

**Scar Endometrioma: A Surgeon's Perspective and Review of Literature**

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**Abstract**

**Background:** Scar endometrioma is very rare and most commonly reported after caesarean sections. The usual presentations are mass at the incision site and pain with or without discharge from scar site. Rarely the presentation is atypical and presenting as an obstructed incisional hernia.

**Objective:** The aim of this study is to discuss the etiology, management and preventive measures for scar endometrioma.

**Methodology:** A prospective study was conducted on scar endometrioma patients admitted as incisional hernia in our hospital between 2010 and 2019. Data were collected and assimilated comprehensively.

**Outcome:** The study group comprised of 22 cases of scar endometrioma admitted in our department as incisional hernia. These cases had swelling in the previous scar area. Pain in the scar was present in six patients. Discharging sinus was present in five patients. Time interval between primary surgery and development of scar endometrioma ranged between 1 to 6 years.

**Conclusion:** Scar endometrioma must be considered as differential diagnosis for incisional hernia. Chronic sinus

after caesarean section needs thorough evaluation to rule out scar endometrioma.

**Keywords:** Scar endometrioma, Lump, Incisional hernia.

**Introduction**

Endometriosis refers to a condition that occurs when endometrial (from the uterus) tissue develops outside the uterine cavity. Endometriosis affects an estimated 8-15 percent of women in reproductive ages, and often leads to significant pain and infertility. Endometriosis occurs most often in pelvis, on the surface lining of the pelvic cavity, peritoneum, ovaries, posterior cul-de-sac, and uterosacral ligaments. Rarely, implants of endometriosis can occur outside of the pelvis, and these forms are termed as extra pelvic endometriosis. Unusual sites include thorax, nervous system, urinary tract and even the skin.<sup>1</sup> When endometriosis manifests as a mass, it is called an endometrioma. A scar endometrioma usually manifests as a lump at the surgical incision in women who have had gynecological or obstetric surgery. Scar endometrioma is very rare, with a worldwide prevalence ranging from 0.03-0.4 percent of all women undergoing caesarean sections.<sup>2</sup> Although scar endometrioma has been most commonly reported after caesarean sections, other gynecologic

surgeries like myomectomy, hysterectomy, hysterotomy, tubal surgeries, appendectomy, amniocentesis, or episiotomy have also been reported to be followed by scar endometrioma.<sup>3</sup> Here the clinical characteristics, diagnosis and treatment of scar endometrioma were analyzed, and the review of literature about scar endometrioma was discussed.

### Methods

A prospective study was conducted on patients admitted as incisional hernia in the Department of Plastic and Reconstructive Surgery of our tertiary care hospital between 2010 to 2019. Twenty-two patients admitted as incisional hernia with previous caesarean scar were taken up for the study. Informed consent was obtained from the patients to publish their data. Institutional Ethics Committee clearance was obtained.

### Results

The age group ranged from 26 to 34 years (median age =29.5years). Parity of the patients ranged from 1 to 2. Fourteen patients had previous two caesarean surgeries and eight patients had one caesarean surgery. The median interval from previous caesarean section to the manifestation of symptoms and swelling was 3.5 years (range 1-6 years). Five patients presented with swelling and cyclical pain with sinus at the scar site and the remaining patients had swelling alone at the scar site. (Figures 1,2,3,4,5) Reddish yellow colored fluid was coming out while pressing the sinus. Two patients had been admitted with acute abdominal pain and a diagnosis of obstructed incisional hernia was made (Table 1). All patients had been investigated with ultrasonogram abdomen. CT abdomen showed intra-abdominal extension in three patients. There was no local or regional lymphnode enlargement in all these patients.

After getting informed consent all patients had undergone wide excision of the lesion under spinal anaesthesia. In

nineteen patients the lesion was extending through the fascial layers but without involving the peritoneal cavity. In one case the mass was adherent to the peritoneal surface of the bladder. (Figure 6) In two patients the lesion was adherent to the uterus.(Figure 7) The average size of the lesion was 2 x 3 cm.(Figure 8) The diagnosis of scar endometrioma was confirmed with histopathology. Postoperative follow up revealed no recurrences. The follow up period ranged from one to six years.

