ijlpr 2023; doi 10.22376/ijlpr.2023.13.5.L98-L105

International Journal of Life science and Pharma Research

ISSN 2250-0480

Case Report

Scar Endometriosis

Scar Endometriosis - A Case Report

Preethi Bose[1*], Varrshine R[2] and Thanka J[3]

[1,] *Associate Professor, Department of OBG, Sree Balaji Medical College and Hospital, Chrompet, Chennai*

[2] *Department of OBG, Sree Balaji Medical College, Chrompet, Chennai*

[3] *Department of Pathology, Sree Balaji Medical College, Chrompet, Chennai*

Abstract: Endometriosis is a common disease affecting women in the reproductive age group. Endometriosis is the presence and growth of functional endometrial tissue at sites other than the uterus. Scar endometriosis, a type of extrapelvic endometriosis, is the presence of functioning endometrial tissue in the abdominal wall along the scars of previous abdominal surgeries. About 1-2 % of women who underwent cesarean section have the risk of developing surgical scar endometriosis. We report the case of a 27-year-old woman with a history of two cesarean sections. She presented with pain abdomen and an abdominal lump, which increased during menstruation. On examination, there was a tender lump in the abdomen. A clinical diagnosis of scar endometriosis was made. Radiological investigations confirmed the diagnosis. Under anesthesia, the scar endometriosis tissue was removed by wide excision and sent for histopathology, which confirmed the presence of endometrial glands with stroma. The patient was discharged and followed up without any recurrence. This case is reported as a rare condition, though it is increasing in incidence. The clinical features may mimic many surgical or dermatological conditions; hence there is a high chance of misdiagnosis and unnecessary referral, causing physical and emotional distress to the patient. Basic knowledge of the condition, thorough clinical examination, and radiological imaging are usually effective in diagnosing the condition. Surgical excision and follow-up form the basis of treatment of scar endometriosis. Though surgery is the mainstay of treatment and medical treatment does not provide a permanent cure, there is scope for future research to discover innovative medical methods to provide a permanent cure without surgery. The preventive aspect is also important for the surgeon doing the primary surgery. However, further evidence-based studies are needed to establish effective methods to prevent the development of scar endometriosis.

Keywords: scar endometriosis, cesarean section, abdominal wall endometriosis, abdominal lump, wide excision

***Corresponding Author**

Preethi Bose , Associate Professor, Department of OBG, Sree Balaji Medical College and Hospital, Chrompet, Chennai

Received On 19 November, 2022

Revised On 16 March, 2023

Accepted On 30 March, 2023

Published On 1 September, 2023

Funding This research did not receive any specific grant from any funding agencies in the public, commercial or not for profit sectors.

Citation Preethi Bose, Varrshine R and Thanka J , Scar Endometriosis - A Case Report.(2023).Int. J. Life Sci. Pharma Res.13(5), L98-L105 http://dx.doi.org/10.22376/ijlpr.2023.13.5.L98-L105

