



SCAR ENDOMETRIOSIS - RISING TREND AND LITERATURE REVIEW

Gynaecology

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ABSTRACT

Endometriosis is defined as the presence of endometrial glands and stroma outside the normal endometrial cavity. It generally occurs in pelvic sites but extrapelvic endometriosis has also been reported mostly involving the subcutaneous tissue.

Surgical procedures like cesarean section, hysterotomy and hysterectomy are commonly implicated in development of abdominal scar endometriosis. Few cases of perineal scar endometriosis have also been reported.

Scar endometriosis is a rare condition with an incidence of about 1% [1]. Occurrence of scar endometriosis, although rare, is probably on rising trend due to considerable rise in rate of cesarean sections done worldwide. It usually presents with non-specific symptoms, varying from cyclical pain to bleeding from a nodule formed at an old surgical site. It can easily be confused with other surgical conditions.

The treatment modality is usually wide local excision followed by histopathological examination (HPE) and confirmation of diagnosis.

In this study, a series of 5 cases of scar endometriosis is discussed along with their varied time of presentations after the preceding surgeries. This will help in increasing awareness and early diagnosis of the condition and thereby reducing physical and psychological distress to the patient.

KEYWORDS

Scar Endometriosis, Endometriosis, Cesarean scar endometriosis

INTRODUCTION –

Endometriosis is a common benign gynecological condition with prevalence of 10-15% [2]. It is defined as the presence of endometrial glands and stroma outside the normal endometrial cavity. It generally occurs in pelvic sites such as ovaries, pouch of Douglas, uterosacral ligaments, pelvis peritoneum and rectovaginal septum. Although most common extrapelvic site is subcutaneous tissue, it may also occur in thorax, nervous system, gastrointestinal tract.

Scar endometriosis is a rare condition with an incidence of about 1%. The quoted incidence of episiotomy scar endometriosis is about 0.06-0.07% while that of cesarean scar endometriosis is 0.03-0.4% [2].

Gynecological and obstetrics procedures like cesarean section, hysterotomy and hysterectomy are commonly implicated in development of abdominal scar endometriosis. Few cases of perineal scar endometriosis at the episiotomy site have also been reported.

Occurrence of scar endometriosis, though a rare condition, is on rising trend due to considerable rise in rate of cesarean sections done worldwide.

Scar endometriosis usually presents with non-specific symptoms, varying from cyclical pain at old surgical site to presence of nodule and cyclical bleeding from the nodule. It can easily be confused with other surgical conditions such as keloid, hematoma, stitch granuloma, abscess or incisional hernia [3]. This can result in misdiagnosis or delayed diagnosis.

The treatment modality is usually wide local excision followed by HPE and confirmation of diagnosis.

In this study, a series of 5 cases of scar endometriosis is discussed along with their varied time of presentations after the preceding surgeries. This will help in increasing awareness and early diagnosis of the condition and thereby reducing physical and psychological distress to the patient.

Cases have been summarized in Table – 1.

Table -1.

Patient	Age (in years)	Antecedent surgery	Interval (in years)	Mass	Cyclical pain	Bleeding
A	28	LSCS	4	Yes	Yes	No
B	30	LSCS	3	Yes	Yes	No
C	42	LSCS	18	Yes	Yes	Yes
D	32	LSCS	3	Yes	Yes	No
E	38	Episiotomy	12	Yes	Yes	No

Case A –

28 years old P₂L₂ came to gynecology outpatient department (OPD) with complaint of pain along LSCS scar site since 4 years. She also gave history of appearance of a small mass near scar site which gradually increased in size. She had undergone 2 cesarean sections, last done 6 years back.

On examination, a 4X3 cm mass was palpable along the suture line on left side of the cesarean scar. It was tender to touch. There was no bleeding. There was no local or regional lymph node enlargement. Ultrasound showed approximately 3.5X2 cm heterogenous mass with echogenic shadows in subcutaneous tissues suggestive of scar endometriosis.

Patient underwent wide surgical excision of the scar endometriosis. Intraoperative findings revealed infiltration of the rectus sheath. Excised tissue was sent for HPE which revealed fibrous tissue with glands lined by pseudostratified columnar epithelium surrounded by few stromal cells. Few foci showed hemosiderin laden macrophages and areas of hemorrhage. These features were consistent with scar endometriosis.

Case B –

A 30 years old female referred by general surgeon came with complaint of cyclical pain along the LSCS scar site since 3 years. She was P₂L₂ with previous 2 LSCS. On examination, small nodule was seen on the left side of the transverse cesarean scar.

Wide surgical excision was done. Intraoperative findings showed 4x3 cm mass infiltrating into rectus sheath, rectus muscle, peritoneum and omentum. Mass was excised intact and sent for histopathological examination.

On gross examination, it was single fibrofatty mass measuring 3x4x2.5 cm with clinically significant grey white to grey brown fibrofatty areas (Figure-1A). Microscopic section showed fibrous tissue with glands lined by pseudostratified squamous epithelium surrounded by few stromal cells. Few foci showed hemosiderin laden macrophages and areas of hemorrhage (Figure-1B). Peripheral areas showed adipose tissue and few muscle bundles and focal aggregates of lymphocytes.

