

Case Series

# Scar Endometriosis-A Case Series of 8 Cases of this Rare Entity

Mala Raj<sup>1</sup>, Sharanya<sup>2</sup>, S. Roshini<sup>3</sup>

<sup>1,2,3</sup>Department of Obstetrics and Gynecology, Firm Hospitals, Chennai, Tamilnadu, India

<sup>1</sup>Corresponding Author : [drmalaraj@gmail.com](mailto:drmalaraj@gmail.com)

Received: 29 September 2023

Revised: 04 November 2023

Accepted: 21 November 2023

Published: 09 December 2023

**Abstract - Background:** Endometriosis affects 5-15% of reproductive-aged women and involves endometrial tissue outside the uterine cavity. Scar endometriosis, an unusual subtype, occurs at surgical incision sites, notably after caesarean section (CS) (incidence, 0.03-1%). Scar endometriosis is a rare but important complication of C-sections. Patients develop cyclic pain and swelling at the abdominal scar months to years after surgery. Accurate diagnosis is often challenging, leading to misdiagnosis of other surgical conditions. **Objective:** This retrospective analysis examined eight patients treated at a tertiary hospital. **Materials and methods:** Eight patients with scar endometriosis underwent surgical management at FIRM Hospitals. All patients were informed about the surgical procedure and provided written informed consent. **Results:** All patients had previous obstetrical and gynaecological surgeries, particularly Lower Segment Caesarean Sections (LSCS). The chief complaints included pain, swelling, and bleeding in the abdominal wall scar area, usually appearing months to years after surgery. The masses were located in various scarring regions. The clinical diagnosis was scar endometriosis, supported by radiological findings. **Conclusion:** Women who have undergone gynaecological or obstetric surgery and experience recurring painful swelling at their abdominal scar should be highly suspected of having scar endometriosis.

**Keywords -** Scar endometriosis, Lower segment caesarean sections, Abdominal scar.

## 1. Introduction

Endometriosis is the presence of endometrial glands and stroma outside the uterine cavity, affecting approximately 5-15% of women of reproductive age. [1] It can be categorised as pelvic or extrapelvic endometriosis. Pelvic endometriosis, the more common form, affects structures such as the ovaries, uterosacral ligaments, and the pelvic peritoneum. Extrapelvic endometriosis, a rarer form, occurs in the abdominal wall, urinary and gastrointestinal tract, skin, brain, and lungs. [2] Scar endometriosis, a specific type of endometriosis that develops at surgical incision sites following obstetric or gynaecological surgeries, including caesarean section (CS), has an incidence of 0.03-1% post-CS. [3] Its symptoms, which often mimic those of hernias, lipomas, or haematomas, can contribute to misdiagnoses.

Patients with scar endometriosis typically experience cyclic pain and swelling at the incision site, making surgical intervention necessary for both treatment and definitive diagnosis. [4] Although the exact pathophysiology of scar endometriosis remains unclear, it is generally believed to arise from introducing endometrial tissue into the surgical wound during the procedure. Hormonal stimuli at the wound site can promote cell proliferation and metaplasia.

[5] In this retrospective analysis, we examined eight patients treated at a tertiary hospital for scar endometriosis.

## 2. Patients and Methods

A study was conducted on eight patients treated for scar endometriosis at FIRM hospitals through surgical management. Before surgery, each patient was fully informed of the procedure and provided written consent.

Each patient had a history of obstetric and gynaecological surgeries, and initial caesarean sections were performed at different medical facilities. The diagnosis was suspected through pelvic ultrasonography following clinical assessment.

The study analysed patients' age, number and type of previous surgeries, symptoms, mass size, and radiological features.

The surgical intervention involved wide local excision of the scar endometriosis through sharp dissection with a scalpel within the area of the previous caesarean section incision. The fibrosis cystic mass was carefully removed with safe margins. The abdominal wall was reconstructed in anatomical layers.



In all cases, the final diagnosis was confirmed by pathological examination.

### 3. Case Series

Case 1, aged 37, had two previous LSCS (Lower Segment Caesarean Section) and one D&C (Dilation and Curettage). She presented with bleeding at the right end of the scar for two years. The mass was measured at 1.6 x 1.4 cm in the right lateral end of the scar. The clinical diagnosis was scarred endometriosis. Radiological features revealed a well-defined endometriotic nodule (2.1 x 1.4 cm within the right rectus muscle plane. The surgical procedure involved a wide local excision.