1. INTRODUCTION

Endometriosis is a chronic disease that affects 10-15 % of women. [1] The disease was first described by Dr. Karl Von Rokitansky in 1860.[2]Endometriosis is a common disease, defined as the presence of endometrial tissue (both glands and stroma) outside the uterus. It mainly affects women of reproductive ages. The common sites include the Pouch of Douglas, uterosacral ligaments, ovaries, and fallopian tubes. Extra-pelvic endometriosis is a rare condition. Major sites for extrapelvic endometriosis include the lungs, pleura, kidneys, bladder, omentum, bowel, lymph nodes, and abdominal wall. The pathogenesis of endometriosis is multifactorial. It is a disease that is estrogen dependent. Three main theories have been proposed to explain the pathogenesis of endometriosis. The transplantation theory proposed that endometriosis is caused by transtibial regurgitation of endometrial cells during menstruation. This theory explains pelvic endometriosis. The coelomic metaplasia theory explains that the metaplastic transformation of the coelomic epithelium into endometrial tissue is the pathogenesis of endometriosis. The induction theory proposes that a specific endogenous biochemical factor induced the cells to develop into endometrial cells. Recent studies have identified a specific type of cell called endometrial stem/ progenitor cell involved in the cyclic regeneration of the normal endometrium. It may cause the development of endometrial tissues at ectopic sites. Genetic factors like aneuploidy and multifactorial inheritance may have a role. Molecular and immunological factors like cytokines and tumor necrosis factor (TNF) also play a role in the pathogenesis. [3] Pathology of endometriosis, at least two of the three microscopic features should be present to diagnose endometriosis. The presence of endometrial glands, the presence of endometrial stroma, and the evidence of chronic hemorrhage (the presence of hemosiderin-laden macrophages)[4] Women with endometriosis present with clinical symptoms of dysmenorrhea, dyspareunia, chronic pelvic pain, and infertility. Many women may remain asymptomatic, even when they have advanced disease. Some women may present with gastrointestinal symptoms like vomiting, bloating, abdominal distension, and altered bowel habits. Forniceal fullness due to unilateral ovarian cyst and uterosacral nodularity may be detected on deep pelvic examination. Though ultrasound has high sensitivity and specificity in diagnosing ovarian endometriomas, it has no diagnostic value in peritoneal endometriosis. Laparoscopy is the gold standard in the diagnosis of endometriosis. Endometriosis in surgical scar sites in the abdominal wall is one of the different pelvic locations, mostly occurring in old scars from obstetrical and gynecological procedures. It is a rare condition, though probably on the rise, due to the considerable increase in cesarean sections performed worldwide. Its physiopathology is complex. The etiology is thought to be iatrogenic. Direct implantation of the endometrial tissue in the abdominal wall along the suture site when operating on a patient with genital endometriosis is thought as the cause. These implants persist as endometrial inclusions in the scar site, presenting with symptoms later.[5] The great variability of symptoms and clinical presentations as well as the limited knowledge of the disease, can lead to diagnosis difficulties and delays that are detrimental to the patient's well-being and quality of life. Thorough clinical examination, ultrasound imaging, and potentially pre-therapeutic cytologic evaluation are usually efficient in diagnosing the condition. Treatment is mostly surgical. There are also few reports of malignant transformation in the scar endometriosis site. As the incidence of scar endometriosis is low, only a few case reports are available. The incidence is rising nowadays due to the increase in cesarean section rates. Also, the condition gets misdiagnosed as a surgical condition and is referred to surgeons. Awareness of the clinical presentation is a must to prevent unnecessary referrals. [6] We report the case of a cesarean section scar endometriosis (CSE) managed at Sree Balaji Medical College and Hospital, Chrompet to highlight the diagnostic steps and therapeutic management.

2. CASE PRESENTATION

2.1. Presenting complaint

A 27-year-old woman represented with complaints of lower abdomen pain on and off for 1 month. She complained that the pain was insidious in onset, gradually progressive, non-radiating, and localized to the left side. She also noticed an abdominal lump, which had insidious onset and was gradually enlarging. The woman also gave history that pain and the size of the lump increased during menstruation. The patient presented in the immediate postmenstrual period.

2.2. Menstrual history

She had regular cycles with moderate flow. However, there was a history of dysmenorrhea for 2 months.

2.3. Obstetric history

The patient's obstetric score is P2L2. Both deliveries were by Cesarean Section. The last cesarean section was done 4 years back.

2.4. Medical history

She was a known case of type 2 Diabetes Mellitus on oral hypoglycemic drugs– a combination of Metformin and Glimepiride.

2.5. Family history

No significant history of chronic disease or malignancies in the family.

2.6. Observations

On abdomen examination, there was a firm, nodular, tender, immortal mass of size 3*2 cm palpable 1 cm above the left end of the lower segment cesarean scar (Figure 1).

Fig 1: Cesarean section scar with a subcutaneous mass

2.7. *Specific tests and investigations*

Ultrasonography of the soft tissue of the abdominal wall revealed a well-defined heterogeneous hypoechoic lesion measuring ~ 1.3X1.2cm in the subcutaneous fat plane of the left iliac fossa adjacent to the C-section scar. On color flow doppler, mild peripheral vascularity was noted. (Figure 2).

