporting four cases of scar endometriosis at the site of LSCS-related scarring in women of reproductive age, diagnosed by fine needle aspiration cytology and cell block (Figure-1). Two cases were later confirmed by excisional biopsy on histopathology.

Case Summary:

As summarized in Table 1-Case summary, all four cases presented with cyclical pain and palpable mass near the LSCS scar, suggesting a pattern in clinical presentation.

Table 1- Case summary

Parameter	Case 1	Case 2	Case 3	Case 4
Age/ Sex	30 Y/F	29 Y/F	35 Y/F	27 Y/F
Size of lump	3x2 cm	2x2 cm	1x1 cm	2.5x2 cm
Site of lump	Beside LSCS Scar	Beside LSCS scar	Beside LSCS scar	Beside LSCS scar
Duration	5 months	1 week	3-4 months	3 months
Cyclical Pain	Present	Present	Present	Present
Tender on Palpation	Present	Present	Present	Present
Time since last LSCS	6 years back	2 months back	5 years back	4 years back
USG	Suture site granuloma	Surgical site collection	Suture site granuloma	-----
FNAC	Done	Done	Done	Done
Cell Block	Done	----	Done	-----
Histopathology	-----	-----	-----	Done

Cytology:

FNAC was done in the swellings of all four cases, by using a 5ml syringe and 23-gauge needle. Altered blood-mixed material was aspirated. The smears were stained with Papanicolaou stain and Hematoxylin & Eosin (H&E) stain.

The smears prepared from the material obtained in all four cases, were highly cellular and revealed glandular epithelial cells arranged in honeycomb pattern of monolayered sheets. Individual cells were round, with normochromic nuclei and moderate amount of pale cytoplasm (Figure-2). Endometrial stromal fragments were seen as spindle-shaped cells with thin capillary vessels traversing through (Figure-3). These two endometrial tissue fragments were seen admixed with hemosiderin-laden macrophages in the background of hemorrhage (Figure-4).

Histopathology:

Subsequent cell block (Figure-5) analysis from case 1 and 3, along with excision biopsy findings (Figure-6) from case 4, revealed the characteristic histopathological features of endometriosis. These included endometrial glands and stromal fragments, admixed with hemosiderin laden macrophages.

DISCUSSION:

The first case of scar endometriosis was reported by Meyer in 1903[5]. A majority of the reported cases of scar endometriosis have been observed in and around the surgical scar following caesarean sections, hysterectomy, hysterotomy and, rarely, following surgeries on fallopian tube, appendicectomy, amniocentesis and, episiotomy [6].

Two Theories Have Been Proposed

1. **Metastatic Theory:** The transport of endometrial cells to adjacent location via surgical manipulations, hematogenous or lymphatic dissemination [4].
2. **Metaplastic Theory:** Primitive pluripotent mesenchymal cells undergo specialized differentiation and metaplasia into endometrial tissue [4].

The interval between onset of symptoms in a patient and patient's surgery varies between 3 months and 10 years.

Clinically, scar endometriosis presents as a lumpy-bumpy lesion in and around the scar. Cyclical variation in the size of the swelling, overlying skin discoloration, and tenderness is the pathognomic clinical presentation of scar endometriosis but are not seen in all the cases.

Most of the surgical reports indicate that pre-operatively, the condition can be confused with a wide range of pathologic lesions ranging from non-neoplastic to neoplastic etiology, namely hematoma, suture granuloma, abscess to lipoma, desmoid tumor, sarcoma, and dermal metastatic deposit [4]. As the lesion mostly presents as superficial dermal based lesions, conventional FNAC is the simple, easy and effective tool to differentiate and attest to final preoperative diagnosis.

Cytosmears from endometriomas show varying degree of cellularity, comprising epithelial and spindle endometrial stromal cells, admixed with variable number of hemosiderin-laden macrophages and inflammatory cells against the hemorrhagic background. The presence of any two components out of the three, namely endometrial glands, endometrial stromal cells, and hemosiderin-laden macrophages are sufficed to diagnose endometriosis on cytology [4]. The cytological features are related to cyclical hormonal changes. In the proliferative phase, the epithelial cells form cohesive sheets of uniform small cells with scant cytoplasm, round to ovoid nuclei with bland chromatin, and occasional non-atypical mitosis; in the secretory phase, the cell size gradually increases with cytoplasmic micro vacuolations [4]. The stromal cells are mostly spindly with scant cytoplasm. However, as endometriosis affects women of reproductive age, an associated womb pregnancy can result in pre-decidual changes with an epithelioid appearance, leading to diagnostic difficulties. Fortunately, we were lucky not to have stromal changes in our case series. The background is generally sanguineous, containing inflammatory cells and histiocytes (with/or without hemosiderin). Squamous, tubal, and mucinous metaplasia and isolated cases of malignant transformation in scar endometriosis have also been reported.

