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Case Report

Scar endometriosis: A series of 3 cases

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ARTICLE INFO

Article history:

Received 16 May 2015

Accepted 10 July 2016

Available online 5 September 2016

Keywords:

Endometriosis

Abdominal wall masses

Scar excision

Introduction

Endometriosis is a common benign gynecological disease predominantly affecting women of reproductive age group. Literally, endometriosis means a condition, where the functional endometrial stromal and glandular tissue is found outside the uterine cavity. Clinical presentation of endometriosis is mainly due to presence of ectopic endometrial tissue involving pelvic organs and tissues. This pathologic condition is mostly encountered in ligaments of uterus, ovaries, Pouch of Douglas, and pelvic peritoneum but endometriosis has also been reported in extrapelvic sites as nose, breast, lung, spleen, gastro-intestinal tract, kidney, and abdominal wall.

Scar endometriosis (SE), although described in literature, is extremely rare.^{1,2} Its incidence in post-cesarean and post-hysterotomy scar tissue is approximately 0.03–0.4% and 1.08–2% respectively. Post-hysterotomy incidence of endometriosis in scar is higher possibly due to pluripotential capabilities of early decidua.³

Endometriosis in operative site scar tissue may present as a discrete mass (endometrioma) which may be painful and can be confused clinically with a variety of surgical conditions like inguinal hernia, incisional hernia, abdominal wall tumor, stitch granulomas, etc.⁴ It is extremely important to recognize the condition so as to avoid potential clinical pitfall in the diagnosis of this treatable entity.

Here, we present three cases of SE (Table 1), managed at our hospital.

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<http://dx.doi.org/10.1016/j.mjafi.2016.07.002>

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Table 1 – Summary of cases.

Parameter	Case 1	Case 2	Case 3
Age (years)	40	36	33
No. of surgeries	2 cesarean sections	2 cesarean sections	1 cesarean section
Time since last surgery	12 years	12 years	2 years
Symptoms	Painful swelling	Burning and pricking pain cyclical in nature	Cyclic pain with increase in size mass
Sign	1 cm × 2 cm indurated area over umbilicus and tender	Soft, non-reducible, non-compressible, adhered to underlying tissue	3 cm × 3 cm firm and tender area brown discoloration of skin
FNAC	Inconclusive	Not done	Not done
USG	Localization of lesion	Inconclusive	Suggestive of granuloma
MRI	Not done	Suggestive of scar endometriosis	Not done
Surgical finding	5 cm × 4 cm mass dense adherent to rectus sheath	5 cm × 5 cm yellow brown mass invading subcutaneous tissue, rectus sheath. Adherent rectus sheath was removed and mess repair done	3 cm × 3 cm mass was excised with clear margin
Histopathology	Confirmatory	Confirmatory	Confirmatory

Case 1

A 40-year-old female patient, P2L2, presented with history of painful swelling over umbilical area, which was cyclically waxing and waning since past two years. The pain and swelling used to increase during menstruation. She had two term cesarean sections (CS) and last CS was 12 years ago.

Abdominal examination revealed 1.5 cm × 2 cm swelling around umbilicus over previous midline vertical scar, which was tender on palpation. There were no signs of acute inflammation or herniation of abdominal contents. Ultrasonography (USG) revealed 23 mm × 12 mm × 16 mm midline periumbilical hypoechoic lesion, anterior to the rectus sheath. FNAC from the lesion was inconclusive.

Based on the history, clinical, and USG findings, diagnosis of SE was made and scar excision was planned. Intraoperatively, there was 4 cm × 3 cm mass densely adherent to the rectus sheath which was excised with a clear margin. Histopathological examination (HPE) of excised tissue revealed

endometrial glands (with luminal hemorrhage) and stroma is present in the deep dermis (Fig. 1). Follow-up visits at 2nd and 6th months revealed the patient to be asymptomatic with well-healed scar.

Case 2

A 36-year-old female patient, P2L2, with previous two CS, second CS done 12 years back, reported with complaints of burning and pricking pain in the skin of lower abdomen, over the right side of the scar since last 6 years. Her symptoms were cyclic, starting 3–4 days before menstruation and lasting for 7–10 days. It used to subside on its own with itching over the skin. On examination, the patient had a well-healed transverse CS scar 3 cm above the pubic symphysis. There was approx. 5 cm × 5 cm mass visible at right lateral end of the scar with normal skin over it. The mass was soft, nonreducible, noncompressible, and adherent to underlying tissue. USG was nonspecific with normal pelvic scan. MRI showed features suggestive of SE invading the rectus sheath with encroachment of rectus muscle.

Intraoperatively, there was 5 cm × 5 cm brownish mass invading subcutaneous tissue, rectus sheath, and the rectus muscle (Fig. 2a). Chocolate-colored fluid was noticed coming out from the mass. The lesion was excised along with part of rectus sheath and rectus muscle fibers. Wide gap thus created was subsequently closed using overlying proline mesh (Fig. 2b). Post-op recovery was uneventful. HPE report was consistent with SE, showing endometrial glands and stroma (Fig. 2c and d). The patient has been on regular follow-up for last two years and is asymptomatic till date.

Case 3

A 33-year-old female patient, P1L1, presented with a painful lump over the scar of previous CS done two years ago. The swelling was associated with cyclical increase in size and pain

Fig. 1 – H&E section through the excised scar. Endometrial glands (with luminal hemorrhage) and stroma are present in the deep dermis (arrow).

