

## A Case Report on Scar Site Endometriosis

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### Abstract

*The development of functioning endometrial tissue in the abdominal wall after a cesarean birth is an uncommon case phenomenon known as scar endometriosis. Aside from the pelvis, endometriosis most often manifests in the bladder, gastrointestinal system, and, most notably, after obstetric surgical procedures. Here we present a case of caesarean scar endometriosis in a pregnant woman of 30 years of age. The patient has a history of type 1 diabetes mellitus, is now taking insulin and oral hypoglycaemic medications, and is being treated for hypothyroidism. She said that the region around her prior cesarean scar was swollen and painful periodically. USG showed ill defined heterogeneous hypo-echoic subcutaneous mass lesion approximately measuring 3\*2\*3cms over the right lateral one third of the caesarean scar site. MRI report showing a well-defined hypointense lesion in the anterior abdominal wall in the previous caesarean scar site suggestive of scar endometriosis. A total of three masses were removed, and scar endometriosis was verified by histology.*

**Keywords:** *Cutaneous Endometriosis, Endometriosis, Incisional Endometriosis, Painful Scar, Post-Operative Scar, Scar Endometriosis.*

### Introduction

Karl Von Rokitansky first described endometriosis in the year 1860. This hormone-dependent disorder is characterized by the location of the endometrial glands outside of the uterus. Women of childbearing age seem to experience this more often. Between 0.03% and 1.7% is the prevalence. Metastasis into cancer is uncommon. Scar endometriosis is a frequent condition that may develop at the site of an abdominal wall incision.

### Case Presentation

A 30-year-old woman, Para 2 Live 2, Previous 2LSCS came to the OPD on 27 May 2024 with complaints of pain in the previous 2LSCS scar site during her cycles. She had undergone LSCS 6 years back. She complained of pain in the scar site on and off for 1 year during her cycles. Period discomfort, she said, intensified across the

right lateral third of her cesarean scar. Ultrasound revealed a poorly defined, heterogeneous, hypoechoic mass lesion under the skin, with dimensions of around 3\*2\*3 cm. She came with the MRI report showing a T2hypointense lesion noted in the anterior abdominal wall at the scar site measuring 2.5\*1.9\*1.8cm with no diffuse restriction. Throughout, she had regular periods and described experiencing discomfort at the surgery site. She has been married for ten years, and her first kid is a girl who is now nine years old. Due to her obvious diabetes, she had a caesarean section during her birth. Given her history with LSCS, she has decided to choose to have the procedure again for her second child, a girl, who is now six years old. Both are live and healthy. The patient has not undergone sterilisation.

On examination, a soft non-tender nodular swelling was noted measuring 2\*1cms just

lateral to the midline. The patient had uncontrolled blood sugars with RBS of 318mg/dl, which was initially managed with careful glycaemic monitoring and titrating the insulin levels. She was on Dethroner 100mcg for the past 5 years. Her TSH levels were in a normal range.

The patient was taken up for endometrial scar excision on 28 May 2024, intraoperatively the endometriotic nodule was densely adherent to the rectus sheath and the anterior wall of the uterus, the same release with a 1cm free margin.

Endometriosis scars were shown by histopathology. Highlights areas of endometrial gland and stroma.

Endometriosis is a common gynaecological condition where the endometrial glands and stromal structures are found outside the uterus. Recently, the occurrence of scar endometriosis has been increasing together with the increase in CS incidence. The incidence of endometriosis in women of reproductive age is

reported to be around 5–15%. AWE (Abdominal wall endometriosis).

That develops at the site of the surgical incision after obstetric or gynaecological surgeries, including CS (Caesarean section), is called scar or incisional endometriosis. The incidence of AWE after CS is 0.03–1% of women who underwent obstetric or gynaecological surgeries.

Usually, there is a delay in diagnosing AWE, the most common clinical symptoms and signs are swelling, tenderness on the local site, and cyclic pain. The most accepted cause is mechanical iatrogenic implantation. Endometrial cells are inoculated directly into the surgical area and can progress to endometriosis in optimal conditions. The most common treatment options for scarred endometriosis include medical therapy and surgery. We present a case of incisional scarred endometriosis followed by management and discussion regarding this rare case.



