Endometriosis of postoperative scar: a report of five cases and short review of literature

ANDREI PLOTSKI1, TATIANA GARELIK2, IRINA MSHAR2, IRINA PARFENENKO2, DMITRI GARELIC3

Abstract
Endometriosis in an operative scar is rare event following mainly obstetric and gynecologic operation. We present 5 cases of scar endometriosis and review of literature with emphasis on variants of clinical signs, differential diagnostic, methods of treatment and prevention.

Key words: endometriosis, scar, cesarean section

Introduction
Endometriosis is defined as the presence of endometrial tissue – both endometrial glands and stroma – outside the uterine cavity, and this tissue responds to hormonal stimulation. Till now endometriosis continues to be a mysterious pathological process. It usually occurs in the pelvis but extrapelvic endometriosis is described almost everywhere in the body. Endometriosis in an operative scar is rare and usually a secondary process in scars after surgical procedures: cesarean delivery, hysterectomy, cystectomy, appendectomy, laparoscopic trocar tract, amniocentesis, perineal episiotomy incision [1, 2]. Furthermore this disease is also related to surgery performed by general surgeons such as appendectomy, groin and umbilical hernia corrections [3, 4].

The term scar endometrioma is used for well-marked tumoral lesions. Not all scar endometriosis is characterized by endometrioma and this make diagnosis difficult when there are no palpable nodules [3]. Its clinical diagnosis confused with abscess, hematoma, suture granuloma, desmoid tumor, sarcoma etc. [5]. Incidence rates for endometrioma associated with cesarean section have been reported to be 0.01-4% [2, 3, 6] in different series. The incidence of endometrioma in episiotomy scars is much smaller than in abdominal wall scars [3]. In this study we present five cases of endometrioma appearing after cesarean section.

Case reports
We present 5 cases of scar endometriosis that we observed in Grodno City Hospital Nr. 4 since 2003 till 2013. Mean age of patients was 35 years, range 28-42 years. All patients were previously undergone cesarean section 5.6 (range 3-12) years ago; two of them were operated twice. The range of time from cesarean section to development of symptoms was 1 to 3 years. Clinical signs appeared during 1-3 years after last cesarean section. All patients presented painful tumor of a scar; palpable sizes of lesion were 45 (range 35-55) mm. The degree of pain increase during menses and tumors became more swelling at that time. On ultrasound examination in all cases we revealed hypoechoic nodules with irregular borders and we should take heed that ultrasound sizes of lesion were less than sizes at palpation. All patients were undergone excision of tumors. In three cases lesions were bordered by aponeurosis, muscles were intact and wounds were sutured in-layers. In one case after operation seroma is formed, it was treated with aspiration drainage and compressive bandage. In one case after operation seroma is formed, it was treated with aspiration drainage and compressive bandage. Lesion was healed by secondary intension.

Last two cases were more interesting because masses extended down to the peritoneal surface. In a first case we removed tumor, observed pelvic cavity, found no signs of pelvic endometriosis and repaired surgical wound. In a second case tumor also spread to the abdominal cavity and connected with low segment of uterus. During excision we diagnosed injuring of posterior wall of vesica urinaria. The trauma of vesica urinaria sutured by urologist, Folley’s catheter was inserted for 8 days and wound was repaired. In this case we also revealed no evidence of pelvic endometriosis. We observed no complications in postoperative period. Histologic examination demonstrated endometrial tissue with fibrotic...
changes inside and around the removed nodules. So, preoperative diagnosis of scar endometriosis was confirmed in all cases. In all the cases no recurrence was detected during the follow-up (1-10 years).

Discussion

Some theories have been put forward to explain the pathogenesis of endometriosis. The most prominent theory is that reflux of endometrial cells through the tubes into the peritoneal cavity during menstruation leads to pelvic endometriosis. It has been demonstrated the viability and growth potential of desquamated menstrual endometrium. The metaplasia theory states that endometrioma arises due to metaplasia of pluripotential mesenchymal cells. Transport theory suggests that endometrial cells may be transported to distant location, forming endometriomas during either surgical or procedural actions. The excellent example of transport theory was presented by Paull et al. – authors performed post-delivery curettage and observed 0.74% cases of perineal endometriosis of the episiotomy site. Conversely, there were no cases of perineal endometriosis in patients without curettage in the same time period [7].

The cause of surgical scar endometriosis is believed to be iatrogenic transplantation of endometrium to the surgical wound [5]. Evolution of knowledge about scar endometriosis is rather interesting. Review of the early literature shows a high association of abdominal scar endometriosis with a previous ventrofixation operation [8]. Then the operation of hysterotomy for termination of early pregnancy has been increasingly associated with this condition [8, 9], and it was shown that early pregnancy endometrium was easier to transplant than the term pregnancy endometrium [7]. Nowadays, dramatic increasing of cesarean delivery – the main reason of abdominal scar endometriosis. Anyway, any operation on uterus – it’s doesn’t matter either ventrofixation or cesarean section – may lead to scar endometriosis due to phenomenal viability of endometrium.

The most common presenting symptom of endometrioma in a scar is a palpable subcutaneous mass associated with cyclic pain and swelling during menses [1, 5]. Sometimes endometriomas may be multiple [10]. Endometrial implants behave like normal endometrium in their response to hormones [1]. Ovarian hormonal action on ectopic endometrial cells during menstrual period causes slight bleeding at the scar location with an inflammatory reaction and subsequent tissue repair. Thus, as each menstrual cycle goes by, the lesion increases in volume and this increasing might compromise skin, subcutaneous cellular tissue, aponeurosis and peritoneum [3]. We observed these events in 2 of 5 our cases. Also we consider that inflammatory changes of endometrial mass resulted in injuring of vesica urinaria during excision.

