



Case report

A case of scar endometriosis in cesarean scar: A rare case report

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ABSTRACT

Introduction: Scar endometriosis is a rare entity characterized by presence of functional endometrial tissue in the site of surgical scar. Cesarean section scar is the most common reported site. We herein report a case of cesarean scar endometriosis in a 43-years-old female patient.

Case presentation.

A 43 year old female, with history of lower segment cesarean section 8 years back, presented to our center with complains of pain and palpable lump during menstruation, at the site of cesarean scar. On ultrasonography she was said to have some pathology in her previous surgical scar site. On MRI, a soft tissue mass measuring 25 × 35 mm within the subcutaneous tissue of anterior abdominal wall on the left side was seen. She was planned for surgical removal of the tissue.

Discussion: Scar endometriosis is a rare entity. The iatrogenic implantation of the hormone sensitive endometrial tissue into the edge of the wound during surgery best explains its occurrence. They usually present as a painful nodule in the site of surgical scar that undergoes cyclic variation with the menstrual cycle. Diagnosis can be confirmed by radiography. Treatment options can be medical and surgical, the latter being more effective and the preferred one.

Conclusion: Scar endometriosis often mimics with variety of clinical conditions, so high degree of suspicion is necessary. Efforts should be aimed at minimizing the transfer of endometrial tissue into the subcutaneous area. Gloves replacement prior to closure can avoid the implantation of endometrial tissue into the abdominal wall.

1. Introduction

Endometriosis is defined as a condition characterized by presence of functioning endometrial tissue (glands and stroma) in any site outside the uterine cavity [1]. Scar endometriosis, also called as incisional endometrioma, is a rare form of extra pelvic endometriosis, that occurs in those incisions where the endometrial tissue might come into contact [2]. The cesarean section scar is the most common site of scar endometriosis [3]. The prevalence of surgically proven endometriosis in the scar is 0.03 %–1 % [4]. Among those, 0.03 %–0.04 % occurs in the post-cesarean section scars [2]. The diagnosis of this condition is confirmed by histopathology.

We herein, report a case of cesarean scar endometriosis in a 43-years-old female patient. The case has been reported in line with SCARE 2020 criteria [5].

2. Case presentation

A 43-years-old married Hindu female presented to our center with chief complains of pain at the site of cesarean scar during menstruation for 7 years, and a palpable lump at same site during menstruation for the same duration.

She had undergone an emergency lower segment cesarean section (LSCS) 8 years back for some antepartum hemorrhage, at other center. The post-operative period was uneventful, and she was discharged on the third post-operative day, and the suture was removed on the 8th post-operative day. She resumed menstruation after one year of LSCS. Gradually, she developed pain and feeling of lump at left side of scar during menstruation for last seven years. Initially, the pain appeared 2 days prior to menstruation, and continued till 2nd to 3rd day. The pain was burning type, non-radiating, and confined to the site of palpable lump.

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She felt a firm and tender lump at the left end of the scar which increased in size and hardness during menstruation. The lump did not increase with coughing or straining, and there was no discharge through the site.

She went for checkup in some private clinic two months back, where she was given some ointment, and ultrasonography was done. She was told to have small cysts in her both ovaries, and some pathology in her previous scar site, and was advised for surgical removal. She, then visited the gynecology outpatient department of our center, as was admitted for surgical intervention.

She had regular cycles, and gives history of dysmenorrhea. She is married for 18 years, and her first child is a male child, currently 16 years, who was born through a normal vaginal delivery. Her second child is a female child currently 8 years, born through emergency LSCS for a unknown antepartum hemorrhage. She does not give history of use of contraception. There is no history of any gynecological malignancy in the family.

On examination, her general condition was fair, and there was no pallor, dehydration, or edema. Her vitals were stable. On examination of abdomen, on inspection, abdomen was normal in shape, with umbilicus central and everted, with bilateral flanks full. All the quadrants were moving equally with respiration. Pfannenstiel incision scar was present in the lower abdomen. A nodule of size approximately 2×2 cm was seen in the left margin of the scar, with the overlying skin being normal. On palpation, a immobile, and non-reducible, non-compressible mass was felt with mild tenderness present over the nodule. On percussion, dull note was heard all over the lower abdomen. On auscultation, bowel sounds were present. On vulval inspection, there was normal distribution of pubic hair, and the external genitalia was normal. Per-speculum examination revealed healthy cervix, with no bleeding and discharge present. On bimanual examination, uterus was of normal size and anteverted, and the bilateral vaginal fornices were non-tender.

