



SCAR ENDOMETRIOSIS: A MAN-MADE COMPLICATION?

Obstetrics & Gynaecology

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ABSTRACT

Endometriosis is a chronic gynecologic disorder where the functional and morphological endometrial glands and stroma are present outside the uterine cavity. Scar endometriosis is a rare condition, though probably on the rise, due to the considerable increase of caesarean sections performed worldwide. Its physiopathology is complex; its symptomatology is rich and diverse but thorough clinical examination along with ultrasound imaging and cytologic evaluation are usually efficient in diagnosing the condition. Treatment is mostly surgical. We hereby, present a case of troublesome scar (Scar endometriosis) after a caesarian section managed surgically at our hospital successfully.

KEYWORDS

Scar Endometriosis, Cesarean section

INTRODUCTION:

Endometriosis was first described by Karl Von Rokitansky in 1860. It is a chronic gynecologic disorder where the functional and morphological endometrial glands and stroma are present outside the uterine cavity.¹

It is estimated to affect almost 10% of the reproductive age groups (15–49 years), often resulting in debilitating pain and infertility.² It usually occurs around the uterus and uterine ligaments; however, extra pelvic sites, though rare, occur in the lungs, brain, urinary tracts, abdominal wall, spleen, gastrointestinal tracts, and previous surgical scars such as a previous cesarean scar, episiotomy scar, ectopic pregnancies, hysterectomy, salpingostomy, or herniorrhaphy.^{3,4}

The presence of endometrial glands with stroma above the peritoneum (skin, subcutaneous tissue, muscle, scar) is collectively known as abdominal wall endometriosis.^{3,5} Cesarean scar endometriosis is the most common abdominal wall endometriosis, with an estimated incidence of 0.03–0.4%.⁵⁻⁹

The great variability of symptoms and clinical presentations as well as the limited knowledge on the disease can lead to diagnosis difficulties and delays that are detrimental to the patient's wellbeing and quality of life.

We hereby, present a case of scar endometriosis after a caesarian section managed surgically at our hospital successfully.

CASE:

A 36-year-old, 3rd para patient with previous three cesarean section came to outpatient department at ESIC Model Hospital, Bapunagar, Ahmedabad with complain of lower abdominal pain since last few months. The pain was cyclical occurring 2-3 days before menstruation, peaking during menstruation and gradually subsiding 2-3 days after menstruation. She had no significant medical and surgical history except previous three lower segment cesarean section 15 years, 11 years and 8 months back, respectively.

On physical examination, there was a healed Pfannenstiel incision scar. A lump approximately 40 X 34 mm at right and 42 X 50 mm at left side of the healed scar was noted. It was nodular, tender, ill-defined, slightly fixed, and non-mobile, with no surrounding skin changes or herniation of abdominal content.

Ultrasonography suggested an ill-defined heterogeneous hetero-echoic focal lesion with mild internal vascularity measuring 39 X 20mm on right side in subcutaneous plane and 30X 15 mm in left side in deep intramuscular plane with possibility of scar endometriosis.

Computed tomography was suggestive of an ill-defined soft tissue density lesion with irregular margins and moderate fat stranding were

noted involving lower abdominal wall, deep subcutaneous plane and bilateral lower recti muscle. The lesion in the right rectus muscle posteriorly extend to pelvic cavity and shows loss of fat plane with anterior wall of urinary bladder. Largest lesion measures 41 X 61 X 44 mm in right rectus muscle and 42 X 33 X36 mm in left rectus muscle and adjacent subcutaneous plane. It was suggesting scar endometriosis.

Based on history, clinical examination, ultrasonography and CT scan, a diagnosis of scar endometriosis was made. Different available modalities of treatment were discussed with the patient and she opted for medical management and thus, GnRH analogue once a month for 3 months subcutaneous injections were given. Though after 3 months of medical management, the patient did not get relieved from the symptoms and consented for surgical management.

Intra-operatively, a mass of 42 X 50 mm on right side and 40 X 34 mm on left side was removed from the subcutaneous tissue till the normal tissue margin. No involvement of rectus sheath and rectus muscle was felt.

The specimen were sent for histopathological examination.