If the symptoms are cyclic in the woman with a prior history of surgery on the uterus, then endometriosis should be the most likely consideration. It’s practically pathognomonic [11]. There is no need for advanced propaedetics and the diagnosis may be based on anamnesis and physical examination [3]. Some authors describe a characteristic triad of periodic pain, tumor, and history of cesarean section [12]. When the complaint is not cyclical clinical diagnosis is impaired [3, 13]. Noncyclical symptoms observe in 25-45% of patients with scar endometriosis [6, 14-16]. An association between scar endometriosis and pelvic endometriosis is found only in one quarter of the cases [3, 17]. The differential diagnosis of a mass in a scar includes keloid formation, suture granuloma, hematomas, abscess, desmoid tumor, postoperative hernia, lipoma, cyst or strange body. It’s also possible to face with a rare condition – so called gossipiboma. It’s a foreign body-related inflammatory pseudotumor caused by retained non-resorbable or partially resorbable substances [18]. As casuistically it is possible to give an example of unusual clinical situation of patient with an endometriotic uterocutaneous fistula. The patient presented a painful nodule on the cesarean scar, which was bleeding during menstruation. It was established that the lesion extended to the uterine fundus, connecting the endometrial cavity with the skin [19].

Ultrasound examination and magnetic resonance imaging (MRI) may sometime aid in the diagnosis of scar mass and fine needle aspiration cytology also has certain value in the diagnosis of scar endometrioma [5]. The typical sonographic pattern is presence of subcutaneous nodule, hypoechoic with hyperechoic strands and irregular margins (Fig. 1). Sometime it’s possible visualize complete or incomplete hyperechoic ring around the nodule caused by a perilesional inflammatory reaction. In lesions larger than 3 cm, small cystic areas may be detected, possibly because of recent hemorrhage. In the typical case, a single peripheral vascular pedicle with arterial flow entering the nodule can be shown by color Doppler investigation. In very small lesions this sign may be absent [1]. Because of highly resolution of MRI this technique makes it possible to identify smaller lesions and distinguish signs of organized hemorrhages within endometriomas. Moreover, MRI has better performance than computed tomography scans in relation...
to outlining the subcutaneous, muscle and aponeurotic tissue layers [3].

Fig. 1. Ultrasound image of endometrioma

In some cases thin needle puncture guided by ultrasound with cytological analysis helps to confirm diagnosis [20]. However, its use is still controversial because of the risk of causing new implants at the puncture sites or perforating a hollow organ in a case of unrevealed or incarcerated hernia that simulated endometrioma [3].

Anyway imaging modalities remain nonspecific [6] and don’t modify the plan of treatment – wide surgical excision. Therapy with oral contraceptives, progestins, medroxyprogesterone acetate and gonadotropin-releasing hormone agonists has been tried with minimal effects [11, 21, 22]. In some patients the effects can be relatively long-lasting, but complete, permanent regression of endometriosis is rare with medical therapy [7, 11]. For cutaneous endometriosis total surgical excision is considered to be golden standard for both diagnosis and treatment. Resection must be complete with clear margins to prevent recurrence [11]. The excision may be technically difficult depending on the depth and the size of mass. It’s possible to use coagulation; it leads to smaller bleeding from infiltrated surrounded tissues [23]. Sometimes large defects in aponeurosis after excision require polypropylene mesh for repairing [24, 25]. Surgery should be performed some days before the menstrual period in order to avoid an inflammatory reaction and making tissue removal easier [3].

Scar endometriosis as well as endometriosis at other sites can turn to malignant. It is rare event occurring in 0.3-1% of scar endometriomas. The phenomenon of malignancy arising in association with endometriosis was first described in 1925 [26]. Clear cell carcinoma is the most common histological subtype [3, 26]. Frequent recurrence might indicate malignant degeneration of tumor. That’s why longtime clinical follow-up is strongly recommended because malignant transformation might vary from a few months to more than 40 years [3, 27].

In order to prevent scar endometriosis some measures have been proposed. First of all it’s reasonable to close the peritoneal and visceral peritoneum with sutures at the time of cesarean section and performing an introflexed suture of the uterine incision and parietal peritoneum [28]. Refusing from these measures may increase the postoperative occurrence of an endometrioma in the scar [11, 21]. At second it is not recommended to elevate the uterus out of abdominal cavity during cesarean section or hysterotomy [7]. Also it’s recommended not to use the same instruments for hysteroscopy and suturing abdominal wall layers [3]. At last at the end of the surgery the abdominal wall wound should be cleaned thoroughly and irrigated with high solution before closure [5]. No measures of prevention have proved its efficiency and all these measures were suggested without any evident scientific corroboration [3].

Conclusion

Five cases of endometriosis of abdominal scar following cesarean section have been presented. These cases support transplant theory of the etiology of endometriosis. Cyclic pain and swelling tumor in the scar after obstetric or gynecologic operation are typical signs of scar endometriosis. Wide excision of tumor is the best way for treatment and final diagnosis. In every case surgeon should be prepared to perform laparotomy due to possible extending of endometriosis in abdominal cavity.

References