MRI of abdomen and pelvis revealed a soft tissue mass measuring 25×35 mm within the subcutaneous tissue of anterior abdominal wall on the left side. The lesion is touching the rectus muscle on the left side. The lesion was heterogeneously low signal on both T1W and T2W sequences. The features were suggestive of endometriosis of the scar tissue. Right ovary was found to be of 23×25 mm, and the left ovary of 23×30 mm. Evidences of high T1W signal changes were seen within both ovaries that demonstrate shading on the T2W sequences. This suggested bilateral endometriosis of the ovaries. Ultrasonography of the abdomen and pelvis gave impression of a bulky uterus. A well-defined hypoechoic lesion in the subcutaneous plane approximately 2.5×1.4 cm below the surgical scar on the left lateral aspect with minimal vasculature was seen, which suggested likely to be scar endometriosis.

The patient got admitted for surgery, and all the necessary pre-operative investigations were sent. The investigations report were normal.

Wide excision and the repair of the defect was done. Approximately 4×3 cm of endometriotic tissue was noted on the subcutaneous plane involving the outer layer of rectus sheath. Chocolate colored fluid was noted. Approximately, 4 cm defect was noted on the outer layer of rectus sheath. The per-operative photograph in shown in Fig. 1. The resected specimen is shown in the Fig. 2. On cross section of the specimen, endometriotic tissue was seen with chocolate colored fluid. It is demonstrated in Fig. 3.

On histopathologic examination, the sections showed endometrial glands lined by benign endometrial cells. These glands are surrounded by stromal cells and hemosiderin laden macrophages. The histopathologic image is shown in Fig. 4. Hence the final diagnosis was made as an endometriosis of the previous LSCS scar.

The post-operative period was uneventful, and she was discharged on the second post-operative day. She is on regular follow-up. The patient party is satisfied with the treatment they received.

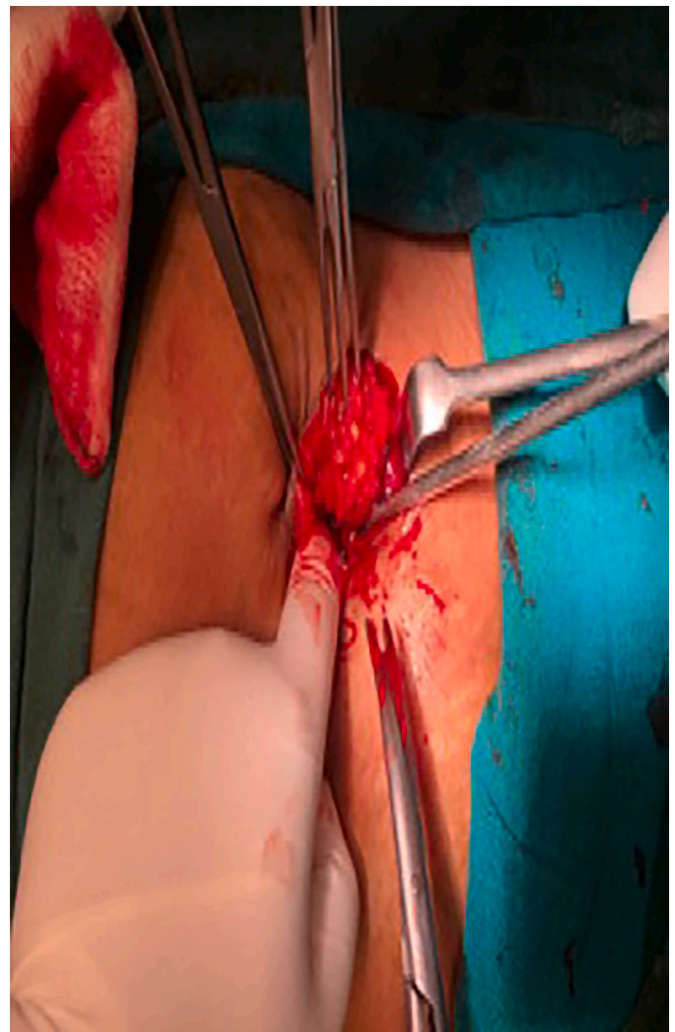


Fig. 1. Per-operative photograph showing endometriotic tissue was noted on the subcutaneous plane involving the outer layer of rectus sheath.

