

Scar endometriosis is a gynecological complication that general surgeons have to deal with

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Summary

Background: Scar endometriosis is the presence of functional endometrium tissue in surgical incisions. It is a complication that develops after obstetrical or gynecological surgical procedures. As it presents with a mass adjacent to surgical incisions, general surgeons usually deal with it. The authors' aim was to review and discuss the differential diagnosis, treatment methods, recurrence rate, and follow up of scar endometriosis. **Materials and Methods:** Data of patients diagnosed with incisional scar endometriosis between 2005 and 2012 were recorded retrospectively. Their initial symptoms, previous surgery histories, onset of symptoms after surgery, duration of symptoms, diagnostic modalities, treatment methods, pathological evaluations, and rate of recurrences were documented and analyzed. **Results:** Seventeen patients were diagnosed to have scar endometriosis. Former surgical histories were one hysterectomy, one vaginal birth with episiotomy, and 15 cesarean sections. Sixteen of the scar endometrioses were demonstrated on pfannenstiell incision and one on episiotomy scar. Only one recurrence was seen during follow up. **Conclusion:** Scar endometriosis should be taken into account in the surgical practice of incisional site masses of the abdominal wall. They should be excised totally for a proper treatment. Patients must be warned about malignancy risk.

Key words: Endometrioma; Cesarean section; Abdominal wall mass.

Introduction

Endometriosis is defined as the presence of endometriotic tissue outside the uterine cavity that is affected by hormonal changes [1]. It is usually seen in pelvic sites as ovaries, fallopian tubes, cul-de-sac, and rectovaginal septum. Among extrapelvic sites, abdominal wall is the most common localization. Usually after obstetrical or gynecological surgical procedures, due to implantation of endometrial tissue around the incision, extrapelvic endometrioses are mostly (1%) seen in the incisions of abdominal wall and rarely (0.06%) in episiotomy scars [2, 3]. Diagnosis is often difficult due to lack of specific symptoms and unexpected localizations. Scar endometriosis generally appears months and years after primary surgery [4]. Wherefore the localization on the abdominal wall, patients usually consult to general surgeons. On account of endometrioses being beyond the interest of general surgeons and their atypical localizations, cases are usually misdiagnosed or exact diagnoses are achieved after pathological examinations. This study is a brief review of scar endometriosis cases (n=17) of patients that attended the present general surgery clinic. Their diagnosis, treatment, and follow-up were discussed according to general surgeons' perspective.

Materials and Methods

Between the years 2005 and 2012, 17 patients were diagnosed to have scar endometriosis histopathologically at Baskent University Adana Hospital General Surgery Clinic. Their medical reports were analyzed and reviewed retrospectively.

Results

Seventeen patients were diagnosed histopathologically to have scar endometriosis. Ages of the patients were between 21 and 46 years (mean 32 ± 6). Of the patients 41.1% (n = 7) were nulliparous, others 58.9% (n = 10) were multiparous women. Among the patients that all had surgery (n = 17), majority (n = 15) had cesarean section, one had hysterectomy, and one had vaginal birth with episiotomy. All incisions used on the abdomen were pfannenstiell incisions. Endometriosis nodules were seen in 47% (n = 8) on the right side, 23.5% (n = 4) on the left side, and 17.6% (n = 3) at the middle of the pfannenstiell incisions. One of the patients had nodules situated in pfannenstiell incision bilaterally. One nodule was found in the episiotomy incision. Nodules were between 10-55 mm in diameter (mean 27.7 ± 12.3). Symptoms of 47.1% (n = 8) of patients was a palpable mass only and 52.9% (n = 9) had both nodule and cyclic pain. No tests were done for diagnosis of 23.5% (n = 4) of the patient prior to surgery.

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Figure 1. — CT scan demonstration of scar endometriosis.

Serum CA 125 levels were studied for 35.3% ($n = 6$) of the patients. Ultrasonographic examination in 52.9% ($n=9$) and computed tomography in 11.8% ($n = 2$) of the patients were performed for diagnosis before surgery (Figure 1). All pathologic examinations confirmed scar endometriosis. Time elapsed from the last obstetric or gynecological surgery to the onset of the symptoms was two to 12 years (mean 6.4 ± 3.3). Duration of symptoms was six months to 11 years (mean 3 ± 3.2 years). Only one recurrence was seen after excision of the mass during follow up. The demographic characteristics and results of study parameters are summarized in Table 1.

