

# Evaluation of Cases of Abdominal Wall Endometriosis at Universidade Estadual de Campinas in a period of 10 Years

## *Avaliação dos casos de endometriose de parede abdominal na Universidade Estadual de Campinas em um período de 10 anos*

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### Abstract

**Purpose** To determine the clinical and epidemiological characteristics of abdominal wall endometriosis (AWE), as well as the rate and recurrence factors for the disease.

**Methods** A retrospective study of 52 women with AWE was performed at Universidade Estadual de Campinas from 2004 to 2014. Of the 231 surgeries performed for the diagnosis of endometriosis, 52 women were found to have abdominal wall endometriosis (AWE). The frequencies, means and standard deviations of the clinical characteristics of these women were calculated, as well as the recurrence rate of AWE. To determine the risk factors for disease recurrence, Fisher's exact test was used.

**Results** The mean age of the patients was  $30.71 \pm 5.91$  years. The main clinical manifestations were pain (98%) and sensation of a mass (36.5%). We observed that 94% of these women had undergone at least 1 cesarean section, and 73% had used medication for the postoperative control of endometriosis. The lesion was most commonly located in the cesarean section scar (65%). The recurrence rate of the disease was of 26.9%. All 14 women who had relapsed had surgical margins compromised in the previous surgery. There was no correlation between recurrent AWE and a previous cesarean section ( $p = 0.18$ ), previous laparotomy ( $p = 0.11$ ), previous laparoscopy ( $p = 0.12$ ) and postoperative hormone therapy ( $p = 0.51$ ).

**Conclusion** Women with previous cesarean sections with local pain or lumps should be investigated for AWE. The recurrence of AWE is high, especially when the first surgery is not appropriate and leaves compromised surgical margins.

### Keywords

- ▶ abdominal wall endometriosis
- ▶ pelvic pain
- ▶ recurrence
- ▶ cesarean section scar

### Resumo

**Objetivos** Determinar as características clínicas e epidemiológicas da endometriose de parede, bem como sua taxa de recorrência e os fatores que levam a ela.

**Métodos** Estudo retrospectivo, em que se avaliaram 52 mulheres com endometriose de parede na Universidade Estadual de Campinas no período de 2004 a 2014. Entre as

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**Palavras-chave**

- ▶ endometriose de parede
- ▶ dor pélvica
- ▶ recorrência
- ▶ cicatriz de cesárea

231 cirurgias para diagnosticar endometriose, foram encontradas 52 mulheres que apresentavam endometriose de parede. Foram calculadas as frequências, a média e o desvio padrão das características clínicas destas mulheres, bem como a taxa de recorrência da endometriose de parede. Para determinar os fatores de risco de recorrência, foi utilizado o teste exato de Fisher.

**Resultados** A idade média das mulheres foi de  $30.71 \pm 5.91$  anos. As principais manifestações clínicas foram dor (98%) e sensação do nódulo (36,5%). Foi observado que 94% dessas mulheres tinham pelo menos uma cesárea, e 73% destas fizeram uso de medicação para controle da endometriose no pós-operatório. A localização mais frequente da lesão foi na cicatriz da cesárea (65%). A taxa de recorrência da doença foi de 26,9%. Todas as 14 mulheres que tiveram recidiva tinham margens cirúrgicas comprometidas na cirurgia prévia. Não houve correlação entre a endometriose de parede recorrente e a cesariana prévia ( $p = 0,18$ ), a laparotomia prévia ( $p = 0,11$ ), a laparoscopia prévia ( $p = 0,12$ ) e receber terapia hormonal no pós-operatório ( $p = 0,51$ ).

**Conclusão** Mulheres com antecedente de cesárea anterior com dor local ou nódulo devem ser investigadas com relação à endometriose de parede. A recorrência do endometrioma de parede é alta, principalmente quando a primeira cirurgia não é adequada, e deixa margens cirúrgicas comprometidas.

