

# Scar Endometriosis: Our Experience at Rural Setup with Review of Literature

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**Abstract:** *Introduction: Endometriosis was first described by Rokitansky in 1860. It is the presence and proliferation of the endometrium outside the uterine cavity. Objectives: to identify risk factors and show the clinical patterns and other forms of presentation of scar endometriosis, through publishing the results from our experience of surgical management of these conditions. Materials And Methods: This is a descriptive, observational, retrospective study performed at R.L. JALAPPA Hospital & Research Centre. It consisted of surveying and reviewing data from the medical records of patients diagnosed with surgical scar endometrioma prior to their surgery. These operations took place between July 2006 and May 2016. Results: A total of 15 patients who had presented to our clinic with symptoms of swelling and pain in 13 caesarean section and 2 episiotomy scars between January 2006 and May 2016 were evaluated. All patients received a provisional diagnosis of obstetric incision scar endometriosis preoperatively due to their history and examination characteristics. The mean age was 39.6 and the median being 38 (SD=5.9) with range from 30 to 49 years, and the mean number of pregnancies was 2.53 and the median being 2 (SD=1.35), with range from 1 to 6 pregnancies. Conclusion: Endometriosis, although an uncommon condition in general surgery, should be included in the differential diagnosis of women presenting with swellings related to surgical scars over the abdomen and pelvis, especially if symptoms are cyclical. High suspicion and confirmation of such condition leads on to good clinical outcome of the patient.*

**Keywords:** scar endometriosis, cesarean section scar, incisional endometriosis, stitch granuloma, surgical excision

## 1. Introduction

Endometriosis was first described by Rokitansky in 1860. It is the presence and proliferation of the endometrium outside the uterine cavity. Worldwide approximately 89 million women of reproductive age group are affected, often resulting in debilitating pain and infertility.<sup>1</sup>

It generally occurs in the pelvic sites like ovaries, uterine ligaments, posterior cul-de-sac, pelvic peritoneum, bowel, and rectovaginal septum. Extrapelvic endometriosis can be found in unusual sites like nervous system, thorax, urinary tract, gastrointestinal tract, and in cutaneous tissues, most frequent location being abdominal wall.<sup>2</sup>

The most important cause of extrapelvic implants is obstetric and gynaecological procedures performed. Incisional or scar endometriosis has a much rarer incidence (less than 1% of the affected patients). Endometriosis, in the patients with scars is most common in the abdominal skin and subcutaneous tissue compared to muscle and fascia.<sup>3</sup>

The simultaneous occurrence of pelvic endometriosis with scar endometriosis has been found to rare. Endometriosis involving the abdominal wall is easily confused with other conditions like keloids, haematoma, stitch granuloma, abscess, inguinal and incisional hernia.<sup>4</sup>

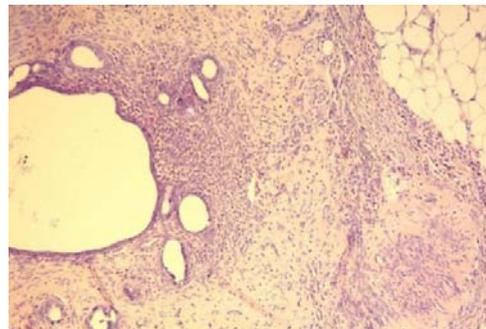


Figure 1: histological appearance of scar endometriosis



Figure 2: MRI pelvis (plain and contrast study)

MRI pelvis (plain and contrast study) revealed an irregular mild spiculated mass (approx 3 x1.5cms) mildly hypointense to muscle on T2 in the subcutaneous plane and involving skin in the right lateral aspect of LSCS scar.

## 2. Objectives

- 1) The aim of this study is to identify risk factors and show the clinical patterns and other forms of presentation of scar endometriosis, through publishing the results from our experience of surgical management of these conditions.
- 2) To add data from the recent literature, to produce an up-to-date review on this subject

**Inclusion Criteria**

- 1) Women of age between 25 to 50 years
- 2) Women with previous surgical interventions like lscs, vaginal deliveries, uterine surgeries etc.

