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SCAR ENDOMETRIOSIS-A RISING ENTITY IN GYNAECOLOGY: CASE SERIES AND REVIEW LITERATURE

KEY WORDS: Endometriosis, Scar endometriosis, Dysmenorrhoea, Previous Cesarean, Painful scar

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ABSTRACT

The presence of endometrial tissue outside the cavity of uterus which is fuctional is described as Endometriosis. Endometriosis over previous scar due to gynaecological and obstetrical surgeries is rare and due to nonspecific symptoms, its diagnosis is difficult. It can present with dysmenorrhoea, chronic pelvic pain, dyspareunia or mass in the abdominal incision during menses. Here we report three cases which were managed by different modalities. First case was of scar endometriosis over previous pfannensteil LSCS scar site whose diagnosis was confirmed by USG guided FNAC. Patient was managed on oral Progesterone till she conceived 1 year later when wide excision of the mass was done during LSCS. Second case was managed surgically and third case was managed medically. The literature review of published literature of management of Scar endometriosis is also presented. Most of the cases were managed surgically with only one case managed medically.

INTRODUCTION

Presence of functional endometrial tissue outside the uterine cavity is known as Endometriosis. An estimated population of 89 million women of reproductive age group is affected worldwide. Common pelvic sites are ovaries, posterior cul-de-sac, uterine ligaments, pelvic peritoneum, bowel, and rectovaginal septum whereas Extrapelvic endometriosis can be found in unusual places- nervous system, thorax, urinary tract, gastrointestinal tract, the lungs, pleura, kidneys, bladder, omentum, bowels, lymph nodes. Most frequent site of extrapelvic endometriosis is abdominal wall. Only 0.03-0.15% of endometriosis are found in previous scars. Here we report on such rare case of scar endometriosis.

Case 1

A 28year female presented with complaint of mass over lateral edge of previous pfannensteil scar which had progressively increased over the past 3 months. Pain was cyclical synchronising with menses. On examination, a mobile mass at the right iliac fossa measuring 2X3cm without any inflammatory signs was present. Patient has had one LSCS with 3 years back for fetal distress. Ultrasonography showed ill-defined hypoechoic areas with surrounding hyperechoic rim and no internal vascularity measuring ~1.8x1.8 cm in subcutaneous plane over scar site in anterior abdominal wall (Figure A1). USG guided FNAC was performed to confirm the diagnosis which reported cells with two morphological features (Figure A2). Larger cells having oval nucleus, fine chromatin, prominent nucleoli and moderate amount of cytoplasm represented the lining of the endometrial glands whereas the smaller splindly cells represented the endometrial stroma which were consistent with endometriosis. Patient was medically managed and given Tab dienogest 2mg for 3 months. Patient conceived 1 year later and had LSCS along with wide excision of the mass with clear margins. The patient had no recurrence over the 2 years of followup after excision.

Case 2

A 32year female was seen in OPD for painful abdominal scar, otherwise her medical history was normal. She has had three caesarean sections previously 10 years, 8 years and 4 years back, all for fetal distress. She also has had open abdominal cholecystectomy 2 years back. She has had constant pain and tenderness at the pfannensteil incision site, which was non-cyclical. On physical examination, a non-mobile, nodular area eas present with slight induration and redness. A USG pelvis was performed which showed scar endometriosis of 21X12X20 mm over the anterior abdominal wall. Patient was given 3 months of Tab Dienogest, but here pain did not subside following which scar excision was performed (Figure B). Histopathology report revealed dermal inflammation with endometriosis. Patient was followed up till 1 year and she was relieved of painful scar.

Case 3

A 39year multiparous female came in OPD with complaint of intermittent cyclical abdominal pain. She has had one caesarean section 4 years back for obstructed labour. On local examination, a lump of 3X3 cm was felt over the left margin of previous pfannensteil scar which was non mobile and tender. USG pelvis showed scar endometriosis of 25X10X10 mm over the anterior abdominal wall which was also confirmed on MRI pelvis. Patient was started on Tab Dienogest and was kept on regular followup. Progesterone therapy was given for 9 months. At 2 year followup, patient was relieved of pain.