**Introduction**

Endometriosis is a disease characterized by the presence of endometrial tissue with glands and stroma implanted outside the uterine cavity, which responds to ovarian hormone stimulation. It is usually confined to the pelvic organs, commonly the ovaries, fallopian tubes, uterosacral ligaments, posterior cul-de-sac, rectovaginal septum and peritoneum.<sup>1,2</sup> The disease is less commonly (9–15%) located outside the pelvic cavity, and is termed extrapelvic endometriosis.<sup>3</sup> The abdominal wall is the most common site for extrapelvic endometriosis. Other organs may also be affected, such as the liver, bowels, adrenal glands, lungs, kidneys, and brain.<sup>4–11</sup>

Cases of endometriosis have been described in the surgical scar, cesarean section scar, episiotomy scar after vaginal delivery, or following procedures where there was contact with endometrial tissue, such as hysterotomy performed in the first midterm of pregnancy, hysterectomy, ectopic pregnancy and tubal ligation.<sup>2,12,13</sup> In these patients, the rate of occurrence of pelvic endometriosis is similar to that of other women, and is not regarded as a risk factor for the disease.<sup>14</sup>

The incidence of abdominal wall endometriosis (AWE) is rare. The disorder occurs in 0.03–3.5% of cases, and some studies have reported a rate of up to 12%.<sup>12,15</sup> It is associated with a history of obstetric or gynecologic procedures,<sup>2,12</sup> although some cases occur spontaneously.<sup>16</sup> The disease mostly affects patients with a history of cesarean section.<sup>17</sup> However, endometrioma has also been observed in the surgical incision following a conventional hysterectomy or laparoscopy, appendectomy and inguinal hernia.<sup>18</sup> In these cases, the lesions, which were frequently evaluated by the general surgeon for diagnosis, were commonly misdiagnosed as hernia, hematoma, granuloma, abscess or lipoma.<sup>19</sup>

The preferential treatment is surgery, and the diagnosis is confirmed by histopathology. Other therapeutic options are the suppression of menstruation with progestins or a gonadotropin-releasing hormone (GnRH) analogue.<sup>20</sup> In spite of the surgical removal of the lesion, there may be a recurrence rate of 1.5 to 9.1%. To prevent this occurrence, surgical resection with free margins should be performed.<sup>20–23</sup>

Therefore, this study aimed at determining the clinical and epidemiological characteristics of AWE, as well as the rate of recurrence of the disease and the factors that lead to it.

**Methods**

A retrospective study in which 52 women with AWE were evaluated at Universidade Estadual de Campinas (Unicamp) from January 2004 to December 2014 was performed. The clinical characteristics of these women were assessed, as well as the rate of recurrence of the disease and the factors that lead to it.

The medical charts of the women undergoing surgeries described as exploratory laparotomy, exploratory laparotomy due to endometriosis, and resection of endometrioma were assessed, totaling 917 surgeries. Of the total number of surgeries, 231 were selected for the removal of endometriosis lesions. Only cases of AWE were included in the study, totaling 56 women.

Of the 56 surgeries for excision of AWE, insufficient data in the chart or lack of histopathological results that confirmed the diagnosis of endometriosis excluded another 4 cases. Therefore, 52 women remained for data analysis.

The variables analyzed were age, pregnancies, parity, cesarean section, abortion, body mass index (BMI), symptomatology of the endometrioma (pelvic pain, sensation of a

mass, bleeding), duration of the symptomatology, associated diseases, postsurgical treatment with medication that suppressed menstruation (continuous combination estrogen/progestin-only oral contraceptives or progestin), size and location of the endometrioma.

The study was approved by the Research Ethics Committee of the institution under number 342430/2013.

The frequencies, means and standard deviations of the clinical characteristics of the patients were calculated, as well as the recurrence rates of AWE. In order to determine the recurrence factors, Fisher's exact test was used. For the performance of these procedures, the Statistical Analysis Systems (SAS, SAS Institute, Inc., Cary, NC, US) software, version 9.4, was used.

## Results

The mean age of the women was  $30.71 \pm 5.91$  years. The mean BMI was  $26.48 \pm 5.24$  kg/m<sup>2</sup>, and the main clinical manifestations were nodule pain (98%) and the sensation of a mass (36.5%). Only one woman had a painless mass (► **Tables 1, 2**).

The mean duration of the clinical treatment was  $39.83 \pm 34.09$  months. Of the total number of women evaluated, 94% had undergone at least 1 cesarean section, and 73% had used medication for the control of endometriosis in the postoperative period. The lesion appeared most commonly in the cesarean section scar (65%), and the mean size of the lesion was  $2.52 \pm 1.21$  cm on ultrasound, and  $3.98 \pm 1.72$  cm in the intraoperative period (► **Table 2**).