**Figure 1.** Pre-operative photograph Showing Endometriotic Tissue was Noted on the Subcutaneous Plane Involving the Outer Layer of the Rectus Sheath

### **Intra Operative Images**

Endometriosis is a common gynaecological condition that affects the female of reproductive age group. Physical examination revealed a well-healed caesarian scar, with a nonmobile, nodular, moderately pigmented area at its lateral border (Figure 1). Exquisite point tenderness to palpation over the nodular area was noted. A preliminary diagnosis of

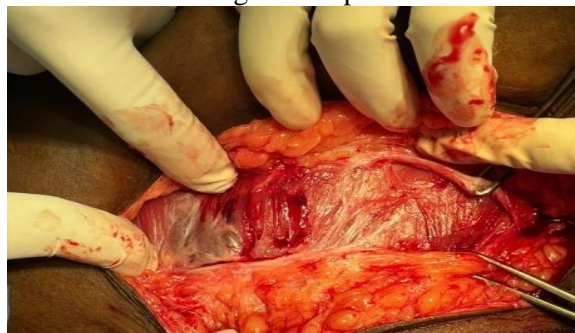
neuroma was entertained, and the patient was taken to the operating room for exploration of the abdominal wound and possible neuroma excision. Scar endometriosis involving the abdominal wall is a distinctly rare entity and presents in females who have undergone prior abdominal or pelvic surgery [1, 6]. Various theories have been postulated regarding the development of scar endometriosis. Endometriosis is defined as the presence or

growth of ectopic endometrial tissue [2]. Affecting an estimated 89 million women of reproductive age worldwide, endometriosis occurs in 5% to 10% of all women, often resulting in debilitating pain and infertility. Although most frequently found in the pelvis, reports citing extrapelvic endometrial locations range from the lungs to the extremities [3]. Incisional or scar endometriosis has also been described, however, with a much rarer incidence (fewer than 1% of affected patients) [4]. This entity can result in unnecessary procedures, delayed or misdiagnosis, and can cause emotional and physical distress to the patient. The present study describes a case of scar endometriosis and reviews the literature to elucidate physical signs and symptoms that may lead to earlier diagnosis and prompt treatment.

The most accepted theory is the transport theory which explains that iatrogenic implantation of hormone-sensitive endometrial tissue to the edge of the wound during

abdominal or pelvic surgery followed by hormone-mediated changes in that implanted tissue causes endometriosis [5, 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 a left-sided predisposition of iatrogenic endometrioma as seen in our case.

The usual time interval between surgical procedures 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 caesarean section. Though they may occur as a consequence of hysterectomy for ovarian malignancies like ovarian carcinomas, they usually do not occur in obstetric cyst surgeries done during pregnancy [10, 11]. In our case, the prior surgical procedure was a caesarean section.



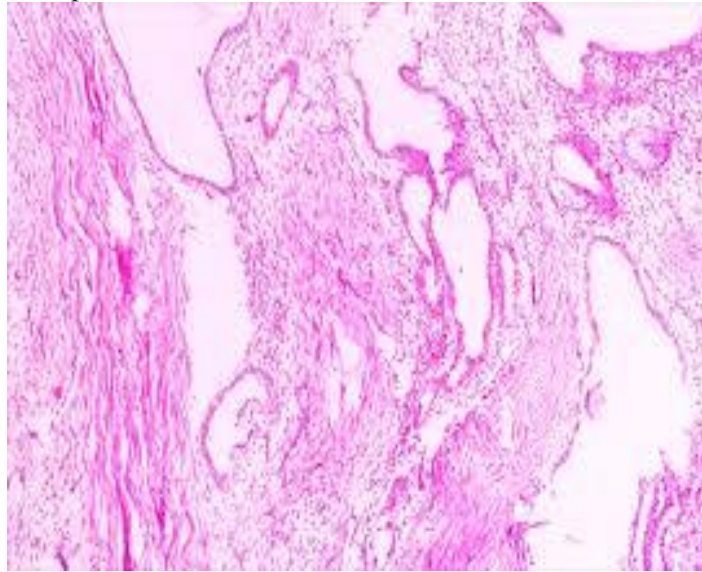
**Figure 2.** Photograph Showing Endometriotic Tissue with Chocolate-Coloured Fluid in Cross Section of the Specimen



**Figure 3.** Photograph Showing the Resected Specimen

Endometriosis is defined by the occurrence of endometrial-like epithelium and stroma outside the uterine cavity. This condition is commonly seen in females of reproductive age. Grossly, endometriosis may present as small, dark red, black or bluish cysts or nodules on the surface of peritoneal and pelvic organs. Histologically, endometriosis is characterized by the ectopic presence of endometrial-like glands, spindled endometrial

stroma and hemosiderin deposition either within the macrophages or in the stroma (Figure 2 and Figure 3). In many cases, this diagnostic triad is not present, or the glands and stroma may be obscured by haemorrhage, foamy cells and hemosiderin-laden macrophages. When this occurs, the diagnosis may be suggested but histological confirmation may not be possible.