Case 2, aged 26 years, had a previous LSCS. She complained of swelling and pain during cycling for nine months. A 1.2 x 1.0 cm mass was observed on the left side of the LSCS scar. The clinical diagnosis was scarred endometriosis. Radiological features showed a 1.5 x 1.2 cm endometriotic nodule in the anterior abdominal wall of the LSCS scar. The surgical procedure included wide local excision with LSCS.

Case 3, aged 28 years, had a previous LSCS. She experienced pain during cycles for 11 months. A 3.7 x 2.8 cm nodule was found at the left end of the LSCS scar. The clinical diagnosis was scarred endometriosis. Radiological features indicated a heterogenous hypoechoic echotexture of 4.2 x 3.1 cm in the left LSCS scar, along with internal echos and fibrotic changes. The surgical procedure involved a wide local excision.

Case 4, aged 29 years, had a previous LSCS. She experienced swelling in the LSCS scar during cycles for one year. A 4 x 4.6 cm nodule was located in the midline of the LSCS scar. The clinical diagnosis was scarred endometriosis. Radiological features revealed an endometriotic nodule of 4 x 4.6 cm x 3.6 cm in the anterior abdominal wall at the LSCS scar in the midline, along with vascularity. The surgical procedure included wide local excision with LSCS.

Case 5, aged 34, had one previous LSCS and one lap ST (laparoscopic sterilisation). She complained of bleeding and pain around the umbilical region for one year. A 2.2 x 1.5 cm nodule was found in the umbilical region. The clinical diagnosis was scarred endometriosis. Radiological features showed a well-defined soft tissue nodule (2.5 x 1.8 cm with heterogeneous hypoechoic echotexture and a streaky appearance in the surrounding tissue. The surgical procedure involved a wide local excision.

Case 6, aged 30 years, had a previous LSCS. She had swelling at the right end of the scar for eight months. A 2.5 x 2 cm nodule was located at the right end of the scar. The clinical diagnosis was scarred endometriosis. Radiological

features indicated a 2.3 x 2 cm endometriotic nodule in the anterior abdominal wall of the right LSCS scar with fibrotic changes. The surgical procedure involved a wide local excision.

Case 7, aged 40, had two previous LSCS. She had experienced pain during cycling over the left side of the LSCS scar for two years. A 4.3 x 3.5 cm nodule was found at the left end of the scar. The clinical diagnosis was scarred endometriosis. Radiological features revealed a heterogeneous hypoechoic area in the abdominal incision within the surrounding hyperechoic fat and an internal hypoechoic area of 4.5 x 3.5 cm. The surgical procedure included wide local excision.

Case 8, aged 30, had two previous LSCS. She experienced pain during cycles in the right scar region for 1.5 years. A 3.7 x 2.6 cm nodule was located at the right end of the scar. The clinical diagnosis was scarred endometriosis. Radiological features revealed a well-defined endometriotic nodule measuring 3.8 x 2.8 cm with vascularity changes in the right end of the LSCS scar. The surgical procedure involved a wide local excision.



Fig. 1 Ultrasonography of scar endometriosis

A well-defined heterogeneous hypoechoic lesion with a lobulated margin was noted in the subcutaneous plane of the lower part of the anterior abdominal wall at the LSCS scar site, which is 3.7 cm x 2.81 cm (Figure 1).