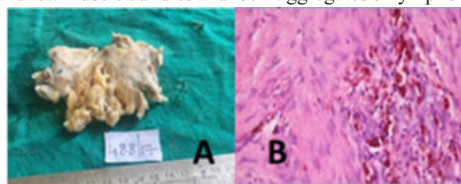
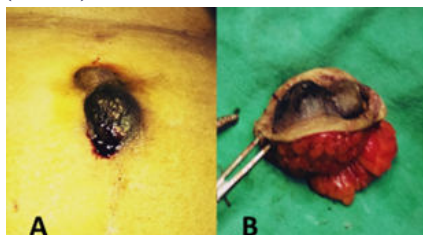


Figure – 1 (A and B)

Case C–

A 42 years old female presented with complaints of a nodule near umbilicus from 4 years. It was associated with cyclical pain and bleeding from past 2 years. On examination, there was a midline vertical LSCS scar. A nodule of size 3x3 cm was seen at the upper end of scar near umbilicus(Figure-2A). There was no bleeding at the time of examination. Ultrasound showed heterogenous mass with echogenic shadows.

Patient underwent wide surgical excision of the nodule which extended till the rectus sheath(Figure-2B). Specimen was sent for HPE which confirmed the diagnosis of scar endometriosis.

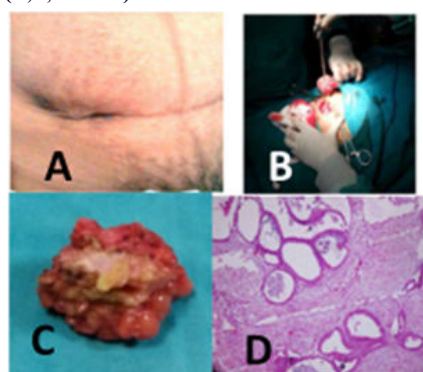
Figure – 2(A and B)**Case D–**

32 years old female who was P₂L₂ came to OPD with pain and swelling at right side of the transverse cesarean scar site. She had undergone 2 cesarean sections, last being done 3 years back. She resumed her menstrual cycle 6 months later. Later she started having pain at the scar site that increased during menstrual period.

On examination there was a small swelling at the right side of the scar site which was tender to touch(Figure-3A). Ultrasound showed 4X3cm oval shaped heterogenous mass in the subcutaneous and muscular planes, with no abnormalities of uterus and ovaries. These findings were suggestive of scar endometriosis.

Wide surgical excision of the mass was performed. Intraoperatively, extensive fibrosis of the scar upto the fascia was noted. The lump was about 3x3 cm, firm, in the subcuticular plane extending till the abdominal wall muscles. Wide excision with clear margins was performed(Figure-3B and C) and post-operative period was uneventful.

HPE showed fibro-adipose tissues with interspersed endometrial glands and stroma in deep areas of dermis(Figure-3D), confirming the diagnosis of scar endometriosis.

Figure – 3(A,B,C and D)**Case E–**

38 years old P₁L₁ came with complaints of pain and swelling in perineum on right side which increased in intensity during menstruation. The swelling started to appear 2 years back, gradually increasing to present size of 3X3 cm. She had normal vaginal delivery with episiotomy 12 years back.

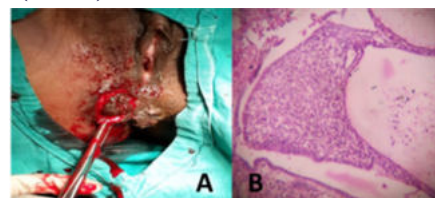
Local examination revealed a tender mass of about 3X3 cm on the right side of anus which was hard in consistency, with irregular margins. The skin over the mass was pigmented and puckered.

On MRI, the lesion measured approximately 2x3.1 cm in transverse and AP dimensions and extended cranio-caudally approximately 3.6

cms. The lesion showed spiculations, irregular margins with peripheral strands. The lesion also involved the right external anal sphincter and puborectalis muscles.

Excision of lesion with reconstruction of anal sphincter was done. Intra-operatively, a 3cm fibrotic mass involving the external anal sphincter and puborectalis muscle was present which was excised along with 1cm of healthy margin and external anal sphincter was reconstructed(Figure-4A).

Histopathology confirmed the diagnosis of scar endometriosis as it showed endometrial glands, stroma and hemosiderin laden macrophages(Figure-4B).

Figure – 4(A and B)**DISCUSSION –**

Endometriosis is defined as presence of endometrial gland and stroma outside the uterine cavity. Although the ectopic endometrium is usually found in the pelvis, it may be outside the pelvis and in tissues such as the abdominal cavity, lungs, ureter, abdominal scars and rarely, perineum.