**Exclusion Criteria**

- 1) Age more than 50years
- 2) Nulliparous women
- 3) No previous history of surgical interventions
- 4) History of gynaecological malignancies.

**3. Materials and Methods**

This is a descriptive, observational, retrospective study performed at R.L. JALAPPA HOSPITAL & RESEARCH CENTRE. It consisted of surveying and reviewing data from the medical records of patients diagnosed with surgical scar endometrioma prior to their surgery. These operations took place between July 2006 and May 2016. The postsurgical diagnoses was performed using histopathological analysis, in which the criteria is the presence of endometrial glands and/or stromal cells in the subcutaneous, fibrous or muscle connective tissue.

The main information surveyed were age, obstetric antecedents, symptoms, tumor location, size and palpation, recurrent lesions, duration of the complaint, diagnosis, treatment and asymptomatic window (the time interval between the obstetric procedure and the onset of symptoms). All the patients underwent surgical removal of the tumor with a safety margin, and the definitive diagnosis was confirmed by the pathological anatomical examination.

This research project is approved by the Research Ethics Committee of our institute. The data was cross-referenced and processed using the Microsoft SPSS22 version statistical software. The incidence estimate was based in the absolute number of obstetric surgical procedures performed in our institution over the period surveyed, comparing the different types of delivery. The results were taken to be significant when  $P < 0.05$ . We reviewed the literature using the Medical Literature Analysis and Retrieval System Online (Medline), Scientific Electronic Library Online (SciELO).

S. No	Patient Hospital no.	Age	Operation previous (months)	Type of obstetric Operation	Time of symptoms (months)	Location of lesion	Size of mass (cm)	Presenting symptoms	Imaging studies	FNAC	Treatment
1.	176543	35	48	LSCS	30	RLS	4X2X2	Cyclical Pain,Mass	-	Done	Excision
2.	145643	46	48	Vaginal Delivery	24	On the Episiotomy Scar	3X2X2	Cyclical Pain,Mass	USG	Done	Excision
3.	186578	38	108	LSCS	48	RLS	3X3X2	Cyclical Pain,Mass	USG, MRI	Done	Excision
4.	189760	49	24	LSCS	12	LLS	2X2X2	Non Cyclical Pain, Mass	MRI	Not Done	Excision
5.	190866	35	24	LSCS	12	RLS	3X3X3	Cyclical Pain,Mass	USG	Done	Excision
6.	234879	42	36	LSCS	24	RLS	2X2X1	Cyclical Pain,Mass	-	Done	Excision
7.	100987	30	24	LSCS	12	RLS	4X2X2	Cyclical Pain,Mass	USG,MRI	Not Done	Excision
8.	90007	35	48	LSCS	12	RLS	3X2X2	Non Cyclical Pain, Mass	USG	Done	Excision
9.	179654	37	12	LSCS	6	LLS	3X2X1	Cyclical Pain,Mass	-	Done	Excision
10.	106759	47	84	LSCS	30	LLS	2X2X2	Cyclical Pain,Mass	MRI	Done	Excision
11.	190573	33	96	Vaginal Delivery	48	On The Episiotomy Scar	2X2X2	Cyclical Pain,Mass	USG,MRI	Done	Excision
12.	187065	39	108	LSCS	36	LLS	2X2X2	Cyclical Pain,Mass	USG	Done	Excision
13.	194563	44	36	LSCS	24	RLS	4X3X3	Cyclical Pain,Mass	-	Not Done	Excision
14.	220087	37	60	LSCS	36	RLS	2X2X1	Cyclical Pain,Mass	USG	Done	Excision
15.	190065	48	24	LSCS	12	RLS	3X3X2	Cyclical Pain,Mass	-	Done	Excision

**4. Results**

A total of 15 patients who had presented to our clinic with symptoms of swelling and pain in 13 caesarean section and 2 episiotomy scars between January 2006 and May 2016 were evaluated. All patients received a provisional diagnosis of obstetric incision scar endometriosis preoperatively due to their history and examination characteristics. Ultrasonography alonewas done in 5 patients and only MRI analysis in 2patients, both ultrasonography and MRI analysis were done in 3 patients. No radiological investigations were performed in 5 patients.