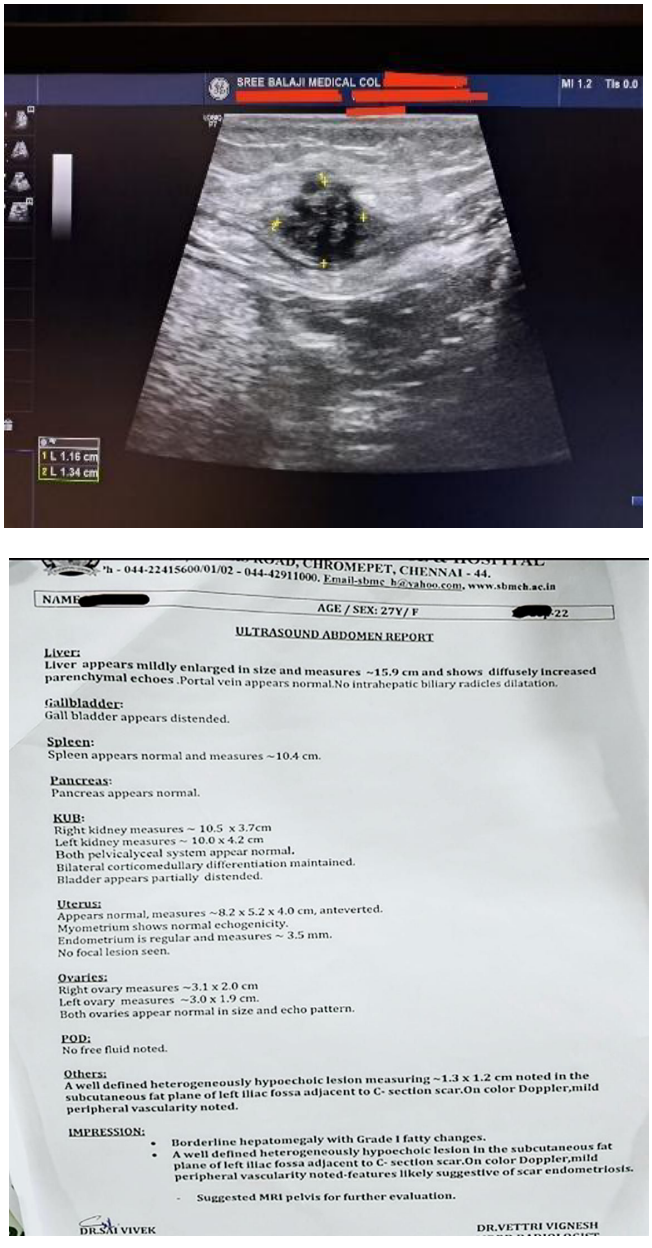
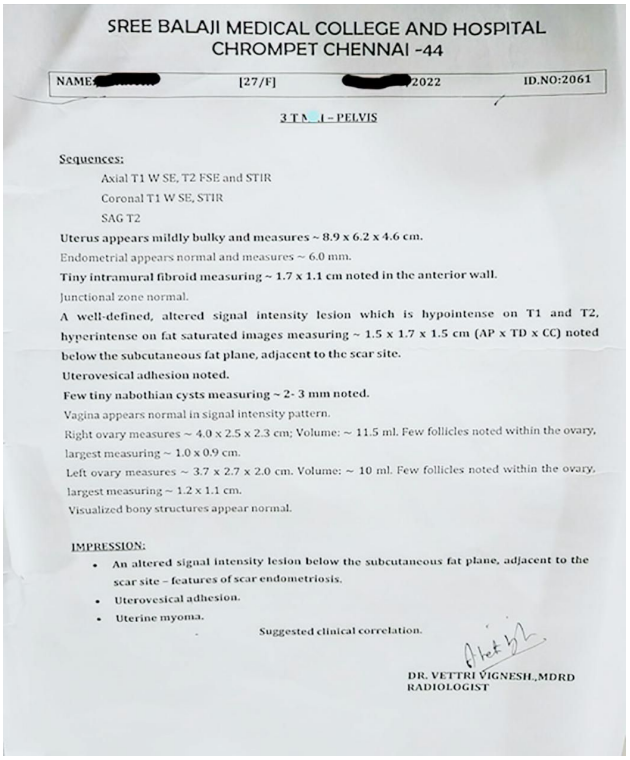