### Discussion

Surgical scar endometrioma is a rare and often misdiagnosed entity.<sup>3</sup> The condition is usually associated with obstetric procedures although it may occur after other procedures and as denovo.<sup>4</sup> Patients with scar endometrioma are often referred initially to general surgeons, physicians or dermatologists as most of the time the condition presents with painful swelling on the anterior abdominal wall. Time interval between primary surgery and the development of scar endometrioma is highly variable. Cases have even been reported to occur even 20 years after surgery.<sup>5</sup> Most commonly, it involves only the skin and sub cutaneous tissue. Involvement of muscle and rectus sheath is rare.<sup>6</sup>

A typical clinical triad has been proposed consisting of a history of gynaecologic surgery, periodic variation of clinical symptoms in relation to the menstrual cycle and mass lesion near or inside the surgical scar.<sup>7</sup> A number of theories have been proposed to explain the origin of endometriotic tissue in the post-operative scars.<sup>8</sup> Lymphatic or hematogenous dissemination theory, coelomic metaplasia theory and even iatrogenic implantation of endometrial tissue during surgery are a few of them.<sup>9</sup>

In our study we investigated twenty-two patients of scar endometrioma admitted as incisional hernia. The latency period between caesarean surgery and onset of scar

endometrioma was one to six years. All our study patients had undergone caesarean section through Pfannenstiel incision. Most of these patients (65%) had swelling in the corner of the previous scar. According to Zhang et al. most of the endometriomas were located in a corner of the incision scar: 83.0% in Pfannenstiel incision scars and 84.2% in vertical midline incision scars.<sup>10</sup> In another large retrospective study, conducted by Yan Ding et al., similar results were obtained.<sup>11</sup> In their study, 77.1% of the endometriomas were located in the corners of the scars. This is probably because endometrial cells are less easily removed from the corners of the incisions during caesarean section. Thus, our data also support the iatrogenic cell implantation theory.

There are two possible causes for the favorable role of the Pfannenstiel incision in the onset of scar endometrioma. First, the Pfannenstiel incision involves wider dissection planes and more gaps, rendering tissue irrigation difficult and inducing much more endometrial cell contamination.<sup>12</sup> The second cause is a larger nutrient supply. Due to the longitudinal pattern of the abdominal vessels and the large dissection, more capillaries are cut off during a Pfannenstiel incision than in a vertical incision, causing more blood loss. Endometrial cells require an adequate blood supply to survive in their ectopic sites, and angiogenesis plays an important role in the pathogenesis of endometriosis.<sup>13</sup> Therefore, more blood loss in the Pfannenstiel incision would provide a relatively rich nutritional environment for the implantation and growth of residual endometrial cells, favoring the occurrence of scar endometrioma. Hereditary predisposition may confer susceptibility to the development of scar endometrioma.<sup>14</sup>

### Learning Points

We present this study for the following reasons:

1. In our study all these patients were referred as incisional hernia. Two out of twenty-two cases had

acute pain over the mass in the scar area and referred as obstructed incisional hernias. Hence the young surgeons should keep the possibility of scar endometrioma in mind before operating on such patients.

2. Wide excision of the lesion including adequate depth is essential to prevent recurrence.
3. Careful flushing and irrigation of the adipose layer and fascia layer during closure is critical.
4. Scar endometrioma with sinus should be adequately evaluated preoperatively and should be operated under anaesthesia.
5. We must take precautions to prevent or reduce the occurrence of scar endometrioma while doing caesarean surgery. The suture material used in closing the uterine wall should not be used in closing the layers of abdomen.
6. Scar endometrioma can undergo malignant change, which is rapidly fatal and has a survival rate of only 57%.<sup>15</sup> Hence, it is necessary to take precautions to prevent or reduce the occurrence of scar endometrioma.

### Conclusion

Scar endometrioma must be considered as differential diagnosis for incisional hernia. Chronic sinus after caesarean section needs thorough evaluation to rule out scar endometrioma. Surgical removal is the best option than medical treatment.

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**Legend Table and Figure**

Table 1: Details of the patients with scar endometrioma

S.N.	Age	Previous surgery	Duration (yrs)	Size of the lesion (cm)	Symptoms/signs
01.	28	Two caesarean	2	2x2	swelling
02.	26	One caesarean	1.5	3x2	Sinus/swelling
03.	30	Two caesarean	3	1.5 x2	swelling
04.	26	One caesarean	6	3x2	Pain/swelling
05.	33	Two caesarean	1	2x2	Sinus/swelling
06.	27	One caesarean	4	1.9x2.7	Pain/swelling
07.	31	Two caesarean	2	3x2	swelling
08.	34	Two caesarean	2	2.3x2.6	swelling
09.	27	One caesarean	5	1x2	Pain/swelling
10.	29	One caesarean	2.5	3x2	Swelling
11.	30	Two	4	1.5x 3.6	Swelling



		caesarean			
12.	27	Two caesarean	3.5	3x2	Pain/Swelling
13.	28	Two caesarean	2	2.5x2.5	Swelling
14.	30	One caesarean	2	2x2	Acute pain/swelling
15.	32	Two caesarean	4	3x2	Sinus/swelling
16.	26	One caesarean	5.5	2,4x3.1	Swelling
17.	33	Two caesarean	2	2.8x3	Swelling
18.	34	Two caesarean	3	2x3	Sinus/swelling
19.	30	One caesarean	5	1.8x2.6	Swelling
20.	26	Two caesarean	6	2x3.4	Swelling
21.	30	Two caesarean	2	2.6x3.4	Sinus/swelling
22.	32	Two caesarean	2.5	2x2	Acute pain/swelling

Figure 2: Scar endometrioma with two sinuses.



