



## CYTODIAGNOSIS OF SCAR ENDOMETRIOSIS- A SERIES OF 3 CASES WITH REVIEW OF LITERATURE

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**ABSTRACT** Endometriosis is defined as the presence of functional endometrium outside the uterine cavity. Abdominal wall endometriosis is a rare entity. Most of the cases present with abdominal wall lump in and around surgical scars following cesarean section. Here, we report a series of 3 cases diagnosed as scar endometriosis on FNAC and after excision confirmed on histopathology.

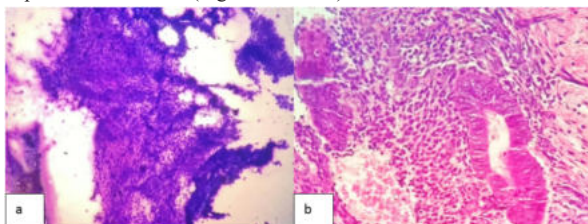
**KEYWORDS :** Fine needle aspiration cytology (FNAC), abdominal wall endometriosis, scar endometriosis

### INTRODUCTION

Endometriosis pertains to the presence of functional endometrial glands and stroma lying outside the endometrial cavity.<sup>[1,2]</sup> It affects up to 22% women of all age groups; 8–15% in reproductive age group and 6% in premenopausal age group.<sup>[1,3]</sup> It usually occurs in the pelvic sites such as the ovaries, posterior cul-de-sac, uterine ligaments, pelvic peritoneum, bowel, and rectovaginal septum. Extrapelvic endometriosis can be found in unusual places like in the urinary tract, gastrointestinal tract, nervous system, thorax, and in cutaneous tissues where the most common location is the abdominal wall.<sup>[4,5]</sup> A high degree of clinical suspicion for endometriosis should be made, in all cases presenting with mass lesions adjacent to previous surgical scars, especially in women of reproductive age group.<sup>[1]</sup> Diagnosis of scar endometriosis is rare on FNAC. Here, we report 3 cases which were reported as scar endometriosis on cytology and confirmed on histopathology.

### CASE 1

A 25-year-old female presented to outpatient department with complaint of mass in the lower abdominal wall, since 2.5 years. Local examination revealed a mass of 3x2 cm size present over the previous caesarean section scar with soft to firm consistency and brownish discoloration of skin. No cyclical pain or bleeding was present from the swelling. Ultrasonography (USG) findings showed an ill-defined heterogeneous hypo- and hyper-echoic mass. A clinical suspicion of suture granuloma was made. The patient was sent to the cytology department for FNAC (Figure 1a and 1b)

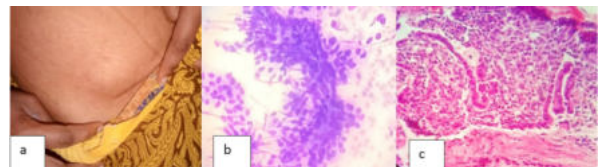


**Figure 1:** (a) FNAC of scar endometriosis showing monolayered sheets of round to oval cells along with fragments of spindle shaped cells with traversing capillaries (MGG, x100) (b) Histological section of scar endometriosis (H&E, x400)

### CASE 2

A 30-year-old female presented with the complaint of pain and swelling near a previous cesarean section scar for 1 year. She described pain around the cesarean scar that increased during the menstruation

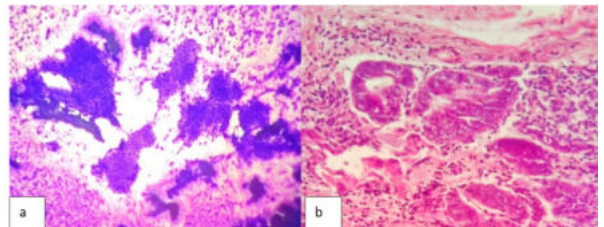
period and then noticed a swelling above the cesarean scar (Figure 2a). Local examination revealed a non-reducible firm mass of 4x2.5 cm size, above the cesarean section scar. Ultrasonography report was not available. FNAC was performed (Figure 2b and 2c)



**Figure 2:** (a) Abdominal swelling above cesarean scar site in 30 year old female (b) FNAC of endometrial scar showing monolayered sheets of endometrial cells, hemosiderin laden macrophages and stromal cells (MGG, x400) (c) Histological section showing endometrial glands and stroma (H&E stain, x100)