3. Discussion

Endometriosis is a common gynecological condition that affects the female of reproductive age group. Scar endometriosis involving the abdominal wall is a distinctly rare entity, and presents in females who have undergone prior abdominal or pelvic surgery [1,6].

Various theories have been postulated regarding the development of scar endometriosis. The most accepted theory is the transport theory which explains that iatrogenic implantation of hormone sensitive endometrial tissue to the edge of wound during the abdominal or pelvic surgery followed by hormone mediated changes in those implanted tissue causes endometriosis [1,2,7]. Another hypothesis explains that diminished natural killer cell immunity causes decreased clearance of endometrial cells from the peritoneum [8]. Most of the studies have shown left sided predisposition of iatrogenic endometrioma as seen in our case. The usual time interval between surgical procedure and the development of endometrioma is 3 months to 10 years [9].

Scar endometriosis has been found to occur in surgical procedures like episiotomy, hysterectomy, hysterotomy, ectopic pregnancy, laparoscopic gynecologic surgeries, tubal ligation, and cesarean section [2]. Though they may occur as a consequence of hysterectomy for ovarian malignancies like ovarian carcinomas, they usually do not occur in non-obstetric cyst surgeries done during pregnancy [10,11]. In our case, the prior surgical procedure was a cesarean section.

The endometrial implant typically appears as a deep-lying or



Fig. 2. Photograph showing the resected specimen.

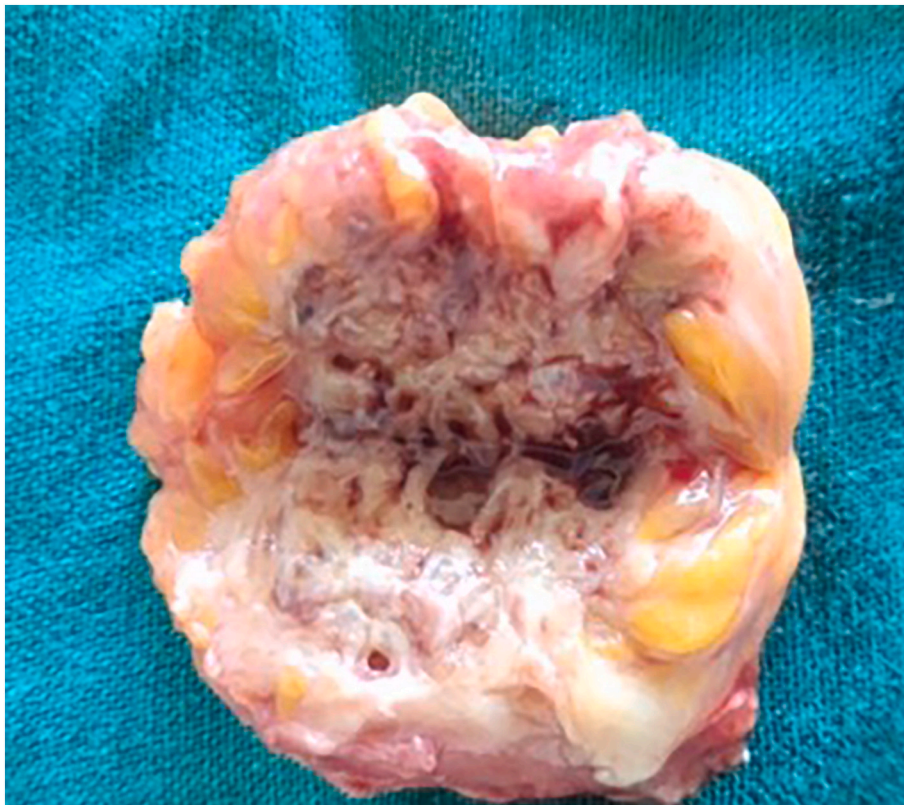


Fig. 3. Photograph showing endometriotic tissue with chocolate colored fluid in cross section of the specimen.



Fig. 4. Photograph showing histopathologic slide of resected specimen showing endometrial glands lined by benign endometrial cells.

subcutaneous nodule infiltrating the fascia and the muscle. Bleeding into the tissue during menstruation causes cyclic local pain, tenderness, and discoloration. In cases of superficial nodules, cyclic discoloration, bleeding, and ulceration is appreciable.