Though it can be treated both hormonally and surgically, the treatment of choice is wide local excision [3]. Pachori et al, Atif Bashir E. Fazari et al and Sharma A et al have also done similar studies on scar endometriosis and series findings were matching with them.

CONCLUSION:

Though scar endometriosis accounts for < 1% of endometriosis cases, it is important for a physician to consider it as part of their differential. Confident cytological diagnosis through conventional FNAC can be done by finding any 2 out of 3 key cytomorphological features: Endometrial glands spread in a honey comb sheet pattern, spindle shaped endometrial stromal fragments with delicate vasculature traversing through, and evidence of hemorrhage in the form of hemosiderin-laden macrophages amidst a hemorrhagic background.

Conflicts Of Interest: None
Acknowledgments: Nil

Figure Legends:

Figure 1: Clinical photograph showing lump (marked) below the LSCS scar.
Figure 2: H&E-stained Cytosmear's (40x): Honey combed (monolayered) appearance of endometrial glands.
Figure 3: H&E-stained Cytosmear's (40x): Sheets of spindle shaped endometrial stromal cells with vessel traversing through.
Figure 4: H&E-stained Cytosmear's (40x): Hemosiderin laden macrophages (↑).
Figure 5: H&E-stained Cell block image(40x): Endometrial glands.
Figure 6: H&E-stained Histopathology image: Endometrial glands and stroma (10x) and macrophages in the inset (40x).

Figure 1:

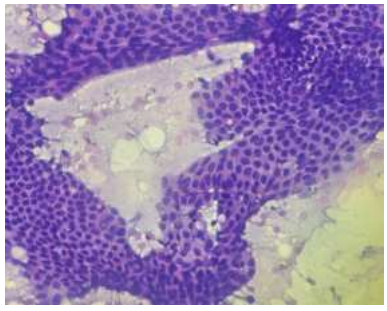


Figure 2:

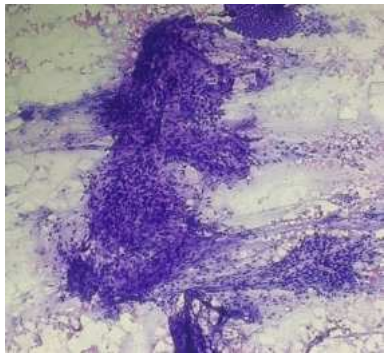


Figure 3:

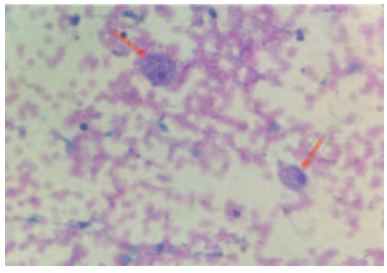
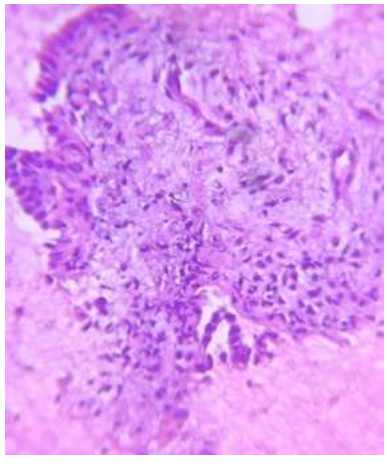


Figure 4:



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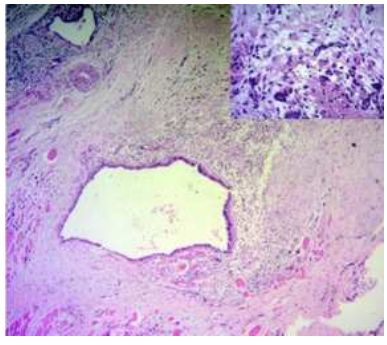

Figure 6:

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