

## SCAR ENDOMETRIOMA FOLLOWING CAESAREAN SURGERY ANALYSIS OF 6 CASES

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### Abstract

#### Objective:-

1. To See the incidence of scar endometrioma in our gynaec outpatient clinic.
2. To identify the clinical pattern of the disease.
3. Incidence of symptomatic relief post resection.
4. Post resection need for medical therapy.

#### Design and Setting:-

Retrospective descriptive study of the etiology and prospective analysis of scar endometriosis and symptoms on pain scale, at Nice hospital of women, children & newborns at Shanthinagar Hyderabad, Telangana, India.

Methods: - Data from the medical records of patients from OPD Clinics and IP Records during Jan 2013 to Oct 2016 with pre operative diagnosis of scar endometrioma who underwent surgery between 2013 to 2016 were surveyed and reviewed. Current data of confirmation of diagnosis by High-Resolution Ultrasound Scan and MRI and histopathological examination of resected mass. The main information surveyed was age, obstetric antecedents, symptoms, tumor location, size & palpation, duration of complaint, diagnosis, and treatment. All underwent tumor excision with a safety margin.

Results: - There were 6 patients, a mean age 30.1 ± 5.0 yrs plus or minus (Range 18-40 yrs) 100% located in and around cesarean scars. The main symptom was localized cyclical pain (80-100%) of mean duration 20-24 months, the interval between LSCS and onset of Scar Endometrioma was between 3 yrs to 7 yrs. Surgical treatment was successful in all cases.

Conclusion: - This is an uncommon disease. Most important a diagnostic criterion is a Cyclical pain at the local site during menstruation. Patient undergoing cesarean section is at the greatest risk. The surgical treatment of choice is excision of the endometrioma with a safety margin. Post-operatively medical therapy given in all cases. The patient is followed up every 6 months to assess any recurrence.

**Keywords:** Endometrioses, Cesarean section, postoperative complications, Treatment outcome.

### **Introduction:**

The presence of ectopic endometrial tissue is less frequently seen at extra pelvic sites especially in abdominal surgery scar areas following hysterectomy and cesarean section (1). Other remote sites have been described such as the extremities, CNS, lungs, pleura, liver, umbilicus, Pericardium, urinary tract and intestine but these are rare events (2). Reports in the literature state that endometriosis may be present in surgical scars following laparotomy, laparoscopy. However, most of the cases reported having occurred following obstetric procedure that exposed the endometrial tissue especially in cases of Cesarean Section. (3, 4, 5)

The incidence of endometrioma in the Literature ranges from 0.03 to 3.5 % (5, 6, and 7). The theory of iatrogenic implantation is the one most accepted by several authors, the other theories are secondary to this in order to explain the physiopathology (8,9). Diagnosis is made solely based on physical examination aided by USG.

Scar endometrioma is well marked tumoral lesions such as non-neoplastic granuloma or tumor. It is formed by whitish fibrous tissue with thick chocolate like colored liquid area and is located anywhere in the surgical scar (4). Not all scar endometriosis is characterized by endometrioma and this makes diagnosis difficult when there are no palpable nodules. The treatment is basically surgical and the use of medication that has already been proven for treating Pelvic endometriosis has been described for controlling scar endometrioma. (10, 11)

### **Objective:-**

The aim of this study was to identify risk factors & show the clinical pattern & other forms of presentation of scar endometrioma, through publishing the result from our experience of surgical management of such lesion.

### **Methods:-**

This was a descriptive, observational retrospective study performed at the Nice

hospital Shantinagar Hyderabad. Data received from the Outpatient and Inpatient medical records of a patient diagnosed with surgical scar endometrioma prior to their surgery.

The survey took place between Jan 2013 to Aug 2016. The post-surgical diagnosis was performed using HPE. Analysis criterion was the presence of endometrial gland & stromal cells in the connective tissue that was analyzed i.e. in subcutaneous, fibrous or muscle connective tissue.

The main information surveyed was age, obstetric antecedents, symptoms, tumor location, size & palpation, Recurrent lesion, duration of complaints, diagnosis, treatment and asymptomatic window (the time interval between the obstetric procedure & the onsets of symptoms).

All the patients underwent surgical removal of the tumor with a safety margin & the definitive diagnosis was confirmed by the anatomical examination and Histopathological examination.