Fig 2: Ultrasound image and report of scar endometriosis

MRI reported a well-defined altered signal intensity lesion, hypointense on T1 and T2, and hyperintense on fat-saturated images measuring~ 1.5X1.7X1.5 cm below the subcutaneous fat plane adjacent to the scar site (Figure 3).



SREE BALAJI MEDICAL COLLEGE AND HOSPITAL
CHROMPET CHENNAI -44

NAME [redacted] [27/F] [redacted]2022 ID.NO:2061

3 T M I – PELVIS

Sequences:

Axial T1 W SE, T2 FSE and STIR
Coronal T1 W SE, STIR
SAG T2

Uterus appears mildly bulky and measures ~ 8.9 x 6.2 x 4.6 cm.
Endometrial appears normal and measures ~ 6.0 mm.
Tiny intramural fibroid measuring ~ 1.7 x 1.1 cm noted in the anterior wall.
Junctional zone normal.
A well-defined, altered signal intensity lesion which is hypointense on T1 and T2, hyperintense on fat saturated images measuring ~ 1.5 x 1.7 x 1.5 cm (AP x TD x CC) noted below the subcutaneous fat plane, adjacent to the scar site.
Uterovesical adhesion noted.
Few tiny nabothian cysts measuring ~ 2- 3 mm noted.
Vagina appears normal in signal intensity pattern.
Right ovary measures ~ 4.0 x 2.5 x 2.3 cm; Volume: ~ 11.5 ml. Few follicles noted within the ovary, largest measuring ~ 1.0 x 0.9 cm.
Left ovary measures ~ 3.7 x 2.7 x 2.0 cm. Volume: ~ 10 ml. Few follicles noted within the ovary, largest measuring ~ 1.2 x 1.1 cm.
Visualized bony structures appear normal.

IMPRESSION:

- An altered signal intensity lesion below the subcutaneous fat plane, adjacent to the scar site – features of scar endometriosis.
- Uterovesical adhesion.
- Uterine myoma.

Suggested clinical correlation.

DR. VETTRI VIGNESH, MDRD
RADIOLOGIST

Fig 3: MRI report of scar endometriosis

2.8. Diagnosis

A diagnosis of scar endometriosis was made.

2.9. Treatment plan

Scar endometriosis excision was planned. The lesion was in the subcutaneous plane and did not extend below the rectus sheath. Under anesthesia, an incision was made on the skin over the lump and explored. The lesion was in the subcutaneous plane and did not extend below the rectus sheath. Wide excision of scar endometriosis tissue was done with a 1 cm margin. (Figures 4,5 and 6).