DISCUSSION

Meyer in 1903 was the first to document Abdominal wall endometriosis. Prior abdominal surgeries especially cesarean section and hysterectomy are usually related to scar endometriosis. We conducted a literature search using the PUBMED bibliographic database with keywords comprising of "scar endometriosis", "abdominal wall endometriosis". All the references in the retrieved articles were inspected for further citations in the last 10 years. The search yielded 14 reports (243 cases) of scar endometriosis out of which only one was managed medically (Table 1). Most common extra pelvic location is abdominal wall endometriosis occurring due to previous scars from surgeries like caesarean delivery, hysterectomy, episiotomy, and tubal ligations.

Most convincing theory for explaining scar endometriosis can be direct seeding of the endometrial tissue in the wound and its proliferation under hormonal influence. This

hypothesis makes early hysterectomy like for abortion have the strongest risk for developing scar endometriosis. Endometriosis is a common condition that affects 5-10% of all women and can cause severe discomfort as well as infertility(1). A study by Zhang et at 2019 showed that 64.6%(n=135) of the endometriomas were located between the adipose layer and the fascia layer;14.8%(n=31) between the adipose layer and the muscular layer 16(7.7%) invaded the peritoneum; 1(0.5%) into the abdominal cavity; and2(1.0%) invaded the bladder (2).

Endometriosis can present with signs and symptoms of dysmenorrhoea, chronic pelvic pain, dyspareunia, mass in the abdominal incision during menses. Its differential diagnosis can be fat necrosis, nodular fasciitis, desmoid tumour, fibrosis, suture granuloma, incisional and ventral hernia, abscesses, hematomas, and primary or secondary malignancies. Previous obstetrical or surgical history guides us in thinking about this diagnosis. Latency period between the onset of symptoms to past surgery may vary from few months to 10 years. Different imaging modalities like ultrasonography, MRI, CT scans helps in differentiating different diagnoses and also locates the extent of the lesion. USG also gives relevant information like the size, location, margins and internal structure of the lesion. MRI or CT scan further helps when the diagnosis is in doubt, provides information regarding the anatomy of the soft tissue mass and its surrounding structures and helps in planning of the operative resection of the lesion.

Scar endometriosis can be managed both medically or surgically. For making a definitive diagnosis, surgical treatment with a clear margin of atleast 1cm is the best option which also treats the caesarean scar endometriosis. Sometimes the endometriosis is incorporated into the abdominal wall musculature for which en bloc resection needs to be done. To prevent postoperative hernia if there is a large abdominal wall defect left, synthetic mesh can also be used. Medical therapy on the other hand has lower success rate and is also associated with adverse effects. Drugs like oral contraceptives, gonadotropin releasing hormone agonist (GnRHa), danazol, or progesterone only temporarily allievates the symptoms of endometriosis which after cessation of drugs recurs. Local recurrence can occur especially if the surgical excision is inadequate. Reducing the caesarean section rates itself lowers the prevalence of caesarean scar endometriosis. Also, strategies like lifting the uterus outside the pelvis before uterine incision, separate needles for uterine and abdominal closure, during hysterectomy removing a functional corpus luteum cyst, avoiding sponge for cleaning the endometrial cavity, closing the uterus without endometrium can be applied intraoperatively.

CONCLUSION

The increasing rise in the caesarean section rates has led to more frequent occurrence of caesarean scar endometriosis. Whenever a patient of reproductive age group comes with a complaint of cyclical lower abdominal pain with lump at the caesarean scar/ surgical scar from previous gynaecological surgery, diagnosis of caesarean scar endometriosis should be considered. Imaging helps in making the diagnosis but histopathological examination confirms the diagnosis.