**Figure 4.** Photograph Showing Histopathologic Slide of Resected Specimen Showing Endometrial Glands Lined by Benign Endometrial Cells

### Histopathology Images

Ultrasonography reveals a solid, hypoechoic, inhomogeneous echo texture with internal scattered hyperechoic echoes, and speculated margins infiltrating the surrounding tissue.

These glands are surrounded by stromal cells and hemosiderin-laden macrophages. The histopathologic image is shown in Figure 4. Hence the final diagnosis was made as an endometriosis of the previous LSCS scar. 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 are the definitive and confirmatory diagnostic tools. The presence of

endometrial glands and stroma embedded within fibroblasts, collagen fibres 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 with these therapies is also minimal 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 the recurrence of the symptoms after cessation of therapy [14]. Reports have suggested the intralesional injection of a gorse line before surgical excision benefits in the reduction of lesion size [15]. The treatment of

choice for scar endometriosis is wide local excision of the lesion with at least a 1 cm margin, to prevent recurrence [16]. The fascial defect may need closure with synthetic mesh if it is found to involve the underlying sheath [17]. Clinicians ought to be aware of malignant changes that may occur in long-standing recurrent endometriosis [18]. The risk of malignant change in caesarean scar is rare, and only 0.31 % of Pfannenstiel incision patients are reported to have malignant transformation [19].

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 before closure, and replacement of the gloves into a new pair of it Figure 4. Photographs showing histopathologic slides of resected specimens showing endometrial glands lined by benign endometrial cells should be practised to avoid the implantation of the endometrial tissue in the anterior abdominal wall. Repairing of the peritoneum at the time of caesarean section has also been recommended as a preventive measure of this rare entity [20].

### **Post Operative Period**

A course of IV antibiotics was given. The patient was monitored with cog since they had type 1 diabetes mellitus and their sugar levels were uncontrolled. Physician opinion was obtained and insulin levels were titrated. Thromboprophylaxis was covered with enoxaparin 0.4ml for 3 days. Postoperatively suture removal was done on POD 12. The patient was reviewed after 2weeks.

### **Discussion**

Rarely does a woman of childbearing age get scar endometriosis. Surgical operations involving the uterus or fallopian tubes are the most prevalent causes of scar endometriosis.

About 0.03% to 0.4% of endometriosis instances occur at scar sites. The iatrogenic

transfer of endometrial implants to the wound edge during abdominal and pelvic surgery is the most commonly accepted idea about the aetiology of scar endometriosis, although many other hypotheses have been advanced.

Scar endometriosis may be difficult to diagnose. During menstruation, classical endometriosis is characterized by cyclical fluctuations in the size of the endometrial implants and the level of discomfort. Endometrial glands and stromal cells outside of the uterus are histologically required for the diagnosis of endometriosis.

Surgical excision and hormone suppression are also part of the management plan.

A temporary alleviation of symptoms may be achieved with the use of oral contraceptives, progestogens, and androgenic drugs. Hormonal suppression is thought to be only partly successful, and the final therapy is surgical scar removal.

Scar endometriosis has many possible causes, such as metastases, hematomas, incisional hernias, dermoid tumours, and suture granulomas.

Between 0.3% to 1% of cases have malignant transformation.

The preferred method of therapy is a wide local excision leaving at least a 1 cm margin of freedom. Very seldom does it happen again.

Some research suggests that irrigating the abdominal incision with a high-get NaCl (normal saline) solution after surgery may help reduce the risk of scar endometriosis. When preparing for surgical procedures (hysterectomy, laparoscopy, caesarean delivery), it is important to keep in mind the possibility of endometrial cell contamination of adjacent tissues. Because of the potential role it may play in the development of scar endometriosis, it is recommended that patients have cesarean sections without brushing the uterus with gauze.

There was no sign of recurrence throughout her follow-up, and her menstrual cycle was normal and free of dysmenorrhea.

## Conclusion

Finally, as mentioned before, scar endometriosis is an extremely uncommon condition that affects women of childbearing age and is influenced by hormones.

Malignant transformation is quite rare. Any mass on the site of a previous caesarean section gives us a likely diagnosis of scar

endometriosis. To avoid scar endometriosis, it is important to follow sterile surgical techniques and bathe the area with saline before closure.

