

# Cytodiagnosis of scar endometriosis: A case series

T. Santosh, Manoj K. Patro

## ABSTRACT

**Introduction:** Endometriosis is defined as the presence of hormonally responsive endometrial tissue outside the uterus. The overall prevalence is 8–15% in women of reproductive age group. Subcutaneous location causing a palpable lump that is amenable for cytodiagnosis is not common; most of the cases are sites of previous cesarean section or episiotomy site. **Case Series:** We report three cases of endometriosis that presented with subcutaneous palpable lumps in the anterior abdominal wall and perineal regions. All cases were diagnosed by fine needle aspiration cytology (FNAC) and confirmed by histopathology. **Conclusion:** Fine needle aspiration cytology is an easy, economical, fast and reliable method for the diagnosis of endometriosis in subcutaneous palpable lumps in clinically suspicious patients.

**Keywords:** Cesarean section, Endometriosis, FNAC, Histopathology, Scar

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## INTRODUCTION

Endometriosis refers to presence of functional endometrial glands and stroma lying outside the uterine cavity [1]. It is a common gynecologic condition that affects up to 22% women of all age groups; 8–15% in reproductive age group and 6% in premenopausal age group [2]. Pelvic organs are the most common sites involved. Scar endometriosis though a well-documented entity is extremely rare and accounts for <1% cases. Abdominal or pelvic scars resulting from hysterectomy, episiotomy and laparoscopy are the common causes [3, 4]. It is extremely rare in a surgical scar, accounting for approx. 0.1% of women who have undergone cesarean section [3].

A high degree of clinical suspicion for endometriosis should be made, especially in women of reproductive age group, in all cases presenting with mass lesions adjacent to previous surgical scars. Cytodiagnosis of endometriosis by FNAC is uncommon. Here we report three cases of endometriosis diagnosed by FNAC and confirmed by histopathology.

## CASE SERIES

### Case 1

A 40-year-old female multipara with history of two previous cesarean sections presented to outpatient department with complaints of mass in the abdominal wall over the previous caesarean section scar. Local examination revealed a mass of 5x4 cm size with soft to firm consistency and brownish discoloration of skin.

Ultrasonography (USG) findings showed an ill-defined heterogeneous hypo- and hyper-echoic mass. Clinical suspicion of suture granuloma/ melanoma made and FNAC was performed FNAC (Figure 1A–B).

### Case 2

A 33-year-old female with history of episiotomy for delivery one year back. She presented with a perineal mass lesion. Local examination revealed a 3x3 cm mass with brownish colored skin and slightly tender non-reducible mass. With clinical suspicions of hematoma/ melanoma FNAC was performed.

### Case 3

A 37-year-old female had undergone diagnostic laparotomy for infertility evaluation. She had a mass lesion close to the surgical scars in the anterior abdominal wall. Local examination revealed a mass 3x2 cm, soft to firm in consistency, brownish black coloration of the overlying skin, slightly tender, non-reducible, not fixed to skin or underlying tissue. Ultrasonography (USG) finding showed an ill-defined hypo-echoic mass (Figure 3A–B). With clinical suspicion of suture granuloma, hematoma, melanoma and desmoid tumor, FNAC was performed.

FNAC done in all the cases using 24 G needle and a brownish black fluid with cellular fragments were obtained (Figure 2A). Microscopy from Case 1 and Case 3 were more cellular smears comprising of monolayered sheets of round to oval 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 (Figures 1C, and 3C). Case 2 was paucicellular with few bland looking round to oval nuclei, traversing capillaries along with few spindle cells. Hemosiderin laden macrophages were not seen in this case. (Figure 2B–C). Considering the clinical and ultrasonography findings, a cytodiagnosis of endometriosis was made which were subsequently histologically confirmed (Figures 1D, 2D, 3D).

## DISCUSSION

Scar endometriosis, also known as incisional endometriosis refers to endometriosis occurring in surgical scars. It is called an endometrioma when a mass lesion was formed at the site [3]. Meyer first documented a case of SE in 1903. Gynecologic surgeries are the most common inciting factors of which hysterectomy [2%] and caesarean section [ $< 0.4\%$ ] are the most common ones. Tubal ligation, laparotomy for ectopic pregnancy, salpingectomy and episiotomy, etc. are the uncommon causes [5, 6].

Two proposed theories of pathogenesis are: [i] most favored Metastatic theory proposes transport

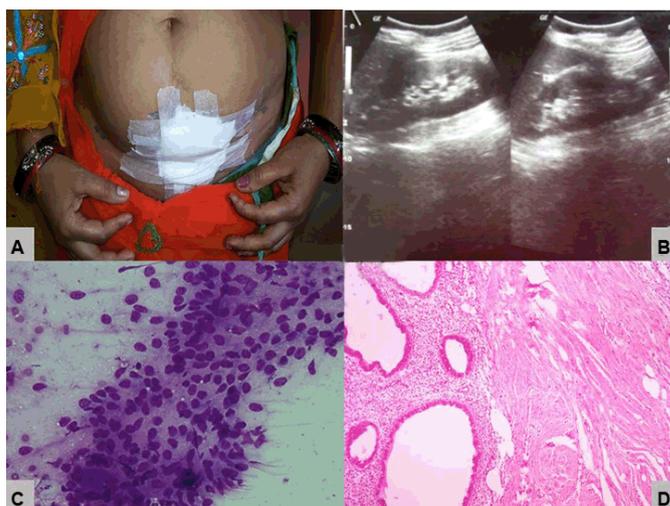


Figure 1: (A) Cesarean scar site of a 40-year-old female patient, (B) USG picture showing an heterogeneous hypo-echoic and hyper-echoic areas. (C) FNAC of endometrial scar showing monolayered endometrial glands, hemosiderin laden macrophages and stromal cells. (Diff-Quik stain, x400) (D) Histological section of endometriosis (H&E, x100).

