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Post Caesarean Scar Endometriosis: An Uncommon Surgical Complication- Experience of a Radiologist at INMAS, Mitford

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Abstract **Original Research Article**

Endometriosis is the presence of functioning endometrial tissue outside the uterus. It is observed in 10-15% of all women of reproductive age. Caesarean section scar is the most common site for abdominal wall endometriosis. In this study, clinical symptoms and sonographic appearance of caesarean scar endometriosis are highlighted. Ten patients with caesarean scar endometriosis were sonologically detected in INMAS, Mitford over a period of 1 year, from July, 2022 to June, 2023. FNAC was used along with ultrasonography to support the diagnosis. The mean age of the patients was 29.4 years (range 24-40). Cyclical pain was the most common presenting symptom (80%). The mean asymptomatic period was 21.6 months (range 8-48). Mean duration of symptoms was 32.8 months (range 6-172). The most common sonographic appearance was a solid, hypoechoic mass with irregular and spiculated margin. Clinical history always leads to the diagnosis of scar endometriosis. This case study emphasizes the importance of high-resolution ultrasonography to support the clinical diagnosis.

Keywords: Endometriosis, caesarean section, cyclic pain, high frequency linear transducer.

INTRODUCTION

Endometriosis is ectopic implantation of endometrial tissue outside the uterine cavity [1]. It affects 10-15% of all women of reproductive age [2]. It may occur spontaneously or may develop secondary to surgical procedure [3]. The incidence of abdominal wall endometriosis is increasing due to the rise of caesarean section in recent years [4]. Approximately 85% of all abdominal wall endometriosis are caesarean scar endometriosis (CSE). Various theories are present regarding development of CSE, among which direct seeding during surgery associated with metaplasia and cell migration is most excepted [5]. With regard to imaging, high resolution ultrasonography (HRUSG) is the most accessible & cost-effective technique for diagnosis [6]. In this study, we will share our experience regarding sonographic appearance of CSE in 10 patients with their clinical symptoms.

MATERIAL AND METHODS

This descriptive, observational study was performed at Institute of Nuclear Medicine & Allied Sciences, Mitford. Ten patients of Scar endometriosis were diagnosed with the aid of HRUSG over a period of one year between July'2022 & June'2023. The study was performed on Esaote my lab 9 USG machine using a high frequency (10 MHz) linear transducer. FNAC was done for every patient to confirm the diagnosis.

Statistical data concerning demographic and clinical characteristics were analyzed using descriptive methods (mean, range).

RESULTS

Mean age of patients was 29.4 years (range 24-40). Parity of patients ranged from 1 to 2. Among them, six (60%) patients had history of one caesarean section (C/S) and four (40%) had history of two C/S.

Main symptom was painful swelling at the scar site which was cyclic in nature for 8 (80%) patients and non-cyclic for 2 (20%) patients. 3 (40%) patients were noticed incidentally, one came for USG evaluation of acute appendicitis, and another two came for the pregnancy profile of 3rd gravida. All of them had a history of cyclic pain at scar site. Mean asymptomatic period was 21.6 months (range 8-48). Mean duration of symptom was 32.8 months (range 6-172).

All lesions (100%) appeared as heterogeneously hypoechoic solid mass having irregular or spiculated margin with 4 (40%) lesions had internal cystic changes.

Out of 10 lesions 4 (40%) were purely subcutaneous in location, 2 (20%) involved both subcutaneous layer & rectus muscle, 4 (40%) in subcutaneous layer involving rectus fascia.