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## References

- [1]. Choudhury, H., Pandey, M., Hua, C. K., Mun, C. S., Jing, J. K., Kong, L., Ern, L. Y., Ashraf, N. A., Kit, S. W., Yee, T. S., Pichika, M. R., Gorain, B., & Kesharwani, P., 2018, An Update on Natural Compounds in the Remedy of Diabetes Mellitus: A Systematic Review. *Journal of Traditional and Complementary Medicine*, 8(3): 361–376. [https://doi.org/10.1016/J.Jtcme.2017.08.012\(2018\)](https://doi.org/10.1016/J.Jtcme.2017.08.012(2018))
- [2]. Kharroubi, A. T., 2015, Diabetes Mellitus: The Epidemic of the Century. *World Journal of Diabetes*, 6(6): 850. <https://doi.org/10.4239/Wjd.V6.I6.850>
- [3]. International Diabetes Federation, 2021, IDF Diabetes Atlas, 10th Edition. [https://idf.org/About-Diabetes/Diabetes-Facts-Figures/\(2021\)](https://idf.org/About-Diabetes/Diabetes-Facts-Figures/(2021))
- [4]. Missoun, F., 2018, Antidiabetic Bioactive Compounds from Plants. *Medical Technologies Journal*, 2(2): 199–214. [https://doi.org/10.26415/2572-004x-Vol2iss2p199-214\(2018\)](https://doi.org/10.26415/2572-004x-Vol2iss2p199-214(2018))
- [5]. Caro-Ordieres, T., Marín-Royo, G., Opazo-Ríos, L., Jiménez-Castilla, L., Moreno, J. A., Gómez-Guerrero, C., & Egido, J., 2020, The Coming Age of Flavonoids in the Treatment of Diabetic Complications. *Journal of Clinical Medicine*, 9(2): 346. [https://doi.org/10.3390/Jcm9020346\(2020\)](https://doi.org/10.3390/Jcm9020346(2020))
- [6]. AL-Ishaq, Abotaleb, Kubatka, Kajo, & Büsselberg, 2019, Flavonoids and their Anti-Diabetic Effects: Cellular Mechanisms and Effects to Improve Blood Sugar Levels. *Biomolecules*, 9(9): 430. [https://doi.org/10.3390/Biom9090430\(2019\)](https://doi.org/10.3390/Biom9090430(2019))
- [7]. Venugopala, K. N., Chaudhary, J., Sharma, V., Jain, A., Kumar, M., Sharma, D., & Et Al., 2022, Exploring the Potential of Flavonoids as Efflorescing Antidiabetic: An Updated SAR and Mechanistic Based Approach. *Pharmacognosy Magazine*, 18(80): 791-807. [https://www.Phcog.Com/Text.Asp?2022/18/80/791/357236\(2022\)](https://www.Phcog.Com/Text.Asp?2022/18/80/791/357236(2022))
- [8]. Bai, L., Li, X., He, L., Zheng, Y., Lu, H., Li, J., Zhong, L., Tong, R., Jiang, Z., Shi, J., & Li, J., 2019, Antidiabetic Potential of Flavonoids from Traditional Chinese Medicine: A Review. *The American Journal of Chinese Medicine*, 47(05): 933–957. [https://doi.org/10.1142/S0192415x19500496\(2019\)](https://doi.org/10.1142/S0192415x19500496(2019))
- [9]. Sohretoglu, D., & Sari, S., 2019, Flavonoids as Alpha-Glucosidase Inhibitors: Mechanistic Approaches Merged with Enzyme Kinetics and Molecular Modelling. *Phytochemistry Reviews*, 19(5): 1081–1092. [https://doi.org/10.1007/S11101-019-09610-6\(2019\)](https://doi.org/10.1007/S11101-019-09610-6(2019))
- [10]. Ke, R. Q., Wang, Y., Hong, S. H., & Xiao, L. X., 2023, Anti-Diabetic Effect of Quercetin in Type 2 Diabetes Mellitus by Regulating the MicroRNA-92b-3p/EGR1 Axis. *Journal of Physiology and Pharmacology: An Official Journal of the Polish Physiological Society*, 74(2). [https://doi.org/10.26402/Jpp.2023.2.03\(2023\)](https://doi.org/10.26402/Jpp.2023.2.03(2023))
- [11]. Ansari, P., Choudhury, S. T., Seidel, V., Rahman, A. B., Aziz, Md. A., Richi, A. E., Rahman, A., Jafrin, U. H., Hannan, J. M. A., & Abdel-Wahab, Y. H. A., 2022, Therapeutic Potential of Quercetin in the Management of Type-2 Diabetes Mellitus. *Life*, 12(8): 1146. [https://doi.org/10.3390/Life12081146\(2022\)](https://doi.org/10.3390/Life12081146(2022))