The mean age was 39.6 and the median being 38(SD=5.9) with range from 30 to 49 years, and the mean number of pregnancies was 2.53 and the median being 2(SD=1.35), with range from 1 to 6 pregnancies. All of patients were described as abdominal surgery (caesarean section) and vaginal surgery (episiotomy). 13 (86.6%) patients were cesarean section, and 2 (13.3%) patients were vaginal delivery with episiotomy.

The time between diagnosis and last obstetric surgical intervention was 52 months and the median being 48 months (SD=32.28), with range from 12 to 108 months in evaluation of all patients. This period was 48months, with range from 12 to 108 months for cesarean section patients

and 72 months, with range from 48 to 96 months for vaginal delivery with episiotomy patients.

The mean duration of the symptoms, defined as the time between symptoms and the first visit, was 27.6 months and the median being 18 months, with range from 6 to 48 months in evaluation of all patients. This result was 36 (24–48) months in vaginal delivery with episiotomy patients and was 26 (6–48) months in cesarean section patients. The mean asymptomatic period, defined as the time interval between surgical intervention and onset of symptoms, was 29.5 months.

Tumoral tissue was surgically excised with a 1 cm surgical margin of safety in all patients. A fascial defect that developed in these patients after surgical excision was repaired with prolene suture material by us. The final diagnosis was reported as endometriosis on histopathological examination. The mean follow-up period after surgery was 24(6–36) months and no recurrence was observed. None of patients received the additional treatment modalities because of endometriosis like symptoms were not described in the gynecologic history of patients.

The incidence of obstetric scar location endometriosis was 0.03% for cesarean section and 0.001% for vaginal delivery in our clinic. As a result, cesarean section is one of the most important risk factors for obstetric scar endometriosis in our data. This result may be according to surgical method and amount of endometriotic tissue in scar area.



**Figure 3:** Intraoperatively, elliptical incision over the right lateral aspect in the pelvis



**Figure 4:** Intraoperatively following excision of the endometrial tissue



**Figure 5:** Excised endometrial tissue



**Figure 6:** Primary closure of the wound

## 5. Discussion

Endometriosis is defined as finding endometrial gland and stroma outside the uterus. Although this placement is usually in the pelvis, it may be outside the pelvis and in tissues such as the lung, ureter, brain, and obstetric scars. There are many theories on endometriosis development but the subject is still controversial.<sup>5</sup>

However, direct mechanical implantation of endometrial tissue seems to be the most appropriate theory for the explanation of the scar endometriosis. Development of scar endometriosis requires implantation of the cells in the relevant area following abdominal or vaginal procedures, protection from the immune response, and hormonal stimulus for cell growth.<sup>6</sup>

On the other hand, predisposing factors such as smoking and alcohol consumption should not be ignored. It is difficult to determine the precise incidence of obstetric scar endometriosis due to the wide range of obstetric scar locations, follow-up durations, and the clinical presentation.<sup>7</sup>

While the incidence of endometriosis was as high as 10% among women of reproductive age, the incidence of abdominal wall endometriosis after cesarean section was 0.03–1.7% and the incidence of episiotomy region endometriosis after normal birth was 0.06–0.7% in studies with a limited number of cases. The results are consistent with our findings. On the other hand, these types of lesions can be observed as skin lesions after procedures such as laparoscopy and amniocentesis.<sup>8</sup>

An important issue besides the symptoms caused by the lesions themselves such as swelling and pain is malignant transformation of scar endometriosis. The incidence of malignant transformation in scar endometriosis is 0.3–1%. Functional complications (such as defecation and sexual problems) according to endometriosis surgery are commonly observed in extensive surgery.<sup>9</sup>