Fig. 2 – (a) Per-op findings: brownish endometriotic tissue (white arrow) adherent to rectus sheath. (b) Mesh repair of rectus sheath after excision of endometriotic tissue. (c) H&E stained section through excised tissue showing endometrial glands and stroma in the collagenous scar ($\times 20$). (d) H&E stained section through excised tissue showing endometrial glands and stroma in the collagenous scar at high power magnification ($\times 40$).

during menstrual periods. There was no history of discharge from the swelling.

Abdominal examination revealed a 3 cm $\times$ 3 cm firm and tender mass over previous cesarean scar. The skin over it showed brown discoloration (Fig. 3). Ultrasound revealed a hypoechoic mass at the middle of CS scar suggestive of scar granuloma. The mass was excised with its clear margin. HPE revealed endometrial glands and stromal tissue interspersed within fibro-adipose tissue. The post-operative period was uneventful. The patient has been on follow-up for three years and is asymptomatic till date.

Fig. 3 – Clinical photograph showing linear elevated brownish discoloration (yellow arrow) over Pfannenstiel scar (broad blue arrows).

Discussion

SE involving the abdominal wall, however, is distinctly uncommon.^{3,4} Among various theories postulated for endometriosis, metaplasia theory suggests differentiation of multipotent mesenchymal cells to endometrial tissues at their site after puberty and show patho-physiological changes, like proliferation, hemorrhage as a response to hormonal stimuli. According to the transport theory, endometrial cells are transported to extrauterine areas in some instances and endometrioma develops by being affected by hormonal changes.⁵ Another hypothesis suggests the presence of diminished natural killer cell immunity, which lessens the clearance of endometrial cells from peritoneum.⁶

Endometrioma developing in CS scar tissue can be explained on the basis of theory of transportation. An increase in the frequency of endometrioma has been reported in proportion to the increasing number of CS in recent years.⁷ Major factor attributed to be responsible for endometrioma development is inadvertent inoculation of endometrial tissue into the incision site.⁸

Clinically, SE presents as pain and swelling at the site of scar. The time interval between surgery and clinical presentation varies in different series from 3 months to 10 years.⁴ In our case series, this duration varied from 2 years to 12 years. About 20% of cases present with history of variation in pain intensity with menstrual cycle.⁹ All our patients had cyclical variation of their symptoms. SE has been well documented in incisions where there is likelihood of contact with endometrial tissue, such as

episiotomy, hysterectomy, hysterotomy, ectopic pregnancy, laparoscopic gynaec surgeries, tubal ligation, and CS.^{4,7,8} All our cases had occurrence of SE in post-caesarean scar.

Diagnosis of SE is often difficult to establish and is purely based on clinical examination and a high degree of suspicion. Presentation of an abdominal lump with cyclical swelling or pain, with a history of previous gynecological surgery, should bring in high index of suspicion for SE. Differential diagnoses include other surgical conditions such as hematoma, neuro-ma, hernia, granuloma, abscess, scar tissue, neoplastic tissue, or even metastatic carcinoma.¹⁰ Gynecological scars undergoing malignant transformation are rare, occurring in 0.31% of cases. If it occurs, clear cell carcinoma is the most common histological type, with a survival of 57% at 20 months. If there is frequent recurrence or endometrioma is fast-growing and large, malignancy should be suspected.¹¹

Besides detailed history taking and pelvic examination, various imaging modalities have been described for diagnosis. Preoperative evaluation with imaging techniques can facilitate total surgical excision. The characteristic USG feature of SE is a solid, hypoechoic, and vascularized nodule with speculated margins, infiltrating the surrounding tissue. For large masses, CT and MRI may facilitate a diagnosis by providing information about relationship of the mass to the neighboring structures. Computed tomography is a poor imaging modality because of the lack of resolution and radiation exposure.¹² Kinkel et al. revealed the sensitivity and specificity of MRI in diagnosing endometriomas to be 90–92% and 91–98%, respectively.¹³ MRI has been done in only one of our patients and the radiological feature was consistent with SE. Fine-needle aspiration cytology (FNAC) was reported in some studies for confirming the diagnosis before surgery.¹⁴ Ultrasound and FNAC (done in 1st case) did not help us in arriving at a diagnosis. HPE has been the only definitive and confirmatory diagnostic tool for all of our three cases.

Medical treatment with the use of progestogens, oral contraceptive pills, and danazol has not been found to be very effective, giving only partial relief and does not cure the lesion. There have been reports of use of gonadotrophin agonists, viz. leuprolide acetate, but it has been found to provide only immediate relief from symptoms without any long-term changes in size of lesion. Kang et al. has suggested intra-lesional gosereline injection prior to surgical excision. The only benefit achieved by such intervention was reduction in lesion size.¹⁵

Treatment of choice for SE is wide local excision of the lesion, which is both diagnostic as well as curative. The recurrence can be prevented by excising the lesion along with histologically proven, surgical-free margin of 1 cm.¹⁶ As SE may be associated with pelvic localization, diagnostic laparoscopy may be indicated to exclude the intraperitoneal spread of the disease in symptomatic patients. We followed up all three cases and found surgical treatment to be effective with no relapse or recurrence of symptoms.

Conclusion

SE is a rare clinical entity and often mimics a variety of clinical conditions and hence presents as diagnostic dilemma. High

index of suspicion in women of reproductive age group having localized cyclical symptoms in a scar, following a previous obstetric or gynecological procedure helps in diagnosing this condition. We recommend that good surgical technique and due precautions like thorough saline wash of the wound should be exercised during surgery to avoid endometrial implantation in anterior abdominal wall, which otherwise may lead to SE with its associated morbidity.

Conflicts of interest

The authors have none to declare.

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