- [12]. Yang, Y., Chen, Z., Zhao, X., Xie, H., Du, L., Gao, H., & Xie, C., 2022, Mechanisms of Kaempferol in the Treatment of Diabetes: A Comprehensive and Latest Review. *Frontiers in Endocrinology*, 13. [https://doi.org/10.3389/Fendo.2022.990299\(2022\)](https://doi.org/10.3389/Fendo.2022.990299(2022))
- [13]. Kumari, G., Nigam, V. K., & Pandey, D. M., 2022, The Molecular Docking and Molecular Dynamics Study of Flavonol Synthase and Flavonoid 3'-Monooxygenase Enzymes Involved for the Enrichment of Kaempferol. *Journal of Biomolecular Structure and Dynamics*, 41(6): 2478–2491. [https://doi.org/10.1080/07391102.2022.2033324\(2022\)](https://doi.org/10.1080/07391102.2022.2033324(2022))
- [14]. Qaddoori, M. H., & Al-Shmgani, H. S., 2023, Galangin-Loaded Gold Nanoparticles: Molecular Mechanisms of Antiangiogenesis Properties in Breast Cancer. *International Journal of Breast Cancer*, 2023: 1–14. [https://doi.org/10.1155/2023/3251211\(2023\)](https://doi.org/10.1155/2023/3251211(2023))
- [15]. Al Duhaidahawi, D., Hasan, S. A., & Al Zubaidy, H. F. S., 2021, Flavonoids in the Treatment of Diabetes: Clinical Outcomes and Mechanism to Ameliorate Blood Glucose Levels. *Current Diabetes Reviews*, 17(6). [https://doi.org/10.2174/1573399817666201207200346\(2021\)](https://doi.org/10.2174/1573399817666201207200346(2021))
- [16]. Mathew, M. G., Jeevanandan, G., Vishwanathaiah, S., Hamzi, K. A., Depsh, M. A. N., & Maganur, P. C., 2022, Parental and Child Outlook on the Impact of ECC on Oral Health-Related Quality of Life: A Prospective Interventional Study. *The Journal of Contemporary Dental Practice*, 23(9), 877–882. [https://doi.org/10.5005/Jp-Journals-10024-3397\(2022\)](https://doi.org/10.5005/Jp-Journals-10024-3397(2022))
- [17]. Jayaraman, S., Natarajan, S. R., Veeraraghavan, V. P., 2023, Unveiling the Anti-Cancer Mechanisms of Calotropin: Insights into Cell Growth Inhibition, Cell Cycle Arrest, and Metabolic Regulation in Human Oral Squamous Carcinoma Cells (HSC-3). *Journal of Oral Biology and Craniofacial Research*, 13(6), 704–713. [https://doi.org/10.1016/J.Jobcr.2023.09.002\(2023\)](https://doi.org/10.1016/J.Jobcr.2023.09.002(2023))
- [18]. Liao, Y., Hu, X., Pan, J., & Zhang, G., 2022, Inhibitory Mechanism of Baicalein on Acetylcholinesterase: Inhibitory Interaction, Conformational Change, and Computational Simulation. *Foods*, 11(2): 168. [https://doi.org/10.3390/Foods11020168\(2022\)](https://doi.org/10.3390/Foods11020168(2022))
- [19]. Chan, S.-H., Hung, C.-H., Shih, J.-Y., Chu, P.-M., Cheng, Y.-H., Tsai, Y.-J., Lin, H.-C., & Tsai, K.-L., 2016, Baicalein is an Available Anti-Atherosclerotic Compound Through Modulation of Nitric Oxide-Related Mechanism Under OxLDL Exposure. *Oncotarget*, 7(28): 42881–42891. [https://doi.org/10.18632/Oncotarget.10263\(2016\)](https://doi.org/10.18632/Oncotarget.10263(2016))
- [20]. Cazarolli, L., Zanatta, L., Alberton, E., Bonorino Figueiredo, M. S., Folador, P., Damazio, R., Pizzolatti, M., & Barreto Silva, F. R., 2008, Flavonoids: Prospective Drug Candidates. *Mini-Reviews in Medicinal Chemistry*, 8(13): 1429–1440. [https://doi.org/10.2174/138955708786369564\(2008\)](https://doi.org/10.2174/138955708786369564(2008))