### **Result:-**

The operation was done in all 6 patients diagnosed as scar endometrioma performed between Jan 2013 to Aug 2016. The mean age at the time of diagnosis 28-45yrs (Mean Valve). All the patients described had undergone abdominal surgery mainly cesarean section, the location of the scar near or under the cesarean section scar. All the patients had scar endometrioma after 2 LSCS.

The main complaint was a cyclical pain in the tumoral area relating to the menstrual period, localized pain in the scar area without any other complaints and the scar nodule was found on physical examination. The preoperative diagnosis was done by high-resolution Ultra Sonography and Magnetic Resonance Imaging. The lesion was Preaponeurotic in Subcutaneous cellular tissue.

For 3 patients Rectus sheath had to be opened. All patients after resection of

endometrioma were totally pain-free after surgery.

**Discussion:-**

Scar endometriosis usually follows previous abdominal surgery especially early hysterotomy & cesarean section. Other surgical factors (a) Laparotomy (b) Ectopic pregnancy (c) salpingostomy (d) Puerperal sterilization (e) Laparoscopy (f) appendectomy (g) episiotomy (h) Vaginal hysterectomy & hernia repair are other surgical factors for scar endometriosis. (12, 13)

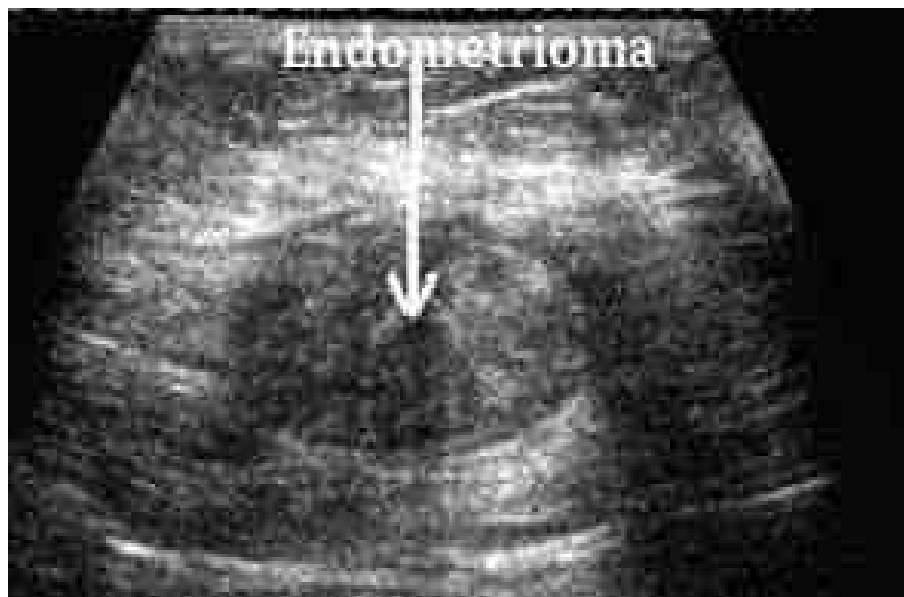
The incidence of scar endometriosis to be 0.08%. Incidence after cesarean section ranging from 0.03% to 0.45% (14). The frequency of scar endometriosis has increased in the recent past because of the increasing number of cesarean sections & laparoscopies being performed. (15)

Direct mechanical implantation seems to be a possible theory for explaining scar

endometriosis. During cesarean section, endometrial tissue might be seeded into the wound & under the same hormonal influence, these endometrial cells proliferate (16). The endometrial tissue may have certain abilities that make implantation & transplantation possible during pregnancy; De Oliveira et al demonstrated that heavy menstrual blood flow & alcohol consumption were positively related to scar endometriosis and conversely, high parity may be a protecting factor (17). However, direct implantation of endometrial tissue cannot explain all cases.

There are few cases of primary cutaneous endometriosis without prior surgery such as at vulva, perineum, groin, umbilicus & extremities as well as nasolacrimal localization. (18, 19)

In our series – All 6 patients had History of previous 2 LSCS.



**Fig.1:** High-Resolution Ultrasound Appearance of Scar Endometrioma

Clinical diagnosis can be made by history and physical examination. The patient presented with mass near the previous surgical scars accompanied by increasing

colicky like pain during menstruation (20). Usually, there is an H/o gynecological & non-gynecological abdominal operation.