The usual presentation is a painful nodule in a parous women with a history of gynecologic or obstetric surgical intervention. The intensity of pain and the size of nodule varies with the menstrual cycle.

The diagnosis is often difficult to establish, and is based on the clinical examination and high degree of suspicion [2]. They are often misdiagnosed as stitch granuloma, abscess, sebaceous cyst, lipoma, fat necrosis, or an incisional hernia [3]. A proper history, and a thorough clinical examination, and appropriate imaging modalities like ultrasonography, CT or MRI can lead to the diagnosis [3]. Ultrasonography reveals a solid, hypoechoic, inhomogeneous echo texture with internal scattered hyperechoic echoes, and speculated margins infiltrating the surrounding tissue. In case of inconclusive or doubtful ultrasonography reports, CT/MRI facilitates the diagnosis [12]. CT/MRI facilitates the diagnosis in case of large masses, as they provide the relationship of mass with the surrounding structures [2]. Histopathologic studies after the excision is the definitive and confirmatory diagnostic tool. Presence of endometrial glands and stroma embedded within fibroblasts, collagen fibers and skeletal muscle cells, with or without hemosiderin laden

macrophages makes the diagnosis of scar endometriosis [13].

Management can be medical or surgical. It is found that the use of NSAIDs, progesterone, oral contraceptive pills, GnRH agonist, and danazol is not much effective, and gives only partial relief without curing the lesion [2]. Compliance to these therapies is also minimum due to various side effects like amenorrhea, depression, weight gain, hirsutism, bone pain, acne, and muscle cramps. They are also not much used because of recurrence of the symptoms after cessation of therapy [14]. Reports have suggested the intralesional injection of gosereline prior to surgical excision benefits in reduction of lesion size [15].

The treatment of choice of scar endometriosis is wide local excision of the lesion with at least 1 cm margin, in order to prevent recurrence [2]. The fascial defect may need closure with synthetic mesh, if it is found to involve the underlying sheath [16].

Clinicians ought to be aware of malignant changes that may occur in long standing recurrent endometriosis [3]. The risk of malignant change in cesarean scar is rare, and only 0.31 % of pfannenstiel incision patients are reported to have malignant transformation [17].

The occurrence of this rare entity can be prevented through surgical efforts aimed at minimizing the transfer of the endometrial tissue into the subcutaneous area. Thorough washing of the wound with saline prior to closure, and replacement of the gloves into a new pair of it

should be practiced in order to avoid the implantation of the endometrial tissue in the anterior abdominal wall. Repairing of the peritoneum at the time of cesarean section has also been recommended as a preventive measure of this rare entity [18].

4. Conclusion

Scar endometriosis is a rare and elusive diagnosis often mimicking with a variety of clinical conditions, and presenting as a diagnostic dilemma. Physicians ought to maintain a high degree of suspicion in a reproductive age group women presenting with pain and localized symptoms at the site of incision following gynecological/obstetric surgery. Proper surgical technique and exercising appropriate measures like thorough saline washing, and gloves replacement prior to closure will help in preventing the occurrence of this rare entity.

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Ethical approval

Case reports are exempt from ethical approval in our institution, Tribhuvan University Institute of Medicine, Maharajgunj.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Research registration

None.

Declaration of competing interest

N/A.