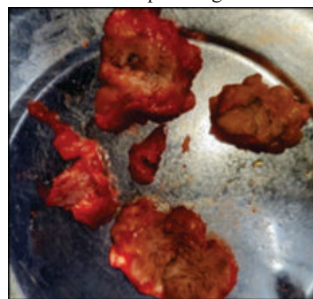


Figure 1: On gross examination: Multiple brownish, yellowish, whitish aggregated mass of 10 X 5 cm

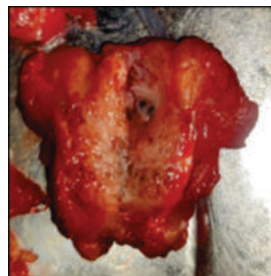
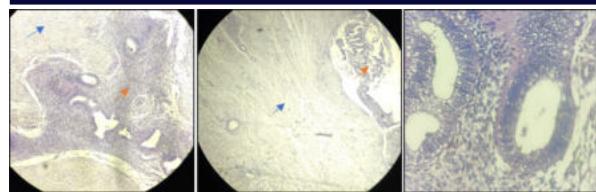


Figure 2: On cut section: Greyish white to solid brown homogenous area with fibrous band and endometriotic crypts



(a) in proliferative phase (b) (c) endometrial glands

Note: Blue arrow: Normal subcutaneous tissue
Red arrow: Endometrial tissue

Figure 3: Microscopic Examination: (H&E stain): Scattered numerous endometrial glands along with stroma; a few various congested, as well as dilated vascular channels; and mixed inflammatory cells predominantly comprising mature lymphocytes, histocytes, and plasma cells embedded against a background of fibro collagenous, muscular, and adipose stroma.

DISCUSSION:

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 amniocenteses.¹⁰ A few cases have been reported after episiotomy but remain far rarer^{11,12}, and cases related to surgical scars of appendectomies, umbilical hernioplasties, and laparoscopic trocar tracts have also been described.^{13,14}

According to Nominato et al., cesarean section remains the most common surgical procedure related to the development of abdominal wall scar endometriosis.³ Laxmi et al. analyzed the growth rate of LSCS and found a sharply rising trend of LSCS rates from 20 to 81% in different private hospitals in Nepal, suggesting over-medicalization in childbirth and obstetric care.¹⁵ A rising trend of LSCS increases the incidence of scar endometriosis.

Although the duration for the occurrence of clinical symptoms varies from 3 months to 15 years, in our case, it occurred 8 months after the 3rd LSCS surgery.⁷

Patients usually complain of tenderness to palpation and a raised, unsightly hypertrophic scar. Pain is usually cyclic in up-to 70% but can be constant in nature. Some patients may be asymptomatic. The cohorts of Zhang and Liu in China, Ucar et al. in Turkey, and Vellido-Cotelo et al. in Spain,^{5,16,17} a mass was present at examination of more than 70% of patients in these studies. The Esquivel Triad comprised of palpable mass, cyclic pain and history of lower segment cesarean section is diagnostic of cesarean scar endometriosis.¹⁸

The pathogenesis of endometriosis is complex and cesarean scar endometriosis is believed to be the result of a mechanical iatrogenic implantation, through the direct inoculation of the abdominal fascia and/or subcutaneous tissue with endometrial cells during the surgical intervention, which, stimulated by estrogen, become active and expand.¹⁹

It is important to highlight that higher incidence is reported after early hysterotomy (end of second or beginning of third trimester), as early decidua seems to have more pluripotential capabilities and can result in enhanced cellular replication producing endometriosis.²⁰

Malignant transformation has also been found, among which endometrioid carcinoma is the most common one.²¹

The differential diagnosis includes incisional hernia, hematoma, abscess, cyst, or lipoma in most cases.

With regard to imaging, ultrasound is the most accessible, reliable, and cost-effective imaging technique for the diagnosis of cesarean scar endometriosis according to Hensen et al.²² along with clinical examination. Computed Tomography or Magnetic Resonance Imaging can be used in case of diagnosis doubt but they are rarely needed.

Based on their clinical experience of fine needle aspiration cytology (FNAC) for 9 cases of cesarean scar endometriosis, Medeiros et al.

have argued that it is a quick, cost-effective, and accurate diagnosis tool to include in patients' management.²³ In the case of our patient, clinical examination patterns and imaging features were sufficient to suggest the diagnosis of cesarean scar endometriosis and there was no need to perform FNAC.