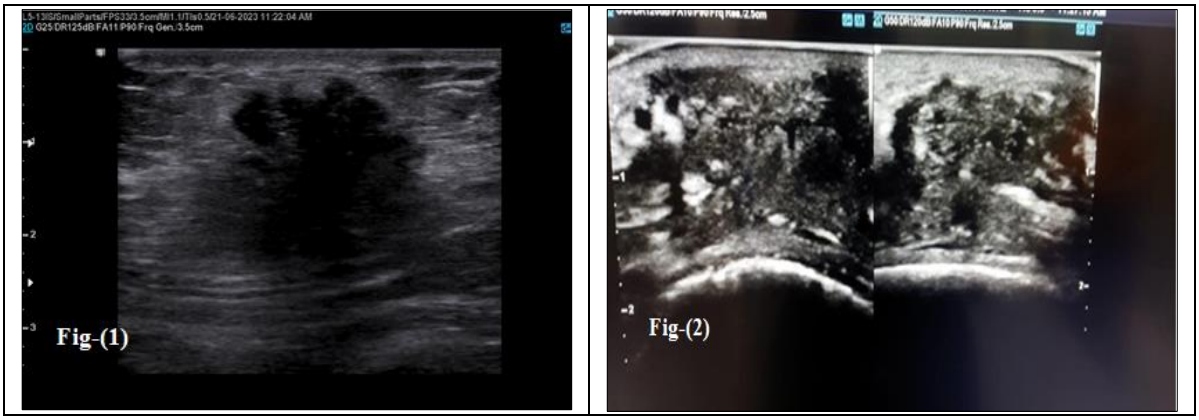

Fig: High resolution USG image showing caesarean scar endometriosis (CSR) in subcutaneous region involving rectus fascia (Fig-1) & rectus muscle (Fig-2).

Table 1: Clinical & sonological characteristics of patients

Sl.	Age	Complaints	No. of C/S	Asymptomatic period (month)	Duration of symptom (month)	Size of the lesion (mm)	Sonographic appearance	Location of the lesion
1	40	Cyclic pain and swelling	1	8	172	12x10	Hypoechoic with spiculated margin	Subcutaneous
2	30	Non cyclic pain and swelling	1	12	24	13x10	Hypoechoic with spiculated margin	Subcutaneous
3	28	Cyclic pain and pain in right iliac fossa	1	12	24	30x25	Hypoechoic with spiculated margin	Subcutaneous layer involving rectus fascia
4	32	Cyclic pain and swelling	2	24	36	27x21	Hypoechoic with spiculated margin and cystic change	Subcutaneous layer involving rectus muscle
5	25	Third gravida, previous history of cyclic pain	2	48	12	20x13	Hypoechoic with spiculated margin and cystic change	Subcutaneous layer involving rectus muscle
6	30	Cyclical pain and swelling	2	42	12	28x22	Hypoechoic with spiculated margin and cystic change	Subcutaneous layer involving rectus fascia
7	25	Non cyclic pain	1	12	18	15x10	Hypoechoic with spiculated margin	Subcutaneous
8	24	Cyclic pain and swelling	1	24	12	12x10	Hypoechoic with spiculated margin	Subcutaneous
9	28	Cyclic pain	1	10	6	10x8	Hypoechoic with spiculated margin and cystic change	Subcutaneous layer involving rectus fascia
10	32	Cyclic pain and swelling	2	24	12	20x17	Hypoechoic with spiculated margin	Subcutaneous layer involving rectus fascia

DISCUSSION

The incidence of scar endometriosis is about 0.03% - 0.15% among all cases of endometriosis [7]. Direct implantation of endometrial tissue during surgery is most excepted pathogenesis that proliferates to caesarean scar endometriosis under suitable hormonal influence [8]. However, implantation risk for developing CSE is equal in every caesarean section [4].

Clinical diagnosis of CSE can be done by careful history taking and physical examination. Painful mass at the caesarean scar site is the most characteristic symptom. Pain may be cyclic that is related to menstruation, or it may be non-cyclic or constant. Other manifestations may be dysmenorrhea, infertility, menstrual abnormality or there may be no symptom at all. Zhang *et al*., reported that 86.9% of cases had cyclic pain in their study among 198 patients [5]. In our study, 80% presented with cyclic pain, which is close to previous study. 60% of our patients had painful swelling at the scar site.

Reported mean asymptomatic period (duration between last C/S and onset of symptoms) is 30 months due to slow progressive nature of CSE by Aksoy *et al*., [5], may vary from 3 months to 12 years by Neri *et al*., [9], and ranges from 16 months to 9 years by Ucar *et al*., In our study, mean asymptomatic period was 20.8 months, and mean symptomatic period was 53.6 months.

Painful swelling at scar area leads to the diagnosis, but it is difficult as only ⅓ cases have classical symptoms [11]. Besides, this CSE can involve different layers of abdominal wall. So imaging is very crucial for both diagnosis and surgical planning. USG, CT scan and MRI can be used for evaluation of CSE. Imaging modalities are non-specific & more useful for excluding differential diagnosis. Also helpful for detecting relationship between lesion and other tissue planes. Imaging characteristics may vary depending on the phase of menstrual cycle, chronicity of lesion, ratio of stromal and glandular elements, amount of infiltration [5], etc.

According to Hensen *et al*., USG is the most accessible, reliable and cost-effective technique for diagnosis of CSE [6]. HRUSG is the first line investigation for detection of abdominal wall endometriosis [12]. Complete evaluation of abdominal wall should be done with a high frequency linear transducer in case of suspected CSE as low frequency transabdominal transducer may miss parietal wall findings. Although USG have limited accuracy about lesion size and infiltration depth, but it is noninvasive, simple, less time consuming and cost-effective [4].