In these patients, correct diagnosis depends on careful examination, right questioning & obviously taking endometriosis into consideration. Furthermore, scar endometriosis is a rare entity and the patient presented with a wide range of duration of cyclical pain from 2.5 yrs to 10 yrs of last cesarean section operation.

The usual presenting symptoms of cyclical pain and increase in the size of mass may be due to hormonal influence that causes a change in size, cutaneous bleeding, and bruising. (21)

Our patients also presented with swelling at scar site & periodic pain at the site. Mass having severe tenderness.

When a proper pre -diagnosis cannot be achieved scar endometriosis can be easily mistaken for other surgical condition such as a hernia, hematoma, neuronal, suture granuloma, lipoma, abscess, sebaceous cyst & neoplastic tissue or even metastatic carcinoma (22).

In 1958, Ridley & Edward performed a successful experimental study on a human in which they injected endometrial tissue into the abdominal wall in order to corroborate the iatrogenic implant theory (23). This has been the main theory accepted by several authors in relation to the genesis of this disease (24).

On another hand, this theory alone is not enough completely to explain the physiopathology, given the low incidence of this disease and the reports on skin endometriosis without previous surgery or scar endometriosis without opening the peritoneal or uterine cavities. (25)

Such events may be better explained by other theories or by combining all of them -- -Coelomic metaplasia theory, sympathetic or hematogenic dissemination theory & cell immunity change theory.

Moreover, appropriate estrogenic stimulation is needed in order to support all of these events, which explain why only women with functional ovaries are affected by this disease.

The ability of ectopic endometrial cells to resist cell apoptosis allows them to survive in the surgical scar. A recent study concluded that the expression of metallothionein through endometrial cells & receptor-binding cancer antigen through picocells (RCAS) i.e., the membrane antigens the central cytotoxic activity, might cause the scar cells in cesarean section to persist. (26)

Ovarian hormonal action on ectopic endometrial cells (stromal and granulosa cells) during the menstrual period causes slight bleeding at the scar location with an inflammatory reaction & subsequent tissue repair (5). Thus as each menstrual cycle goes by, the lesion increases in volume & behaves like an invasive tissue which can be seen in HPE. Such invasion might compromise the skin, subcutaneous cellular tissue, muscles, aponeurosis & peritoneum.

At certain points during the cycle, areas of focal hemorrhage can be identified, along with the area of active chronic endometriosis with fibrosis & cellular infiltration that is rich in macrophages & histiocytes loaded with hemosiderin pigment.

The nonspecific nature of the clinical presentation of endometrioma along with the possible differential diagnosis such as string granuloma, incisional hernia, hematoma, abscess, cyst & lipoma is responsible for the diagnostic trap. (4)

The most evident clinical presentation is a painful subcutaneous nodule of chronic cyclical nature matching the menstrual period with a location in a surgical scar area. Physical examination is essential for accurate diagnosis. Hard nodules are usually found by palpation of subcutaneous cellular tissue, below the scar and in any part of it.

Ultrasound is a good investigational method for tumoral masses, given its practicality & low cost; Abdominal wall ultrasound shows a solid, hypoechogenic & heterogeneous mass with messy internal echoes and vascularized image with the possibility of cyst components of mixed echogenicity.

Although USG is nonspecific, finding close to cesarean section scar strongly suggest a diagnosis of endometrioma. (15, 26, 27)

MRI has better performance than CT scan in relation to outlining the subcutaneous muscle & aponeurotic tissue layers. Kinkel et al revealed the sensitivity & specificity of MRI in helping in the diagnosis of endometriomas to be 90-92% & 91-98% (28). MRI is also useful modality for presurgical mapping of deep pelvic endometriosis. Infiltration of the abdominal wall & Subcutaneous tissue is much better assessed by MRI. (29)

FNAC is accurate only in cases of large masses, doubtful diagnosis & atypical clinical presentation

Histology is the hallmark of diagnosis. It is satisfied if endometrial glands, stroma & hemosiderin pigment are seen (30). In general, diagnosis is easy with a microscopic examination of standard hematoxylin & eosin stained slide. But the cytologist experience must be important to clarify diagnosis & to exclude malignancy.(31)

Local wide excision with at least 1cm of margin is the accurate treatment of choice for scar endometriosis & also for recurrent lesions. Recurrence of the scar endometrioma is rare and very few cases having been reported.