The aim of this surgery is prevention of recurrence of lesions. The diagnosis of malignant transformation of scar endometriosis is generally postsurgical histopathologically. The most commonly seen malignancy is clear cell carcinoma.<sup>10</sup>

Definite histopathological diagnosis of every excised tissue is therefore important. The possibility of malignant transformation of the lesion should be considered in cases that recur after surgery. This rare but important condition should be considered in all patients and monitored carefully during patient follow-up.<sup>11</sup>

History and physical examination are important in detecting scar endometriosis and the most common findings are swelling, pain, and rarely bleeding in the lesion area. Similar results can be caused by many disorders such as hematoma, neuroma, hernia, granuloma, and neoplasia, which should also be considered in the differential diagnosis.<sup>12</sup>

Scar endometriosis can be diagnosed with high accuracy with careful physical examination and history. Scar endometriosis was considered as the preliminary diagnosis in all our cases after obtaining the medical history and was confirmed histologically. Menstruation-related pain and swelling in the anamnesis should be considered to be pathognomonic for scar endometriosis. However, a definite diagnosis can be made by histopathological examination of the lesion.<sup>13</sup>

Umbilical endometriosis is uncommon (up to 1% of cases). It usually presents as cyclical umbilical pain with a blue discoloration at the time of menstruation. The differential diagnosis includes pyrogenic granuloma and metastatic nodule. Surgical excision is the treatment of choice, as medical therapy is only partially effective.<sup>14</sup>

Intestinal involvement may be seen in 3-34 % of cases of pelvic endometriosis. The common sites are left colon and rectum (71%), appendix (17%) and small bowel (7%). Shinya et al, in a series of 2200 diagnostic colonoscopies for rectal bleeding, found two cases of endometriosis. The disease commonly affects the serosa and sometimes invades the wall but, usually, does not involve the mucosa. The majority of cases are asymptomatic. Large bowel involvement usually presents with cyclical bleeding, partial obstruction and abdominal pain. Rupture of an endometriotic cyst presents an acute abdominal emergency. It should be differentiated from a ruptured ectopic pregnancy, torsion and haemorrhage into an ovarian cyst, or acute salpingitis or other causes of the acute abdomen.<sup>15</sup>

Ascites associated with endometriosis is uncommon. It may arise from the rupture of endometrial cysts, the contents, causing irritation of peritoneal surface and consequent secretion of excessive peritoneal fluid. Previously no case has shown endometriosis presenting with CA125 level of 7910 U/ml. Medl et al, in their series of 71 patients, showed varying levels of CA125 (range 1-352.6 U/ml). Myers et al presented a case of endometriosis with a CA125 level of 440 U/ml. Mesothelial cells staining positive for CA125 in the ascitic fluid were found. They

postulate that endometriosis may have stimulated these cells to leak transudative ascitic fluid and to elevate the serum CA125 levels. Thus endometriosis can present mimicking ovarian carcinoma. Exploratory laparotomy is indicated to provide a definitive diagnosis and correct management.<sup>16</sup>

## 6. Conclusion

Endometriosis, although an uncommon condition in general surgery, should be included in the differential diagnosis of women presenting with swellings related to surgical scars over the abdomen and pelvis, especially if symptoms are cyclical. In such patients, high index of suspicion of scar endometriosis should be there which should be confirmed by sonological and pathological reports. High suspicion and confirmation of such condition leads on to good clinical outcome of the patient.