Pathophysiology –

Sampson's transplantation and implantation theory (theory of retrograde menstruation) is the most widely accepted theory for the formation of ectopic endometrium as this theory explains nearly all cases of pelvic endometriosis. But it fails to explain endometriosis at distant sites. Other proposed theories were theory of coelomic metaplasia and direct implantation. Theory of direct implantation explains endometriosis at abdominal scar sites following cesarean section, hysterotomy, tubal ligation and myomectomy.

The endometrial glands and stroma in the ectopic sites have potential to undergo changes under the effect of estrogen and progesterone. While proliferative changes are constantly seen, secretory changes are less likely probably due to absence of steroid receptors. Cyclical growth and shedding of endometrium occurs till the woman attains menopause.

Scar endometriosis is most commonly seen following surgical procedures on uterus and fallopian tubes and the incidence has been estimated to be only 0.03% to 0.15% of all cases of endometriosis. The term scar endometriosis is used for well-marked fibrous tissue, with thick chocolate-like liquid areas, and is located anywhere in the surgical scar. One study has reported scar endometriosis at surgical site is most commonly seen after the operation of cesarean section followed by episiotomy, hysterotomy, hysterectomy and laparotomy [4].

Out of various theories that have been postulated for scar endometriosis, direct implantation of endometrial tissue in cutaneous tissue during surgical procedure is most plausible theory. Under cyclical hormonal stimulus, these endometrial glands and stroma undergo proliferation leading to generation of scar endometriosis. Abdominal wall endometriosis is most frequent extra-pelvic location mostly occurring in old surgical scars from obstetrical and gynecological procedures.

Scar endometriosis usually follows previous major abdominal surgery. It has been found in recent years that its frequency is increasing probably due to increased rate of cesarean sections and number of laparoscopic surgeries performed.

The postulated mechanism is mechanical transplantation of endometriotic or placental cells into the wound during surgical procedure and subsequent stimulation by estrogen to produce endometriosis [5].

A typical clinical triad has been proposed consisting of a history of

gynecologic surgery, periodic variation of clinical symptoms in relation to the menstrual cycle and mass lesion near or inside the surgical scar [6].

In *Case-C*, the patient was perimenopausal and the interval between preceding surgery and appearance of symptoms was 18 years. The underlying reason of this aspect may be the dysfunction of the hypothalamic-pituitary-ovarian axis which is more common in peri- and postmenopausal women group. Similar trend was seen in *Case-E*, who was 38 years and approaching perimenopause. Anovulatory cycles produce no progesterone to stabilize cyclic withdrawal of the estrogen prepared endometrium, hence bleeding episodes become irregular, and menorrhagia occurs. Also, there are greater risks of benign and malignant neoplastic growths with the increasing age [3].

Diagnosis –

Clinical diagnosis of scar endometriosis can be made by a thorough and carefully elicited history and physical examination. Due to various differential diagnosis such as keloid, hematoma, stitch granuloma, abscess or incisional hernia such patients are often referred to general surgeon.

Ultrasonography is most cost effective and feasible radiological investigation for abdominal masses. The mass may appear hypoechoic and heterogeneous with scattered internal echoes.

MRI can be more helpful when the lesion is small because of its high spatial resolution, which allows better distinction of the planes between muscles and abdominal subcutaneous tissue. Infiltration of abdominal wall and subcutaneous tissues is also much better assessed by MRI. Fine-needle aspiration cytology (FNAC) was reported in some studies for confirming the diagnosis.

Histopathology is the hallmark of diagnosis. It is satisfied if endometrial glands, stroma, and hemosiderin pigment are seen. Standard hematoxylin and eosin-stained slide examination can confirm the diagnosis. Careful microscopic examination is necessary to rule out malignancy [7].

Management –

Management of scar endometriosis primarily includes surgical method. Wide local excision of mass with 1 cm healthy margin is done. Medical management like hormonal suppression have been tried but is only partially effective [8].

Local wide excision with 1 cm margin ensures complete removal of the disease and it also prevents recurrence. It also rules out remote concern for malignant transformation. Larger and lesions deeper to the muscle or the fasciae are difficult to excise completely and may require the placement of a synthetic mesh, or transfer of tissue for closure. The incidence of concomitant pelvic endometriosis with scar endometriosis has been reported to be from 14.3% to 26%. Ideally, all patients must be examined for co-existing pelvic endometriosis [4].

Follow up–

Postoperatively patient should be followed up for few years under a gynecologist [4]. Cases of recurrence should be evaluated for malignancy.

CONCLUSION–

The diagnosis of scar endometriosis can be challenging. It should always be considered as a differential diagnosis by every surgeon in women presenting with cyclical pain or swelling at scar site specially following pelvic surgery.

In the largest reported series to date, only 20% of the patients exhibited typical symptoms as stated above. Patients usually complain of tenderness over a raised, unsightly hypertrophic scar [9].

Care should be taken during pelvic surgery to prevent spillage of endometrial tissue into abdomen or to superficial layers to prevent implantation of endometrial tissue at such sites. Unindicated cesarean sections and hysterotomy should also be avoided.

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