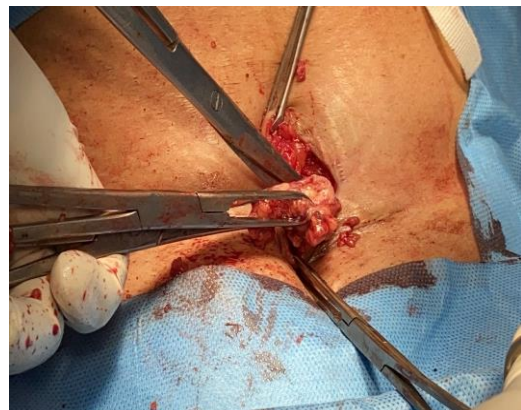




Fig 2. Intraoperative image of scar endometriosis

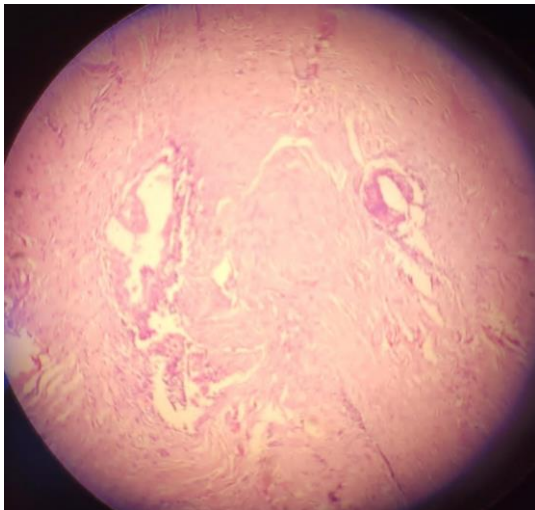
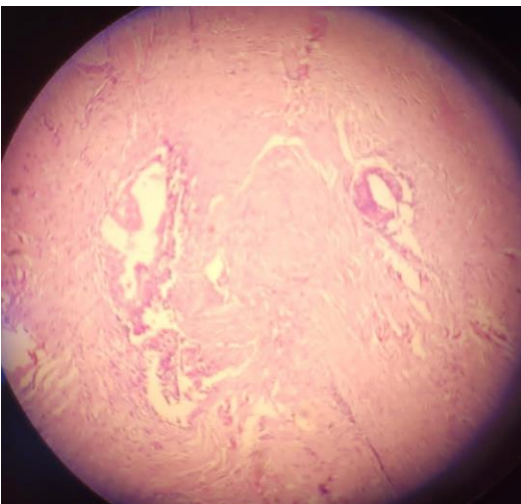


Fig. 3 Histopathological examination

Hematoxylin and Eosin (H&E)-stained sections of excised tissue showed endometrial glands and stroma in the deep dermis at low-power and high-power magnification (Figure 3).

#### 4. Discussion

In eight cases of scar endometriosis, the patients shared common traits. All had previous obstetric and gynaecological surgeries, particularly Lower Segment Caesarean Sections (LSCS). The chief complaints included pain, swelling, and bleeding in the abdominal wall scar area, usually appearing months to years after surgery. The masses were located in various scarring regions. The clinical diagnosis was scar endometriosis, supported by radiological findings. Surgical management involves wide local excision, occasionally combined with LSCS. These shared characteristics highlight the typical clinical presentation and management of scar endometriosis following surgery.

Endometriosis occurs when endometrial tissue, the tissue that lines the uterus, grows outside of the uterus. Endometriomas are cysts that contain endometrial tissue. Extrapelvic endometriosis can affect various sites in the body, including the bladder, kidney, bowel, omentum, lymph nodes, lungs, pleura, extremities, umbilicus, hernial sacs, and abdominal wall. [6] Scar endometriosis is a rare condition that occurs when endometrial tissue grows in a surgical scar. [7] [8] It is most common following post-uterine and tubal operations, particularly caesarean sections. Scar endometriosis typically presents as painful cyclic changes in the nodule size. [9]

The development of scar endometriosis is believed to involve the direct implantation of endometrial tissue during surgery, which subsequently grows under the influence of hormones. [10] Another theory suggests that peritoneal mesothelial cells, which are cells that line the abdominal cavity, may transform into endometrial cells at the incision site, leading to scar endometriosis. However, theories involving lymphatic or vascular spread and retrograde menstruation are less widely accepted. [2][7] Interestingly, scar endometriosis can sometimes be found in patients who have not undergone prior surgery, often in areas such as the vulva, perineum, groin, umbilicus, extremities, and nasolacrimal areas. [11] An accurate diagnosis of scar endometriosis requires meticulous examination, precise questioning, and careful consideration of endometriosis as a potential cause. Patients with scar endometriosis typically experience cyclical pain of variable duration, with common symptoms including pain and increased mass size, which are influenced by hormonal changes. [12]