## References

- [1] American College of Obstetricians and Gynecologists, "ACOG Committee Opinion". Number 310, April 2005. Endometriosis in adolescents," *Obstetrics and Gynecology* 2005; 105(4): 921-27.
- [2] G. Francica, C. Giardiello, G. Angelone, S. Cristiano, R. Finelli, and G. Tramontano, "Abdominal wall endometriomas near cesarean delivery scars: sonographic and color Doppler findings in a series of 12 patients" *Journal of Ultrasound in Medicine* 2003; 22(10):1041-47.
- [3] M. Gunes, F. Kayikcioglu, E. Ozturkoglu, and A. Haberal, "Incisional endometriosis after cesarean section, episiotomy and other gynecologic procedures," *Journal of Obstetrics and Gynaecology Research* 2005; 31(5):471-75.
- [4] T. S. Papavramidis, K. Sapolidis, N. Michalopoulos et al., "Spontaneous abdominal wall endometriosis: a case report," *Acta Chirurgica Belgica* 2009; 109: 778-81.
- [5] V. B. Pavalli, M. G. Mamdouh, "Menstruating from the umbilicus as a rare case of primarily umbilical endometriosis: a case report," *Journal of Medical Case Reports* 2009; 3, Article ID 9326.
- [6] P. Chatzikokkinou, J. Thorfinn, I. K. Angelidis, G. Papa, and G. Trevisan, "Spontaneous endometriosis in an umbilical skin lesion," *Acta Dermatovenerologica Alpina, Pannonica et Adriatica*, 2009; 18(3):126-30.
- [7] H. Bektas, Y. Bilsel, Y. S. Sari et al., "Abdominal wall endometrioma: a 10-year experience and brief review of the literature," *Journal of Surgical Research*, 2010; 164:77-81.
- [8] M. A. de Oliveira, A. C. de Leon, E. C. Freire, H. C. de Oliveira, and Source of the Study, "Risk factors for abdominal scar endometriosis after obstetric hysterotomies: a case-control study," *Acta Obstetrica et Gynecologica Scandinavica*, 2007; 86(1): 73-80.
- [9] N. S. Nominato, L. F. V. S. Prates, I. Lauer, J. Morais, L. Maia, and S. Geber, "Scar endometriosis: a retrospective study of 72 patients," *Revista Brasileira de Ginecologia e Obstetrícia*, 2007; 29(8): 423-27.
- [10] F. Sergent, M. Baron, J. B. Le Cornec, M. Scott'e, P. Mace, and L. Marpeau, "Malignant transformation of

- abdominal wall endometriosis: a new case report,” *Journal de Gynécologie, Obstétrique et Biologie de la Reproduction*, 2006; 35(2): 186–90, 2006 .
- [12] C. Balleyguier, C. Chapron, N. Chopin, O. H'el'ennon, and Y. Menu, “Abdominal wall and surgical scar endometriosis: results of magnetic resonance imaging,” *Gynecologic and Obstetric Investigation* [13] 2003; 55(4): 220–24.
- [14] Kanellos, T. Kelpis, T. Zaraboukas, and D. Betsis, “Perineal endometriosis in episiotomy scar with anal sphincter involvement,” *Techniques in Coloproctology*, 2001; 5(2): 107–08.
- [15] L. C'ardenas-Lailson, F. Berlanga-Ram'irez, A. Athi'e-Athi'e, F. Gonz'ales-Parada, and L. Villanueva-Egan, “Abdominal wall endometrioma: clinical characteristics and results of surgical treatment,” *Cirujano General*, [16] 2002; 24(4): 295–99.
- [17] S. Minaglia, D. R. Mishell, and C. A. Ballard, “Incisional endometriomas after cesarean section: a case series,” *Journal of Reproductive Medicine for the Obstetrician and Gynecologist*, 2007; 52(7): 630–34.
- [18] G. I. Barisic, Z. V. Krivokapic, and D. R. Jovanovic, “Perineal endometriosis in episiotomy scar with anal sphincter involvement: Report of two cases and review of the literature,” *International Urogynecology Journal and Pelvic Floor Dysfunction*, 2006; 17(6): 646–49.
- [19] E. M. Kokuba, N. M. Sabino, H. Sato, A. Y. Aihara, E. Schor, and L. M. Ferreira, “Reconstruction technique for umbilical endometriosis,” *International Journal of Gynecology and Obstetrics*, 2006; 94(1): 37–40.