Medical therapy such as Gonadotropin-RH agonist, Progesterone, oral contraceptive pills, and danazol have been tried, but they only allow partial relief and cause recurrence quickly.^{4,7,16}

The definite treatment is surgical excision with at least 5–10 mm free margin of surrounding healthy tissue. Care should be taken during the excision so as not to rupture the mass to avoid re-implantation.^{4,7,16,24}

The diagnosis is confirmed by the histopathological examination of the excised tissue.

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 closure of the wall.²⁵ Other studies suggested that absence of closure of the parietal and visceral peritoneum may significantly increase the risk of endometriosis in the skin incision scar.²⁶ Lastly, instrument and needle replacement when suturing more superficial abdominal layers were also advanced, in order to avoid iatrogenic inoculation of endometrial cells.²⁷ These recommendations were all based on the various physiopathological hypotheses suggested for the constitution of cesarean scar endometriosis. No studies have explored them and further research is needed to establish effective measures to prevent abdominal wall postsurgical endometriosis.

CONCLUSION:

Scar endometriosis is one of the major extra pelvic sites for scar endometriosis, among which a cesarean scar is the most common. Concerning the rising rate of lower segment cesarean section, scar endometriosis can occur more frequently, hence a thorough history and physical examination should always be performed, and every surgeon should consider this entity in their differential diagnosis and attention should be paid to early diagnosis, treatment and prevention of scar endometriosis.

REFERENCES:

- American College of Obstetricians and Gynecologists, "Practice bulletin no. 114: management of endometriosis," *Obstetrics & Gynecology*, vol. 116, no. 1, pp. 223–236, 2010
- New NICE Guideline on Endometriosis Published. Available online: <https://www.rcog.org.uk/en/about-us/nga/nga-news/nice-guideline-endometriosis/> (accessed on 30 March 2022)
- Nominato, N.S.; Prates, L.F.V.S.; Lauar, I.; Morais, J.; Maia, L.; Geber, S. Caesarean section greatly increases risk of scar endometriosis. *Eur. J. Obs. Gynecol. Reprod. Biol.* 2010, 152, 83–85. [CrossRef] [PubMed]
- Slaike, S.; Jamor, J. Endometriosis of the rectus abdominis muscles: A rare case of dual location. *J. Surg. Case Rep.* 2020, 2020, rjaa360. [CrossRef] [PubMed]
- Zhang, P.; Sun, Y.; Zhang, C.; Yang, Y.; Zhang, L.; Wang, N.; Xu, H. Cesarean scar endometriosis: Presentation of 198 cases and literature review. *BMC Womens Health* 2019, 19, 1–6. [CrossRef] [PubMed]
- Yildirim, D.; Tatar, C.; Doğan, O.; Hut, A.; Dönmez, T.; Akinci, M.; Toptas, M.; Bayik, R.N. Post-Cesarean scar endometriosis. *Turkish J. Obstet. Gynecol.* 2018, 15, 33–38. [CrossRef] [PubMed]
- Tangri, M.K.; Lele, P.; Bal, H.; Tewari, R.; Majhi, D. Scar endometriosis: A series of 3 cases. *Med. J. Armed Forces India* 2016, 72, S185–S188. [CrossRef] [PubMed]
- Durand, X.; Daligand, H.; Aubert, P.; Baranger, B. Abdominal wall endometriosis. *J. Chir. Visc.* 2010, 147, 354–359.
- Khan, Z.; Zanfagnin, V.; El-Nashar, S.A.; Famuyide, A.O.; Daftary, G.S.; Hopkins, M.R. Risk Factors, Clinical Presentation, and Outcomes for Abdominal Wall Endometriosis. *J. Minim. Invasive Gynecol.* 2017, 24, 478–484. [CrossRef] [PubMed]
- M. Pas, alega, C. Mirea, I. D. V'ileca et al., "Parietal abdominal endometriosis following cesarean section," *Romanian Journal of Morphology and Embryology*, vol. 52, no. 1, pp. 503–508, 2011.
- J. C. M'arquez, J. M'arquez, J. A. Arratzoa, G. P'erez, and A. Espinoza, "Endometriosis extrapelviana de ubicaci' on perineal," *Revista Chilena de Obstetricia y Ginecologia*, vol. 60, no. 1, pp. 1–4, 1995.
- G. K. C. Leite, L. F. P. De Carvalho, H. Korkes, T. F. Guazzelli, G. Kenj, and A. D. T. Viana, "Scar endometrioma following obstetric surgical incisions: retrospective study on 33 cases and review of the literature," *Sao Paulo Medical Journal*, vol. 127, no. 5, pp. 270–277, 2009.
- J. D. Horton, K. J. DeZee, E. P. Ahnfeldt, and M. Wagner, "Abdominal wall endometriosis: a surgeon's perspective and review of 445 cases," *American Journal of Surgery*, vol. 196, no. 2, pp. 207–212, 2008.
- A. Emre, S. Akbulut, M. Yilmaz, and Z. Bozdag, "Laparoscopic trocar port site endometriosis: a case report and brief literature review," *International Surgery*, vol. 97, no. 2, pp. 135–139, 2012.
- Laxmi, T.; Goma, D.N.S.; Kumariniraula, H.; Roshniti, T.; Binod, A. Rising Cesarean Section Rates in Nepal: Question of safety and Integrity on Obstetric Emergency Practice. *J. Gynecol. Womens Health* 2017, 7, 17–20.
- M. G. Uc, ar, F. S, anlikan, and A. G'oc, men, "Surgical treatment of scar endometriosis following cesarean section, a series of 12 cases," *Indian Journal of Surgery*, vol. 77, pp. 682–686, 2015.
- R. Vellido-Cotelo, J. L. Mu'noz-Gonz'alez, M. R. Oliver-P'erez et al., "Endometriosis node in Gynaecologic scars: a study of 17 patients and the diagnostic considerations in