References

- [1] P.J. Danielpour, J.C. Layke, N. Durie, L.T. Glickman, Scar endometriosis – a rare cause for a painful scar: A case report and review of the literature, *Can. J. Plast. Surg.* 18 (1) (2010) 19. Available from: [/pmc/articles/PMC2851454/](https://pubmed.ncbi.nlm.nih.gov/33181358/).
- [2] M.K. Tangri, P. Lele, H. Bal, R. Tewari, D. Majhi, Scar endometriosis: a series of 3 cases, *Med. J. Armed Forces India.* 72 (Suppl 1) (2016) S185. Available from: [/pmc/articles/PMC5192233/](https://pubmed.ncbi.nlm.nih.gov/33181358/).
- [3] K. Al-Jabri, Endometriosis at Caesarian section scar, Oman. *Med. J.* 24 (4) (2009) 294. Available from: [/pmc/articles/PMC3243870/](https://pubmed.ncbi.nlm.nih.gov/33181358/).
- [4] A. Gaunt, G. Heard, E.S. McKain, B.M. Stephenson, Caesarean scar endometrioma, Available from: *Lancet* 364 (9431) (2004) 368 [http://www.thelancet.com/article/S0140673604167263/fulltext](https://www.thelancet.com/article/S0140673604167263/fulltext).
- [5] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, A. Kerwan, A. Thoma, et al., The SCARE 2020 guideline: updating consensus Surgical CAse REport (SCARE) guidelines, Available from, *Int. J. Surg.* 84 (2020) 226–230, <https://pubmed.ncbi.nlm.nih.gov/33181358/>.
- [6] J.J. Khoo, Scar endometriosis presenting as an acute abdomen: a case report, *Aust. N. Z. J. Obstet. Gynaecol.* 43 (2) (2003) 164–165, <https://doi.org/10.1046/j.0004-8666.2003.00028.x>.
- [7] V. Tanos, S.O. Anteby, Cesarean scar endometriosis, *Int. J. Gynecol. Obstet.* 47 (2) (1994) 163–166, [https://doi.org/10.1016/0020-7292\(94\)90358-1](https://doi.org/10.1016/0020-7292(94)90358-1).
- [8] S. Mathur, M.R. Peress, H.O. Williamson, C.D. Youmans, S.A. Maney, A.J. Garvin, et al., Autoimmunity to endometrium and ovary in endometriosis, *Clin. Exp. Immunol.* 50 (2) (1982) 259. Available from: [/pmc/articles/PMC1536699/?report=abstract](https://pubmed.ncbi.nlm.nih.gov/33181358/).
- [9] P. Goel, S.S. Sood, A. Dalal, Romilla, Cesarean scar endometriosis—report of two cases - PubMed [Internet], Available from: <https://pubmed.ncbi.nlm.nih.gov/16340149/>, 2022.
- [10] K. Acharya, D. Poudel, S. Dahal, A. Adhikari, S. Kuikel, A case of huge ovarian cyst in second trimester: a rare case report, Available from: *Ann. Med. Surg.* 82 (2022) 104765 <https://linkinghub.elsevier.com/retrieve/pii/S2049080122015254>.
- [11] D. Poudel, K. Acharya, N. Poudel, A. Adhikari, B. Khaniya, S. Maskey, Bilateral ovarian mucinous carcinoma (stage III) with omental involvement and incidental hydronephrosis: a rare case report, *Int. J. Surg. Case Rep.* 1 (97) (2022), 107415.
- [12] P. Goel, L. Devi, R. Tandon, P.K. Saha, A. Dalal, Scar endometriosis – a series of six patients, *Int. J. Surg.* 9 (1) (2011) 39–40.
- [13] L. Savelli, L. Manuzzi, N. Di Donato, N. Salfi, G. Trivella, M. Ceccaroni, et al., Endometriosis of the abdominal wall: ultrasonographic and Doppler characteristics, *Ultrasound Obstet. Gynecol.* 39 (3) (2012) 336–340, <https://doi.org/10.1002/uog.10052>.
- [14] M.E. Rivlin, S.K. Das, R.B. Patel, Meeks G. Rodney, Leuprolide acetate in the management of cesarean scar endometriosis, *Obstet. Gynecol.* 85 (5) (1995) 838–839.
- [15] S.K. Kang, M.W. Lee, J.H. Choi, K.J. Sung, K.C. Moon, J.K. Koh, Cutaneous endometriosis: a combination of medical and surgical treatment, *J. Dermatol. Treat.* 13 (4) (2002) 189–192. <https://pubmed.ncbi.nlm.nih.gov/19753740/>.
- [16] R.G. Blanco, V.S. Parithivel, A.K. Shah, M.A. Gumbs, M. Schein, P.H. Gerst, Abdominal wall endometriomas, *Am. J. Surg.* 185 (6) (2003) 596–598.
- [17] F. Sergeant, M. Baron, J.B. Le Cornec, M. Scotté, P. Mace, L. Marpeau, Malignant transformation of abdominal wall endometriosis: a new case report, Available from: *J. Gynecol. Obstet. Biol. Reprod. (Paris)* 35 (2) (2006) 186–190 <http://europepmc.org/article/med/16575366>.
- [18] Mohammad Moazeni-Bistgani, Recommending Different Treatments as Preventive Measures against Incisional Endometrioma - PubMed, Available from: <https://pubmed.ncbi.nlm.nih.gov/24971111/>, 2022.