Table 1

Study	N	Age	Obs history	Symptoms	Signs	USG findlings	Management	HPE	Followup
Diptee paudel et al 2023[3]	1	43	Prev cs 8 years back	Pain and palpable lump during menses		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	Scar excision		
Anitha durairaj et at 2023[1]	32			most common presenting symptom was cyclical pain in the scar site (90.4%), followed by swelling (81.25%)			surgical procedure done for scar endometriosis was wide local excision in 78% of patients, and the remaining 22% of patients had wide local excision with mesh repair.		
Purbadi S et.al 2021[4]	1	37	Prev 2 cs (2010.2014), pfanenstiel incision	Pain, lump	at the left end of the caesarean scar (4X4 cm)	solid mass, size of 45 × 40 × 39 mm with neovascularization color score 4	mass resection with fascia as the deepest border. Intraop-solid mass with a diameter of 5 cm, soft consistency, and clear border, No adhesion and infiltration were found.	external endometriosis, the fascia was free from endometriosis	Relief of pain
Zhang P et al 2019[5]	198	32.0 ± 4.0 years	the atency period of the CSE in patients	abdominal mass (98.5%), followed b y cycl ic pain					

			with Pfannenstiel incision was significantly shorter than that in patients with vertical midline incision (24.0 vs 33.0months, P = 0.006).	(86.9%).					
Sachdeva G et al 2022[6]	1	33	Pf 5 yrs back	Pain, swelling at the site of a caesarean section scar for 6 months	6cm x 4cm, tender, and immobile subcutaneous mass beneath the previous caesarean section scar site	well-defined hypoechoic and heterogeneous mass with internal echoes with smooth margins in the muscular plane of the suprapubic region measuring 6.23cm x 3.67cm x 2.28cm	dienogest tablets 2mg OD for 3 months, size of the mass reduced (4.7cm x 3.5cm x 2.5cm).	fibro-collagenous tissue with striated muscle deeper down, No endometrial glands were seen	conceived naturally after 4 months of stopping dienogest, no symptoms but mass felt, underwent elective lower segment caesarean section with bilateral tubal ligation with wide excision of scar endometriotic tissue at 38±5weeks
Gupta P et al 2015[7]	1	28	Pf lscs 3 yrs ago	Swelling and pain in previous scar, mass of 3x3cm, in the region of the left side of the caesarean scar,	brownish, bluish mass of 3x3cm, at the left extreme side of the Pfannenstiel caesarean scar with slight tenderness, firm consistency, and restricted mobility		Wide excision of the endometriotic tissue	tissue surrounding benign endometrial glands and stroma consistent with endometriosis	
Gonzalez RH et al 2021[8]	1	39	Inverted T incision 4 months back	Cyclical pain and tendernes,accompanied by red-colored fluid coming from the incision site.	non-mobile, nodular, moderately pigmented area of 2×3 cm at the incision's left lateral border	2×1.3×2.2 cm irregular hypoechoic solid mass partially projecting into subcutaneous tissues, with internal vascularity in the area of palpable concern	resect the abdominal mass	endometriosis involving fibro-adipose tissue with dense fibrous scarring	
Xu R et al 2022[9]	1	40	Prev 2 cs, last 12 yrs back	Irregular menses X 2 yrs,		triangular defect at prev uterine incision, Color Doppler- no abnormal blood flow signal, repeat USG- mixed mass of 8.06 ×	Lap surgery-excision of 8X6X4 cm cystic mass at the incision of the anterior uterine wall with a thin tip attached to the anterior uterine wall	endometrium-like glands and minor bleeding visible in the smooth muscle tissue, which was inclined to	1 year – no recurrence