Discussion

Abdominal wall endometriosis is an example of extrapelvic endometriosis that is seen after cesarean section and hysterotomy, episiotomy, and after endometriosis operations, so called scar endometriosis. It is not unusual unfortunately with the increasing rate of cesarean sections. There can be three explanations for the pathogenesis of scar endometriosis. First one is metaplasia of primitive mesenchymal tissue as an endometriotic tissue [5]. This theory cannot explain why the nodule is mostly seen on the incisional scar. Second theory is hematogenic or lymphogenic transport of endometrial cells that have invasive potential [6]. Third theory is seeding of endometrial cells into subcutaneous tissue on the incision during hysterectomy in cesarean section and during episiotomy [7, 8]. In the present series scar endometrioses were seen one after hysterectomy, one after episiotomy, and the remaining were after cesarean section cases. In the literature most cases were also seen after cesarean sections, therefore seeding of endometrial cell theory can be more reasonable [2]. In cesarean section, while suturing the uterine incision, uterus is taken out of pelvis in terms of hemostasis. After placenta is removed,

Table 1. — Demographic characteristics and results of study parameters.

Mean age in years (range)		32 ± 6 (21-46)
Parity	Nulliparous (%)	41.1
	Multiparous (%)	58.9
Mean mass diameter in mm (range)		27.7 ± 12.3 (10-55)
Asymptomatic period (years)		0.5 - 10
Duration of symptoms (years)		2 - 12
Symptoms	Mass (%)	47.1
	Mass and pain (%)	52.9
Surgery	Cesarean section	15
	Hysterectomy	1
	Episiotomy	1

endometrial cavity is cleared by gauze to prevent residual placenta. These maneuvers facilitate the spillage of endometrial cells around the incision and abdominal wall. The endometriotic nodule is found not within the whole incision but usually at one side of it. On the other hand scar endometrioses are also seen after laparoscopic procedures or appendectomies and hernia repairs [9-11]. Seeding theory does not seem to be adequate to explain the pathogenesis in latter cases, although it is not known if pelvic endometriosis accompany in such cases.

Most patients had a symptom of a mass on the abdominal wall, but not all of them had cyclic or non-cyclic pain. Although cyclic pain is a pathognomonic finding for endometriosis, scar endometriosis may present with or without it.

Diagnosis of scar endometriosis is usually delayed to post-surgery. Exact diagnosis is usually done by pathologic examination. As patients usually attend to general surgeons who are not familiar with endometriosis, preoperative diagnosis is mostly thought to be tumor, hernia, abscess, fibroid or scar fibrosis. The mean time interval between primary surgery and the appearance of symptoms is approximately six years. This delay may also impair early diagnosis.

The diagnostic tools such as ultrasonography (USG), magnetic resonance imaging (MRI), and computed tomography (CT) scans may help the diagnosis of scar endometriosis. Zawin *et al.* suggested that MRI is the best method to diagnose scar endometriosis [12]. Beside MRI or CT scans, USG may be an easier and cheaper diagnostic tool and also may help to detect the localization and spreading of the nodule. Serum CA 125 level is not a good predictor for scar endometriosis, as long as the patient might already have endometriosis elsewhere, so positive result does not support and negative result does not exclude the diagnosis of scar endometriosis. Attentive questioning of patient history and careful physical examination with the support of USG can lead to the conclusion before surgery.

Among extrapelvic endometrioses malignancy risk of scar endometriosis is nearly 1% [13]. Histologic transfor-

mation of extrapelvic endometriosis to malignancy is seen mostly as endometrioid carcinomas, sarcomas, and clear cell carcinomas. Majority of malignancies arising from scar endometriosis detected in histologic examinations are mostly clear cell carcinomas (65%) and endometrioid carcinomas (22%) [13-15]. Clear cell carcinoma is a very aggressive tumor with a poor survival between six to 48 months and death rate of 33% [16]. Surgery must be recommended to avoid aggressive behavior of clear cell tumor. Excision achieved with a margin of one cm around the lesion is enough [17]. Although recurrence rate in the present series is 0.05%, it can be as high as 9.1% in literature [8].

Despite the previous publications highlighting medical treatment as an opportunity [11], the treatment of endometriosis today is undisputedly believed to be surgical excision of the lesion [14, 16]. Progesterone, danazol or GnRH agonists may limitedly help for control of pain due to endometriosis. These agents cannot ensure a lasting effect after ending medical treatment and only act temporarily. For prevention after operations, washing subcutaneous tissue following closure of the abdominal fascia or washing the pelvis may be an option. Nevertheless, there is no proof that such a mechanical step prevents from scar endometriosis.

Conclusion

In case of cyclic localized pain and palpation of nodules with or without pain on previous incisions on the abdominal wall of a woman, endometriosis should be kept in mind. Additionally if a nodule grows or becomes necrotic, malignancy should be considered. Ultrasonography can help in the diagnosis of endometriosis. In case of scar endometriosis, surgical excision is the way of treatment. Medical treatment is only a temporary solution for scar endometriosis. The patients do not desire surgical intervention, should be warned about cancer risk.

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