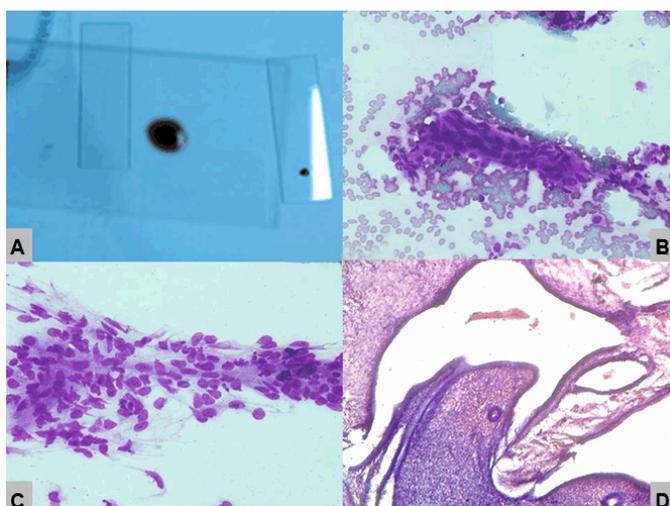


Figure 2: (A) FNAC aspirate from perineal lump, (B,C) FNAC showing monolayered endometrial glands with hemosiderin laden macrophages and stromal cells. (Diff-Quik, x400), (D) Histological section showing endometrial glands and stroma (H&E stain, x100).

of endometrial cells to other locations via surgical manipulations, hematogenous or lymphatic dissemination and [ii] Metaplastic theory suggests specialized differentiation and metaplasia into endometrial tissue of b b mesenchymal cells [7].

The interval between onset of symptoms to past surgery varies from few months to 10 years. Mass lesion at the scar site which is gradually increasing in size associated with skin discoloration and may or may not have cyclical periodicity. However presence of cyclical periodicity is pathognomonic [7].

Non-invasive imaging modalities like USG with color Doppler, CT scan and MRI scan can be highly suggestive

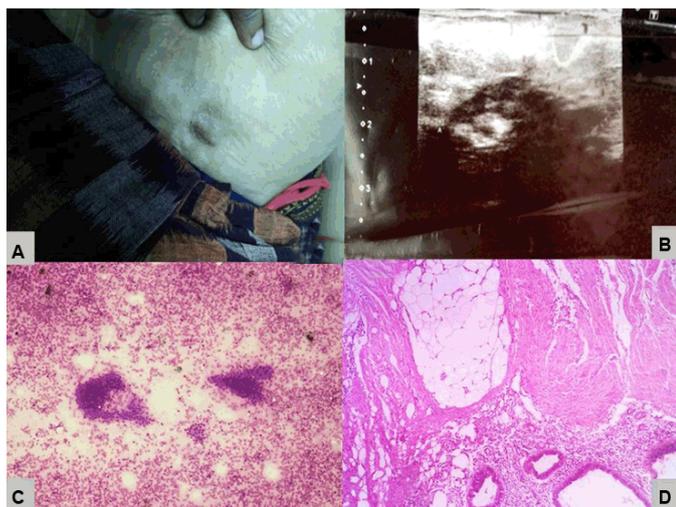


Figure 3: (A) Laparotomy scar site of a 37-year-old female patient, (B) USG picture showing a hypo echoic area, (C) FNAC showing monolayered endometrial glands, macrophages with hemosiderin and stromal cells. (Diff-Quik, x400), (D) Histological section showing cystically dilated endometrial glands surrounded by endometrial stroma along with adipocytes and muscle (H&E stain, x100).

but not diagnostic. FNAC is a valuable diagnostic tool [8]. Cytosmears show sheets of epithelial cells, spindled stromal cells and a variable number of hemosiderin laden macrophages. Presence of two of the above findings is diagnostic [9]. The cytological features can 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 can have slight increase in size of nucleus and cytoplasmic microvacuolation. Uncommon cytologic findings reported include squamous, tubal and mucinous metaplasia and even malignant transformation [3, 9].

Differential diagnoses vary depending on the location & the common ones are desmoid tumor, fibrosis, suture granuloma, nodular fasciitis, adnexal tumor etc. 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. FNA from primary or metastatic malignancies show hypercellularity with cellular features of neoplasia [3].

Medical management with oral contraceptive pill, progestogens and GNRH analogues provide alleviation of symptoms, with recurrence after cessation of therapy. Wide surgical excision with at least 1 cm margin is the treatment of choice [7].

## CONCLUSION

Endometriosis in scar tissue is a rare disease and hence the present case reiterates the need to consider

endometriosis in evaluation of painful abdominal masses in women. FNAC is economical, fast and accurate method to make the diagnosis of scar endometriosis and to plan better surgical approach. FNAC of abdominal scars endometriosis can be used as a first line of diagnostic intervention, providing an accurate diagnosis to facilitate preoperative planning or any alternative invasive therapy.

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## Author Contributions

T. Santosh – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Manoj K. Patro – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

## Guarantor

The corresponding author is the guarantor of submission.

## Conflict of Interest

Authors declare no conflict of interest.

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