Figure 3: Scar endometrioma with a sinus in the left end of the scar.

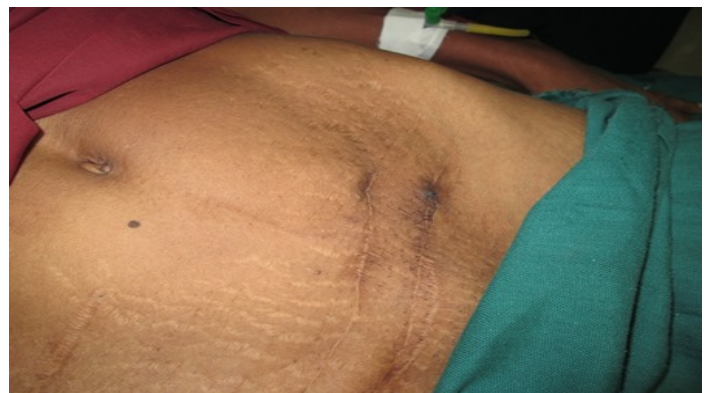


Figure 4: Scar endometrioma with a midline sinus



**Figure Captions**

Figure 1: Scar endometrioma with a sinus in the right end of the scar



Figure 5: Scar endometrioma with multiple sinuses.



Figure 6: Scar endometrioma adherent to the bladder.

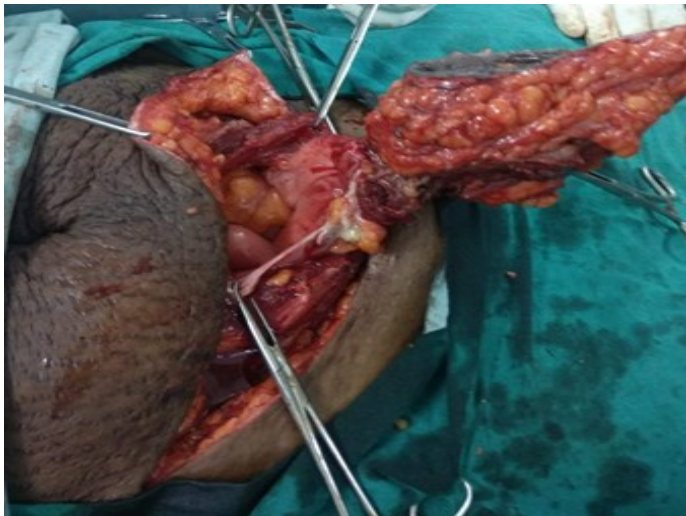


Figure 7: Scar endometrioma adherent to the uterus.

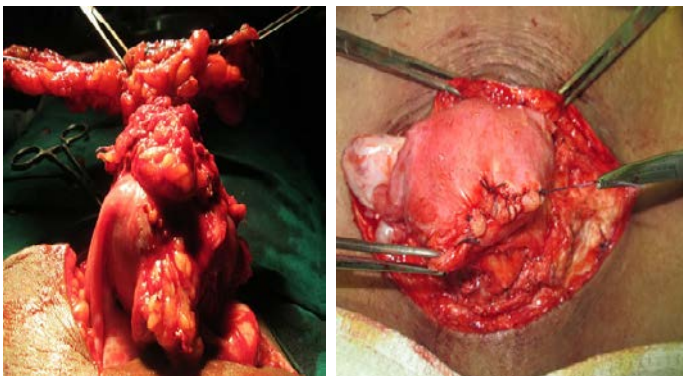
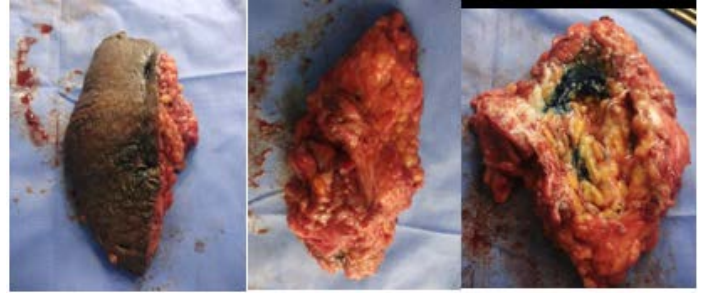


Figure 8: Wide excision of scar endometrioma.



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