Sonographic appearance of CSE is nonspecific. It commonly manifests as solid, inhomogeneous, hypoechoic mass with irregular or spiculated margin along or close to the caesarean scar with or without infiltration to adjacent soft tissues [12]. Hyperechoic echoes may be scatteredly distributed within the hypoechoic lesion. Cystic changes may be seen occasionally. The lesion is non-compressible. Use of color dopplar has no specific value due to limited blood supply. Special attention should be given for fascia & muscle involvement that is crucial for surgical planning [4-11].

CT scan and MRI findings are nonspecific for CSE but useful for excluding differential diagnoses. These cross-sectional modalities give valuable information about exact size and extension of the lesion [5]. Drawback of these modalities are higher cost along with radiation hazard in case of CT and non-availability, time consuming in case of MRI.

Although radiological modalities are useful tools for diagnosis, but definitive diagnosis should be made by histopathology. In our study, FNAC was done to confirm the sonographic findings.

CONCLUSION

Cyclic pain and swelling at scar site with previous history of C/S are adequate for clinical diagnosis of CSE. Beside this, high-resolution USG is complementary to the diagnosis and surgical planning.

REFERENCES

1. Balleyguier, C., Chapron, C., Chopin, N., Hélénon, O., & Menu, Y. (2003). Abdominal wall and surgical scar endometriosis: results of magnetic resonance imaging. *Gynecologic and obstetric investigation*, *55*(4), 220-224 https://doi.org/10.1159/000072078
2. Wampler, K., Harwager, B., & Michael, K. (2017). Abdominal wall endometriomas at cesarean section scars: A case series. *Open Journal of Obstetrics and Gynecology*, *7*(8), 815-823 https://doi.org/10.4236/ojog.2017.78082
3. Fadel, M. M. K., & Zaki, M. S. S. (2020). A Case Report of Cesarean Scar Site Endometriosis: Diagnosis and Management. *The Egyptian Journal of Hospital Medicine*, *81*(5), 2069-2070. https://doi.org/10.21608/EJHM.2020.126403
4. Kocher, M., Hardie, A., Schaefer, A., McLaren, T., & Kovacs, M. (2017). Cesarean-section scar endometrioma: a case report and review of the literature. *Journal of radiology case reports*, *11*(12), 16 https://doi.org/10.3941/jrcr.v11i12.3178
5. Aksoy, E. L., Almadadova, N., BOSTANCI, M. S., Osman, K. Ö. S. E., Çimen, S., & ÇAKAR, G. Ç. (2022). CESAREAN SCAR ENDOMETRIOSIS: PRESENTATION OF 10 CASES AND LITERATURE REVIEW. *Karya Journal of Health Science*, *3*(2), 40-43. https://doi.org/10.52831/kjhs.1024762
6. Narmeen, T., & Pervez, M. M. (2019). Scar Endometriosis: Experience of a Surgeon. *Medicine*

Today, *31*(1), 42-45 https://doi.org/10.3329/medtoday.v31i1.40322

7. Kara, M., & Erdogan, N. Y. (2012). Scar Endometriosis developing in Abdominal Wall.Yıldırım, D., Tatar, C., Doğan, O., Hut, A., Dönmez, T., Akıncı, M., Toptaş, M., & Bayık, R. N. (2018). Post-Cesarean scar endometriosis. *Turkish Journal of Obstetrics and Gynecology*, *15*(1), 33–38. https://doi.org/10.4274/tjod.90922
8. Neri, I., Tabanelli, M., Dika, E., Valeria, G., & Patrizi, A. (2007). Diagnosis and treatment of post-Caesarean scar endometriosis. *Acta dermato-venereologica*, *87*(5), 428-429 https://doi.org/10.2340/00015555-0269
9. Uçar, M. G., Şanlıkan, F., & Göçmen, A. (2015). Surgical treatment of scar endometriosis following cesarean section, a series of 12 cases. *Indian Journal of Surgery*, *77*, 682-686 https://doi.org/10.1007/s12262-013-0978-1
10. Fatima, K., & Khanani, S. (2017). Scar endometriosis: an entity not to be forgotten. *Journal of Pakistan Medical Association*, *67*(1), 140
11. Bozkurt, D. K., Bozkurt, M., & Sahin, L. (2014). Coexistence of Cesarean Scar Endometriosis and Intramuscular Endometriosis. *Journal of Medical Cases*, *5*(5), 298-301 https://doi.org/10.14740/jmc1728w.