### CASE 3

A 45-year-old female presented with complaint of lower abdominal mass for 1.5 years. On examination a mass lesion measuring 4x3cm, soft to firm in consistency, with brownish black coloration of the overlying skin, slightly tender non-reducible, not fixed to skin or underlying tissue was present close to the caesarean section scars in the anterior abdominal wall. Ultrasound showed a 4cm×3cm×4cm, oval-shaped heterogeneous mass within the right rectus abdominus muscle, with no abnormalities of the uterus and ovaries. With a clinical suspicion of suture granuloma, melanoma and desmoid tumor, FNAC was performed (Figure 3a and 3b)



**Figure 3:** (a) FNAC showing monolayered endometrial cells, stromal cells and endothelial cells (MGG, x100) (b) Histological section showing endometrial glands and stroma (H&E stain, x400)

FNAC was done in all the 3 cases using 22G needles and on aspiration brownish blood tinged fluidic material was obtained. Slides were prepared; air dried and stained using May Grunwald Giemsa stain.

Smears from case 1 and case 3 were richly cellular and showed presence of monolayered sheets of round to oval epithelial cells having moderate amount of cytoplasm, bland nuclei giving a honeycomb appearance. Fragments of spindle shaped cells with traversing capillaries were seen to be merging with epithelial cells. Background showed presence of hemosiderin laden macrophages. Smears from case 2 were poorly cellular and showed presence of occasional monolayered sheets and loose cohesive clusters of round to oval epithelial cells having bland oval nuclei, traversing capillaries along with few spindle cells and histiocytes. Considering the clinical and ultrasonography findings, a cytodiagnosis of scar endometriosis was made which were subsequently histologically confirmed.

## DISCUSSION

Endometriosis was first described by Karl Von Rockitansky in 1860. It is a common chronic gynaecological condition. Abdominal wall endometriosis is related to past history of surgery. Endometriosis implants developing in the subcutaneous tissue of surgical scars occur most frequently after gynecological and obstetrical procedures.<sup>[6]</sup> There are two theories which explain the pathogenesis of scar endometriosis, the Metastatic theory and the Metaplastic theory; out of which the former is more favored. The Metastatic theory proposes transport of endometrial cells to other locations via surgical manipulations, hematogenous or lymphatic dissemination and the Metaplastic theory suggests specialized differentiation and metaplasia of pluripotent primitive mesenchymal cells into endometrial tissue.<sup>[4]</sup>

The interval between previous surgery and onset of symptoms varies from few months to 10 years. The patient presents with a swelling at or around the scar site which is gradually increasing in size associated with skin discoloration and may or may not have cyclical periodicity but if present is pathognomic.<sup>[1]</sup> Pain—either cyclical or noncyclical—remained the major symptom, reported by more than 80% of patients in the cohorts of Zhang and Liu in China<sup>[7]</sup>, Uçar et al. in Turkey<sup>[8]</sup>, and Vellido-Cotelo et al.<sup>[9]</sup> in Spain. The symptom of cyclical pain can be explained by the presence of hormone-sensitive tissue under the skin. A mass was present at examination of more than 70% of patients in these studies. With regard to imaging, ultrasound is the most accessible, reliable, and cost-effective imaging technique for the diagnosis of scar endometriosis according to Hensen et al.<sup>[10]</sup>

FNAC is a valuable diagnostic tool.<sup>[11]</sup> Cytological smears show sheets of epithelial cells, spindle stromal cells and a variable number of hemosiderin laden macrophages. Presence of two of the above findings is diagnostic. The cytological picture may vary with cyclical hormonal changes. In the proliferative period epithelial cells form cohesive sheets with scant cytoplasm, round/oval bland nuclei. In the secretory phase the cells can have slight increase in size of nucleus and fine cytoplasmic vacuolation.<sup>[9]</sup>

The common differential diagnoses of scar endometriosis are desmoid tumor, fibrosis, suture granuloma, nodular fasciitis, etc. Each one has its own cytological picture. Benign appearing mesenchymal cells are seen in desmoid tumor and fibrosis but there will not epithelial cell sheets. Suture granuloma shows non-specific inflammation with or without granuloma and foreign material. Nodular fasciitis shows pleomorphic plump spindle cells in a myxoid background.<sup>[12]</sup>

Scar endometriosis is a rare Disease and cytodiagnosis was rendered with ease in all the above 3 patients. Thus, FNAC is a rapid, cost effective and reliable pre-operative diagnostic modality and it can be used as a first line of diagnostic intervention before planning surgical intervention.

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