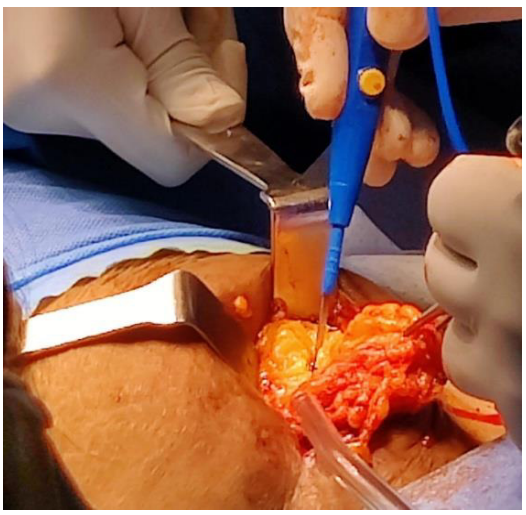


Fig 4: Surgical exploration of scar endometriosis

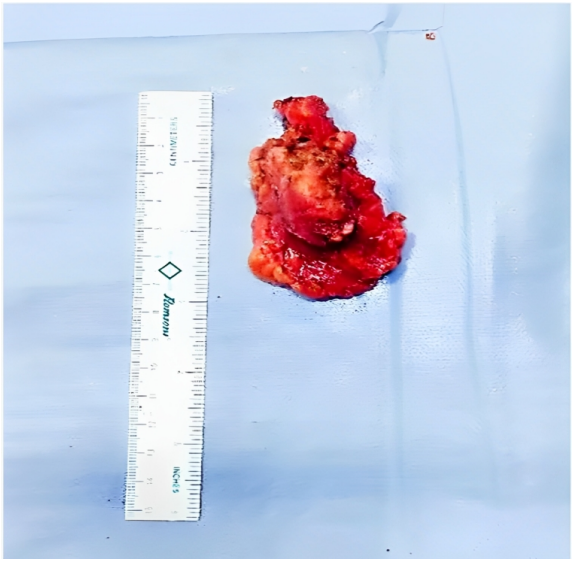


Fig 5: Gross specimen of endometriotic tissue excised

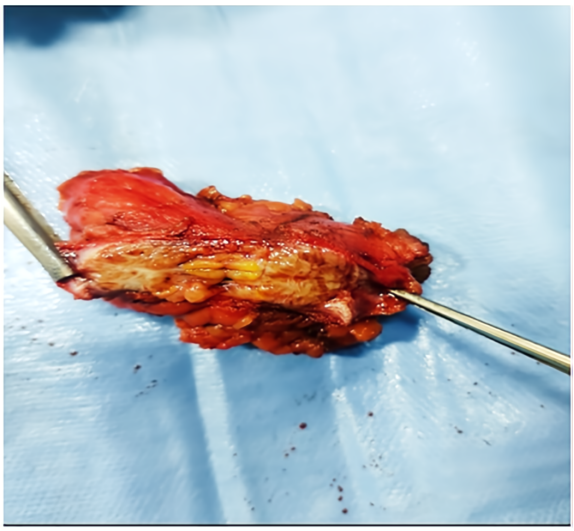
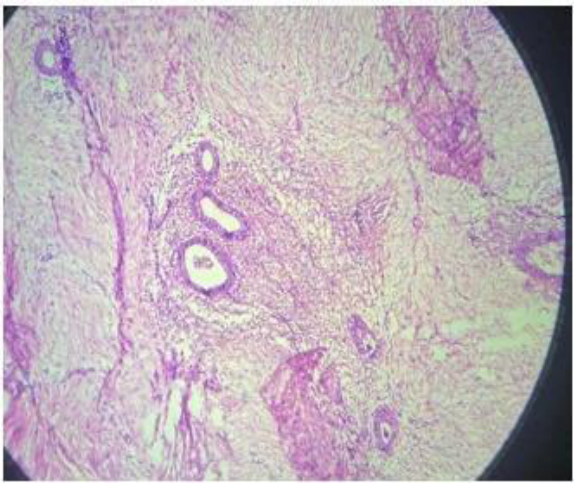


Fig 6: Transverse section of the specimen

2.10. Histopathology

The histological examination confirmed the presence of clusters of dense fibrous tissue consistent with the scar and many endometrial glands, which are dilated, surrounded by stroma with areas of bleeding, and consistent with features of scar endometriosis. (Figure 7)