- clinical experience in tertiary care center," *BMC Women's Health*, vol. 15, no. 1, article no. 13, 2015.
18. Esquivel- Estrada V, Briones- garduno JC, Mondragon- Ballesteros R. Endometriosis implant in cesarean section surgical scar. *Cir.* 2004; 72: 113-5.
 19. I. E. Sasson and H. S. Taylor, "Stem cells and the pathogenesis of endometriosis," *Annals of the New York Academy of Sciences*, vol. 1127, pp. 106–115, 2008.
 20. L. Wicherek, M. Klimek, J. Skret-Magierloet al., "Theobstetrical history in patients with Pfannenstiel scar endometriomas—an analysis of 81 patients," *Gynecologic and Obstetric Investigation*, vol. 63, no. 2, pp. 107–113, 2007.
 21. Bekta, s, H.; Bilsel, Y.; Sar, Y.S.; Ersöz, F.; Koç, O.; Deniz, M.; Boran, B.; Huq, G.E. Abdominal wall endometrioma; A 10-year experience and brief review of the literature. *J. Surg. Res.* 2010, 164, e77–e81. [CrossRef] [PubMed]
 22. J.-H. J. Hensen, A. C. Van Breda Vriesman, and J. B. C. M. Puylaert, "Abdominal wall endometriosis: clinical presentation and imaging features with emphasis on sonography," *American Journal of Roentgenology*, vol. 186, no. 3, pp. 616–620, 2006.
 23. F. D. C. Medeiros, D. I. M. Cavalcante, M. A. D. S. Medeiros, and J. Eleut'erio Jr., "Fine-needle aspiration cytology of scar endometriosis: study of seven cases and literature review," *Diagnostic Cytopathology*, vol. 39, no. 1, pp. 18–21, 2011.
 24. Alnafisah, F.; Dawa, S.K.; Alfaly, S. Skin Endometriosis at the Cesarean Section Scar: A Case Report and Review of the Literature. *Cureus* 2018, 10, 1–7. [CrossRef] [PubMed].
 25. G. Picod, L. Boulanger, F. Bounoua, F. Leduc, and G. Duval, "Abdominal wall endometriosis after caesarean section: report of fifteen cases," *Gynecologie Obstetrique Fertilité*, vol. 34, no. 1, pp. 8–13, 2006.
 26. S. Minaglia, D. R. Mishell Jr., and C. A. Ballard, "Incisional endometriomas after cesarean section: a case series," *Journal of Reproductive Medicine*, vol. 52, no. 7, pp. 630–634, 2007.
 27. T. Wasfie, E. Gomez, S. Seon, and B. Zado, "Abdominal wall endometrioma after cesarean section: a preventable complication," *International Surgery*, vol. 87, no. 3, pp. 175–177, 2002.