The recurrence rate of the disease was of 26.9%. All 14 women who had relapsed had surgical margins compromised in the previous surgery. There was no correlation between recurrent AWE and a previous cesarean section ( $p = 0.18$ ), previous laparotomy ( $p = 0.11$ ), previous laparoscopy ( $p = 0.12$ ) and postoperative hormone therapy ( $p = 0.51$ ) (► **Table 3**).

## Discussion

Our results showed that the mean age of the women was 31 years. The main complaints were a palpable mass and pain at the site of the lesion. The mean duration of the symptomatology was 40 months. We observed that 94% of these patients had undergone at least 1 cesarean section. The

**Table 1** Clinical characteristics of women with abdominal wall endometriosis ( $n = 52$ )

Women	Mean $\pm$ SD or n (%)
Age (years)	$30.71 \pm 5.92$
BMI (kg/m <sup>2</sup> )	$26.48 \pm 5.24$
Pregnancy	
No pregnancy (0)	1 (2)
Pregnancy $\geq 1$	51 (98)
Cesarean section	49 (94)

Abbreviations: BMI, body mass index; SD, standard deviation.

**Table 2** Characteristics of the lesions of women with abdominal wall endometriosis ( $n = 52$ )

Lesion characteristics	Mean $\pm$ SD or n (%)
Clinical manifestations	
Nodule pain	51 (98)
Mass	19 (36.5)
Bleeding	7 (13.4)
Duration of clinical manifestations (months)	$39.83 \pm 34.09$
Injury site	
Cesarean section	34 (65.4)
Umbilical	4 (7.7)
Iliac fossa	14 (26.9)
Size of endometrioma in ultrasound (cm)	$2.52 \pm 1.21$
Size of endometrioma in surgery (cm)	$3.98 \pm 1.72$

Abbreviation: SD, standard deviation.

predominant location of the endometriotic lesion was in the scar of the previous cesarean section, and the mean size of the lesion was 4cm. The diagnosis was clinical, with the aid of ultrasonography. The recurrence rate of AWE was of 26.9%.

After a literature review including 445 cases of AWE, we obtained a mean patient age of 31.4 years. The main complaints were a palpable mass and pain at the site of the lesion. The majority of women had a previous cesarean section scar or some other surgical scar. The mean time between the surgery and the emergence of symptoms was 3.6 years. The recurrence rate was of 4.3%.<sup>24</sup>

**Table 3** Factors associated with the recurrence of abdominal wall endometriosis ( $n = 14$ )

Factors	n (%)	$p^*$	RR	95%CI
Cesarean section				
0	2 (14.3)	0.18	0.38	0.15–0.97
$\geq 1$	12 (85.7)			
Treatment				
No	4 (28.6)	0,51	1.55	0.57–4.21
Yes	10 (71.4)			
Laparotomy				
No	9 (64.2)	0.11	2.22	0.95–5.17
Yes	5(25.19)			
Laparoscopy				
No	11(78.5)	0.12	2.45	1.01–5.92
Yes	3(21.5)			

Abbreviations: 95%CI, 95% confidence interval; RR, relative risk. Note: \*Fisher's exact test.

A study evaluating 527 cases of endometriosis in Istanbul also obtained similar results. The mean patient age was 33 years. All patients had a history of at least one pregnancy, a previous surgical procedure, and 90% of these women had undergone a cesarean section. The predominant symptomatology was also a palpable mass and pain. The mean duration of the symptomatology was 18 months. The main location of the lesions was in the surgical scar in 84.7% of cases, and the mean size of the lesion was 4.6 cm. The diagnosis was clinical, with the aid of ultrasonography. The recurrence rate was of 9.1%.<sup>2</sup>

Another study with 227 patients was conducted in China. The mean patient age was 32 years. All women had undergone a previous surgery, childbirth, and 99.6% (226 patients) reported a history of cesarean section. The main imaging modality used for the preoperative diagnosis was ultrasonography. The major complaints were a palpable mass and pain. The mean duration of the symptomatology was 28 months. All lesions were in the surgical scar, with recurrence rates of 7.14%.<sup>21</sup>

According to the literature, endometriosis affects women of reproductive age. It is more common in multiparous women aged 25 to 35 years.<sup>25</sup> Our results are similar to those of other studies. The mean age of our patients was 31 years, and 94% of these women had a history of at least 1 cesarean section. This data was also present in some studies as a risk factor for the development of AWE.<sup>20,26,27</sup> A thorough follow-up and detailed investigation of the women of reproductive age with pelvic pain is important for better disease control and improvement in the patients' quality of life. Since many cases of AWE are evaluated by physicians other than gynecologists, the differential diagnosis should be kept in mind, when a woman of reproductive age complains of pain or a mass adjacent to a surgical scar, particularly in cases of previous childbirth or hysterotomy.