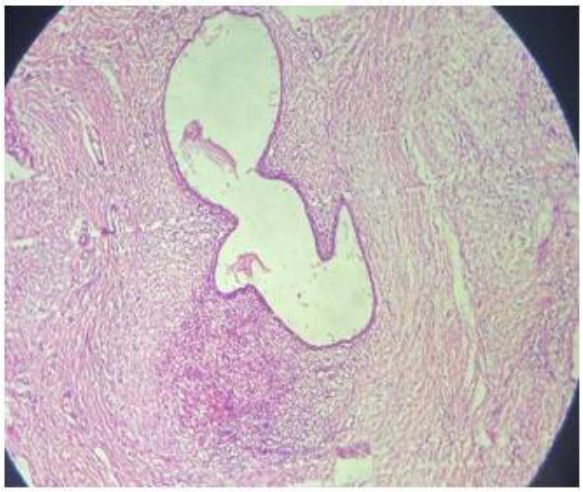


Fig 7: Histopathology images

2.11. Follow up

The postoperative period was uneventful. Periodic 3 months of follow-ups were done. No recurrence was observed during the 9 months following the surgery.

2.12. Timeline

Table 1: The course of disease and management

	Timeline	Time interval
Pain abdomen	December 2021	1 month
Swelling	January 2022	1 week
Clinical diagnosis, investigations, and pre-operative workup	January 2022	1 week
Post-surgical care	February 2022	1 week
First, follow up	May 2022	After 3 months
Second, follow up	August 2022	After 3 months
Third, follow up	November 2022	After 3 months

3. DISCUSSION

Abdominal wall endometriosis is the presence of endometrial glands with stroma superficial to the peritoneum. [7] It is largely related to the previous history of surgery. Endometriosis implants developing in the subcutaneous tissue of surgical scars occur most frequently after gynecological and obstetrical procedures, including cesarean sections, hysterectomies, cystectomies, tubal ligations, and amniocentesis. A few cases have been reported after episiotomy but remain far rarer, and cases related to surgical scars of appendectomies, umbilical hernioplasty, and laparoscopic trocar tracts have also been described. According to Nominato et al., cesarean section remains the most common surgical procedure for developing abdominal wall scar endometriosis[8]. According to Leite GK et al, the relative risk of developing scar endometriosis in a woman with a cesarean section can be as high as 27.37 [9] The other risk factors include early hysterotomy and alcohol consumption. [10.] According to the study by John D Horton et al, the time interval from the index surgery to the clinical presentation was approximately 3.6 years. According to J Zhang et al, there was a significant correlation between the clinical presentation and factors like the woman's age when undergoing cesarean section, type of incision, birth weight of baby, duration of breast feeding, time to menstrual recovery, and postpartum contraceptive use. However, genetic and endocrine factors may have a role. [11] The pathogenesis of endometriosis is complex, and CSE is believed to result from mechanical iatrogenic implantation through the direct injection of the abdominal fascia and subcutaneous tissue with endometrial cells during the surgical intervention, which, stimulated by estrogen, become active and expand. Wang et al. examined the factors contributing to CSE and defined possible causes, including the easy separation and transport of endometrial cells by the amniotic fluid flowing into the pelvic cavity after hysterotomy; a large amount of endometrial cells liberated into the pelvis before hysterotomy closure, and that can potentially be trapped in the wound; and the nurturing role of blood and hormones, after inoculation of the cells, allowing them to grow and develop into subcutaneous masses. The presence of hormone-sensitive tissue under the skin explains the symptoms reported by our patient, including cyclic pain, swelling, and the very evocative blood-like brown leakage during menstruation. Pain, either cyclical or non-cyclical, remained the major symptom reported by more than 80% of patients in the cohorts of Zhang and Liu in China[11] and Uçar et al. in Turkey[6]. A mass was present during the examination of more than 70% of patients in these studies. The clinical diagnostic criteria are that the pain and swelling symptoms coincide with menstruation. In this case, the last cesarean section was done 4 years back. There was a time interval of 4 years between the last cesarean section and the onset of clinical symptoms. Immediately following pregnancy, during lactation, there is a drop in the level of estrogen hormone which explains the static nature of the endometriotic tissue for a few years after the cesarean section. Differential