						6.23 × 3.66 cm in the right anterior part of the ute rus, with hypo echoic, anec hoic, and hyperechoic areas, closely associated with the uterine body incision. Color Doppler- slight enrichm ent of blood flow within the mass		endometriosis	
Ferrandina G et al 2016[10]	1	44	Prev lscs 9 yrs back	Enlargeme nt of suprapubic mass at CS scar, abdominal swelling	a suprapubic mass of almost 20 cm maximum diameter was documented close to the midpoint of the CS scar	10.5×5.0×5.0 cm subcutaneous solid mass with cystic areas and internal septa involving the rectus abdominis muscle. The mass appeared strictly adherent to the uterus and recto-sigma. Pelvic organs appeared normal, while right external iliac lymph nodes appeared enlarged	FNAC- endometrial tubule papillary carcinoma, Explora tory laproscopy- normal; adnexae and pelvic organs, peritoneal as well as cervical, endome trial, and vesical biopsies were negative. Chempt herapy f/b wide resection of the abdominal mass, partial removal of rectus abdominis muscle and fascia; moreover, radical hysterectomy, bila teral salpingo-oophorectomy (BSO) as well as inguinal and pelvic lymphadenectomy	neoplastic proliferation of large-sized, epitheliomorp hous cells with abundant clear or occasionally eosinophilic cytoplasm and prominent nucleoli, sparse foci of endometriosis were present in the fibrous adipose tissue all around.	Death after 1 month of surgery
Zhu TH et al 2022[11]	1	37	Prev 2 CS, 9 and 4 yrs ago	5.5-cm mass in the abdominal wall cesarean section scar, cyclical swelling and tenderness	36 _ 19 _ 55-mm rough, mobile, spherical mass with distinct hardness		Complete resections of the mass	diffuse proliferation of spindle cells with multinodular growth pattern and exhibited prominent tongue-like projections into the surrounding tissue	
D'Agostino C et al 2019[12]	1	33	Prev CS 3 yrs back	firm, subcutaneo us nodule covered by normal skin.		well-delimited, hypoechogenic subcutaneous nodule (maximum size: 1 cm), showing perilesional inflammatory reaction without evident vascular signals	size did not increase during 4 years of follow-up. Finally, the nodule was totally excised during a subsequent caesarean section performed at 39 weeks of gestation	subcutaneous endometriosis occurring in a caesarean section scar and showing progestational changes related to pregnancy	
Doroftei B et al 2020[13]	2	38, 36	Prev 2 cs, Prev 1 cs 2 yrs back	Cyclical painful, palpable, small, firm mass of approximat ely 2 to 3 cm, located in the lower	2) painful, palpable, small firm mass of ~3 cm in the lower abdomen wall, at the site	irregular, heterogeneous, hypoechoic, oblong solid mass with ill-defined margins, located within the subcutaneous	2) Surgical excision was di_cult due to invasion and lack of cleavage plans	fragment of connective-muscle-fat tissue with glandular components and endometrial-like stroma,	

				abdomen wall, at the site of the caesarean section scar, 2) cyclic pain on the C-section scar, as well as of moderate to severe dysmenorrhoea and dyspareunia	of the caesarean section scar	fat, with some infiltration in the abdominal muscle but no mobility to the deeper anatomical planes 2) nodular, 25/26mmmass with impreciseamargins, di_use Doppler signal, intramyometrial varicose veins, sliding sign absent posteriorly and present anteriorly		with intra- and extracellular hemosiderin deposits, lymphoplasmacytic infiltrate, and fibrosis. 2) scarce endometrial glands and stroma (arrows) embedded within conjunctive and adipose tissue.	
Kocher M et al 2017[14]	1	37	Prev 3 cs, last 4 yrs ago	Intermittent left lower abdominal pain	palpable knot of 2X2cm located in the lower abdominal wall just lateral and superior to the left extent of the Pfannenstiel incision scar.	CT scan - oval hyperdense soft tissue mass in the subcutaneous fat of the left lower abdominal wall, measuring 3.2 x 2.8 cm	Surgical excision	endometrial glands with tubal metaplasia, sitting with adjacent endometrial stroma and blood	
Giannella et al 2020[15]	1	45	Prev 2 cs, 22 and 13 yrs back	Pelvic pain, intense dysmenorrhoe, abdominal mass	smooth, multilocular mass measuring about 20 cm, arising from the middle-left side of the cesarean scar to the umbilical region	MRI- presence of an anterior abdominal wall mass showing solid and lacunar areas with a diameter of 18 cm, infiltrating bladder wall and multiple iliac lymph nodes.	Several cycles of Chemotherapy followed by palliative care	FNAC- Clear Cell Carcinoma cells deriving from gynecological cancer, suggesting a malignant transformation of AWE.	Died 7 months after diagnosis

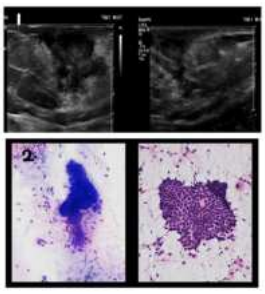

Figure A (1): USG showing ill-defined hypoechoic areas with surrounding hyperechoic rim without internal vascularity over scar site in anterior abdominal wall; (2) Features on FNA consistent with endometriosis

Figure B: Scar excision followed by tissue removed during the procedure

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