Diagnosing scar endometriosis can be challenging, often leading to mistaken identification as other surgical conditions like hernias, hematomas, neuromas, lipomas, abscesses, sebaceous cysts, or even neoplastic tissue. [13] Accurately diagnosing scar endometriosis before surgery is only achieved in 20-50% of cases. While imaging techniques can assist in differential diagnosis, histology remains the definitive method for diagnosis. Medical therapy may provide temporary relief, but surgical excision

remains the preferred treatment option, ensuring complete removal of the endometrial tissue and minimizing the risk of recurrence. [12][14] Residual endometrial tissue increases the risk for recurrence. Theoretically, scar endometriosis can undergo malignant transformation; therefore, histological evaluation is crucial. Malignant changes are rare, particularly in the case of CS scars, occurring in only 4% of cases at extragonadal pelvic sites. [6] [15]

## 5. Conclusion

The increasing prevalence of caesarean sections has paralleled the increase in scar endometriosis. Therefore,

women presenting with recurring painful swelling at their abdominal scars, especially those with a history of gynaecological or obstetric surgery, should be closely evaluated for scar endometriosis.

This condition can be misdiagnosed as another surgical complication, but imaging techniques and fine-needle aspiration cytology (FNAC) can aid in accurate diagnosis. Although medical therapy may be effective in some cases, surgical excision remains the preferred treatment option. Ongoing patient monitoring is essential to detect potential recurrence.

## References

- [1] Eleni S. Tsamantioti, and Heba Mahdy, *Endometriosis*, StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing, 2023. [[Google Scholar](#)] [[Publisher Link](#)]
- [2] Nikolaos Machairiotis et al., “Extrapelvic Endometriosis: A Rare Entity or An Underdiagnosed Condition?,” *Diagnostic Pathology*, vol. 8, no. 1, pp. 1-12, 2013. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [3] Muzeyyen Gunes et al., “Incisional Endometriosis After Cesarean Section, Episiotomy and Other Gynecologic Procedures,” *The Journal of Gynaecology Research*, vol. 31, no. 5, pp. 471-475, 2005. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [4] Mustafa Kaplanoglu et al., “Obstetric Scar Endometriosis: Retrospective Study on 19 Cases and Review of the Literature,” *International Scholarly Research Notices*, vol. 2014, pp. 1–5, 2014. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [5] John D Horton et al., “Abdominal Wall Endometriosis: A Surgeon's Perspective and Review of 445 Cases,” *American Journal of Surgery*, vol. 196, no. 2, pp. 207-212, 2008. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [6] Khalifa Al-Jabri, “Endometriosis at Caesarian Section Scar,” *Oman Medical Journal*, vol. 24, no. 4, pp. 294-295, 2009. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [7] Kshitiz Acharya et al., “A Case of Huge Ovarian Cyst in the Second Trimester: A Rare Case Report,” *Annals Medicine and Surgery*, vol. 82, 2022. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [8] Diptee Poudel et al., “Bilateral Ovarian Mucinous Carcinoma (Stage III) with Omental Involvement and Incidental Hydronephrosis: A Rare Case Report,” *International Journal of Surgery Case Reports*, vol. 97, 2022. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [9] Diptee Poudel et al., “A Case of Scar Endometriosis in Cesarean Scar: A Rare Case Report,” *International Journal of Surgery Case Report*, vol. 102, 2023. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [10] Lt Col M.K. Tangri et al., “Scar Endometriosis: A Series of 3 Cases,” *Medical Journal Armed Forces India*, vol. 72, no. 1, pp. S185-S188, 2016. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [11] P. Goel et al., “Case Report-Cesarean Scar Endometriosis--Report of Two Cases,” *Indian Journal of Medical Science*, vol. 59, no. 11, pp. 495-498, 2005. [[Google Scholar](#)] [[Publisher Link](#)]
- [12] Praveen Parasar, Pinar Ozcan, and Kathryn L. Terry, “Endometriosis: Epidemiology, Diagnosis and Clinical Management,” *Current Obstetrics and Gynecology Reports*, vol. 6, pp. 34-41, 2017. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [13] Ray G Blanco M.D et al., “Abdominal Wall Endometriomas,” *The American Journal of Surgery*, vol. 185, no. 6, pp. 596-598, 2003. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [14] Dogan Yildirim et al., “Post-Cesarean Scar Endometriosis,” *Turkish Journal of Obstetrics and Gynecology*, vol. 15, no. 1, pp. 33-38, 2018. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [15] Chun-Jui Wei, and Shu-Han Huang, “Clear Cell Carcinoma Arising From Scar Endometriosis: A Case Report and Literature Review,” *Tzu Chi Medical Journal*, vol. 29, no. 1, pp. 55-58, 2017. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]