diagnosis includes incisional and inguinal hernia, hematoma, abscess, soft tissue sarcoma, suture granuloma, sebaceous cyst, lipoma, desmoid tumor, and metastatic tumor. About imaging, ultrasound is the most accessible, reliable, and cost-effective imaging technique for diagnosing CSE, according to Hensen et al.[12]. On ultrasound, the masses appear as hypoechoic solid areas in the abdominal wall with internal vascularity on power Doppler. In the study by J Zhang, the preoperative size of the lesion by ultrasound was between 2-4 cm. Computed Tomography or Magnetic Resonance Imaging can be used in case of diagnosis doubt, but they are rarely needed. Mild to moderate enhancement of the lesion is seen on CT. The main use of MRI is to know the extent and depth of the lesion. USG-guided FNA, as a rapid and accurate tool, can be useful to confirm the diagnosis, rule out malignancy and plan a definitive treatment. Therapeutic management is essentially based on large surgical excision, with negative margins followed by abdominoplasty and reconstruction using a polypropylene mesh if the defect is large. Medical treatment involving hormone suppression by GnRH analogs and progestogens has been suggested to relieve clinical symptoms. However, according to Al-Jabri, it only gives partial relief, and recurrence after the cessation of medication is constant. [13] This may be because surrounding tissue fibrosis prevents the drug's delivery in sufficient quantities to eradicating the lesion. Recurrence rates after surgery are variable but seem generally low. No recurrence was reported by Uçar et al. for a follow-up period ranging from 12 to 60 months. Horton et al. found a recurrence rate of 4.3%, while Zhang and Liu reported a recurrence of 7.8% over an average period of 20 months. Most authors agreed that surgery is effective in preventing recurrence, as well as conversion to malignancy, which although quite rare has been described in a few sporadic cases. Postoperative follow-up is necessary. According to Arif Emre et al., CA-125 is a useful marker for predicting endometriosis recurrence. Drugs like GnRHa and Danazol can be used as adjuvant therapy following surgery to improve the prognosis and reduce the incidence of recurrence.[14] The role of prevention has been explored in several studies. Picod et al. recommended thorough isolation of the surgical incision site and abundant lavage of the pelvic cavity with saline before the closure of the wall. Other studies suggested that the absence of parietal and visceral peritoneum closure may significantly increase the risk of endometriosis in the skin incision scar. Lastly, instrument and needle replacement when suturing more superficial abdominal layers were also advised to avoid iatrogenic inoculation of endometrial cells .[15] These recommendations were all based on the various pathophysiological hypotheses suggested for the constitution of CSE. No studies have explored them, and further research is needed to establish effective measures to prevent abdominal wall post-surgical endometriosis.

4. CONCLUSION

Scar endometriosis is a rare condition that may occur in women in the reproduction age group. The women usually present with clinical features of abdominal lump and pain, which increase during menstruation. Treatment for scar endometriosis is wide excision. Generally, no recurrence is observed. This case is reported as a rare case that was picked up early, and surgical removal was done with no recurrence on follow-up.

5. ETHICAL STATEMENT

A written informed consent was obtained from the patient for publishing the study.

6. PATIENT'S PERSPECTIVE

(Here "I" refer Patient) "I had pain in the lower part of the abdomen for a month. Then I noticed a painful swelling. The size of the swelling and the pain increased during my periods. I came to this hospital on the 5th day of the period. The doctors, after examining me, suspected scarring endometriosis. They explained that the endometrium is the normal innermost lining of the uterus. But, rarely, this tissue may grow outside the uterus, which is called endometriosis. The doctors explained that this endometriosis tissue had developed in my cesarean section scar, which has caused my above complaints. An Ultrasound scan and MRI scan were done to confirm the diagnosis. I was clearly explained that the definitive treatment for this condition is surgery. Following surgery, I had mild pain, which was reduced with injections. I was discharged 8 days after surgery. I am happy with the treatment received. I am happy that my condition is being discussed and that doctors worldwide are learning from my case."

7. AUTHORS CONTRIBUTION STATEMENT

Dr. Varrshine. R conceptualized and gathered the data concerning this work. Dr. Preethi. B and Dr. J. Thanka analyzed the data and gave necessary inputs for designing the manuscript, followed by critical data revision for important intellectual content. Finally, all the authors discussed and contributed to the final manuscript.