As expected, the larger and deeper lesion into the muscle and the fasciae are more difficult to excise completely. In large lesions, complete excision of the lesions may cause difficulty enclosure after resection, the placement of synthetic mesh or transfer of tissue may be needed (11). Medical therapy with danazol, progesterone, Gn-Rh agonists produce only partial recovery and mostly recurrence occur after cessation of the treatment with an extreme side effect (32). The incidence of concomitant pelvic endometriosis with scar

endometriosis has been reported to be ranging from 14.2% to 26% (33). Ideally, all patients must be examined for concomitant pelvic endometriosis and at this point , post-operative follow up should be done for a couple of years and the patient should be under the observation of gynecologist.

#### **Precautions:**

Several measures have been proposed for prevention of iatrogenic implantation in the endometrium, but without any evident scientific corroboration use of good surgical techniques and intra-surgical tests are deemed elementary precaution in this respect. Failure to close the parietal & visceral peritoneum in the cesarean section may be related to greater rates of scar endometrioma. It is recommended not to use same surgical material and the same instruments as used in closing uterus when suturing other abdominal wall layers

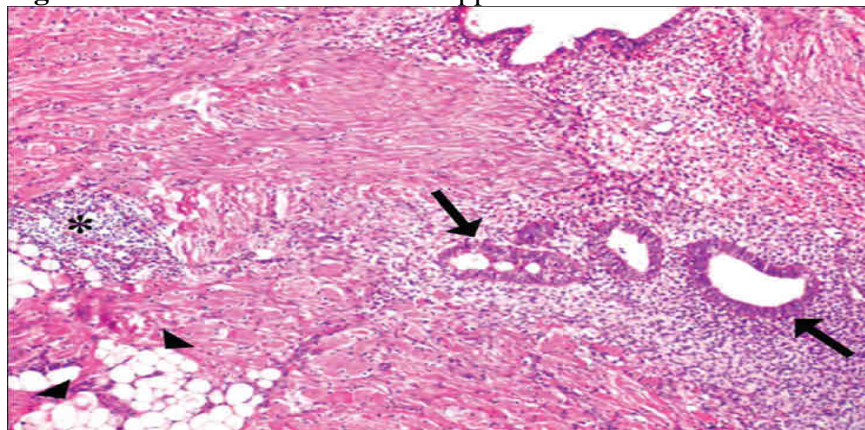
Some authors recommend the use of high doses of progesterone in order to decrease the occurrence of endometriosis at the surgical site, during the 1<sup>st</sup> 6 months after hysterotomy. Other authors have recommended washing the abdominal wall as a prophylactic measure, using irrigation with a salt solution before closing the wall. To, sum up, although there are no well controlled published clinical trial that can strengthen this topic through better evidence, we agree that adopting sensible care during the surgical procedure is highly recommendable. Hence, good technique & good care during cesarean section may help in preventing endometriosis. All the 6 patients who presented were within a gap range of 2 yrs to 10 yr since the last surgery.

#### **Follow-up:**

All patients were pain-free after resection of endometrioma in our cases and on follow-up no recurrence seen in cases done in 2013 to 2015.



**Fig. 2:** Post-Resection Anatomical appearance of Scar Endometrioma



**Fig. 3:** Histopathological Appearance of Scar Endometrioma showing Endometrial Gland and Stroma

**Conclusion:-**

One should have a high index of suspicion of scar endometriosis, whenever a woman presents with a painful swelling in the abdominal scar, especially with a history of previous gynecological or obstetric surgery. This condition can be confused with other surgical conditions. Efforts should be made to make a preoperative diagnosis with the help of imaging techniques & FNAC can help to rule out inflammatory masses and

malignancy. Medical treatment is not very helpful in our series all were given medical therapy pre-operatively. Wide excision is the treatment of choice. The patients should be followed up for recurrence. It should be a routine practice to examine the adnexa, P.O.D and uterosacral ligaments for any evidence of Endometriosis at the time of LSCS and probably they should be advised progesterone based Contraceptives.

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