8. CONFLICT OF INTEREST

Conflict of interest declared none.

9. REFERENCES

1. Neri I, Tabanelli M, Dika E, Valeria G, Patrizi A. Diagnosis and treatment of post-Caesarean scar endometriosis. Acta Derm Venereol. 2007;87(5):428-9. doi: 10.2340/00015555-0269, PMID 17721652.
2. Emre A, Akbulut S, Yilmaz M, Bozdag Z. Laparoscopic trocar port site endometriosis: a case report and brief literature review. Int Surg. 2012;97(2):135-9. doi: 10.9738/CC124.1. PMID 23102079.
3. Berek and Novak's Textbook of Gynaecology. 16th ed.
4. Busca A, Parra Herren C, Ovary. Other nonneoplastic; endometriosis. pathological outlines.com.2017.
5. Paşalega M, Mirea C, Vîlcea ID, Vasile I, Pleşea IE, Calotă F, et al. Parietal abdominal endometriosis following cesarean section. Rom J Morphol Embryol. 2011;52(1);Suppl:503-8. PMID 21424102.
6. Uçar MG, Şanlıkan F, Göçmen A. Surgical treatment of scar endometriosis following cesarean section, a series of 12 cases. Indian J Surg. 2015 Dec;77; Suppl 2:682-6. doi: 10.1007/s12262-013-0978-1, PMID 26730088.

7. Horton JD, DeZee KJ, Ahnfeldt EP, Wagner M. Abdominal wall endometriosis: a surgeon's perspective and review of 445 cases. Am J Surg. 2008 Aug;196(2):207-12. doi: 10.1016/j.amjsurg.2007.07.035, PMID 18513698.
8. Nominato NS, Prates LF, Laura I, Morais J, Maia L, Geber S. Caesarean section greatly increases the risk of scar endometriosis. Eur J Obstet Gynecol Reprod Biol. 2010;152(1):83-5. doi: 10.1016/j.ejogrb.2010.05.001, PMID 20510495.
9. Leite GK, Carvalho LF, Korkes H, Guazzelli TF, Kenj G, Viana Ade T. Scar endometrioma following obstetric surgical incisions: a retrospective study on 33 cases and review of the literature. Sao Paulo Med J. 2009;127(5):270-7. doi 10.1590/s1516-31802009000500005. PMID 20169275.
10. Oh EM, Lee WS, Kang JM, Choi ST, Kim KK, Lee WK. A Surgeon's Perspective of Abdominal Wall Endometriosis at a Caesarean Section Incision: Nine Cases in a Single Institution. Surg Res Pract. 2014;2014:765372. doi: 10.1155/2014/765372, PMID 25379559.
11. Zhang J, Liu X. Clinicopathological features of endometriosis in the abdominal wall – clinical analysis of 151 cases. Clin Exp Obstet Gynecol. 2016;43(3):379-83. doi: 10.12891/ceog2126.2016, PMID 27328495.
12. Hensen JH, Van Breda Vriesman AC, Puylaert JB. Abdominal wall endometriosis: clinical presentation and imaging features with emphasis on sonography. AJR Am J Roentgenol. 2006 Mar;186(3):616-20. doi: 10.2214/AJR.04.1619, PMID 16498086.
13. Al-Jabri K. Endometriosis at caesarian section scar. Oman Med J. 2009 Oct;24(4):294-5. doi: 10.5001/omj.2009.59, PMID 22216383.
14. Minaglia S, Mishell DR Jr, Ballard CA. Incisional endometriomas after Cesarean section: a case series. J Reprod Med. 2007 Jul;52(7):630-4. PMID 17847762.
15. Picod G, Boulanger L, Bounoua F, Leduc F, Duval G. Abdominal wall endometriosis after cesarean section: report of fifteen cases. Gynecol Obstet Fertil. 2006 Jan;34(1):8-13. doi: 10.1016/j.gyobfe.2005.11.002, PMID 16406732.