A study indicated that alcohol consumption and heavy menstrual bleeding may be risk factors for the development of AWE. In contrast, multiparity may be a protective factor.<sup>27</sup> Cesarean section indicated after the onset of contractions also seems to offer protection against the disease, compared with elective cesarean section.<sup>28</sup> In this study, only 51% of the patients had a history of at least 1 cesarean delivery, a data similar to the case series described by Leite et al,<sup>20</sup> in which 30.3% of cases were of multiparous women.

There are few evaluations on how to prevent AWE. However, some suggestions were found: dislocation of the uterus outside the pelvic cavity for the performance of hysterotomy, the use of different suture needles and materials for the uterus and remaining cavity plans, irrigation with high-jet saline, avoiding the use of surgical sponges to clean the endometrial cavity in the intraoperative period, thorough cleaning of the abdominal cavity after hysterorrhaphy, attention while delivering the placenta to avoid spillage of uterine contents into the abdominal cavity, and protection of the surgical margins to prevent endometrial implants in the surgical incision.<sup>2,17,29</sup>

In the literature, there was no significant evidence that the clinical course of the patient was better with the use of hormones after surgery, which is in agreement with our

study. It should be reinforced that if pelvic endometriosis persists, along with AWE, hormone therapy should be used to control the disease.<sup>24</sup>

In the present study, the precise relationship between cesarean section and AWE could not be established, despite the high rate of cesarean sections in patients with AWE.

A limitation of the study is its retrospective nature, which makes data collection and complete data acquisition more difficult. A prospective study has been suggested, in which data can be collected in a correct and detailed manner.

Although a large part of the data obtained in this project is consistent with the literature, the difference in the recurrence rate of AWE is notable. Studies have reported an average rate of 4.3–9.1% of disease relapse. In contrast, our study obtained a recurrence rate of 26.9%. The discordant results can be explained by the fact that in a tertiary hospital we usually treat more complex and difficult cases. Another possible explanation is that, during surgery, care to isolate and exchange surgical fields and material, washing and drying the abdominal cavity, attention during hysterorrhaphy, and closure of the remaining planes may be ineffective in this hospital setting. In the university hospital, residents receive training and knowledge that will last for a lifetime, and the surgeries are not only performed by skilled specialists.

Endometriosis of the abdominal wall is not a highly prevalent disease in the population. However, it may lead to a great deal of discomfort, and impair the quality of life of women of reproductive age. Despite contrary results in the literature, the recurrence rate in our service was elevated. More caution and attention is required while operating patients with endometriosis, particularly when a hysterectomy has been performed. A prospective study should be performed to better evaluate the possible factors related to the disease for the improvement of patient care.

We conclude that women with previous cesarean sections with local pain or lumps should be investigated for AWE. The recurrence of AWE is high, especially when the first surgery is not appropriate and leaves compromised surgical margins.

#### Financial Disclosure/Conflicts of Interest

The authors declare no conflicts of interest.

#### References

- Giudice LC, Kao LC. Endometriosis. *Lancet* 2004;364(9447):1789–1799
- Bektaş H, Bilsel Y, Sari YS, et al. Abdominal wall endometrioma; a 10-year experience and brief review of the literature. *J Surg Res* 2010;164(01):e77–e81
- Douglas C, Rotimi O. Extragenital endometriosis—a clinicopathological review of a Glasgow hospital experience with case illustrations. *J Obstet Gynaecol* 2004;24(07):804–808
- Mascaretti G, Di Berardino C, Mastrocola N, Patacchiola F. Endometriosis: rare localizations in two cases. *Clin Exp Obstet Gynecol* 2007;34(02):123–125
- Liu K, Zhang W, Liu S, Dong B, Liu Y. Hepatic endometriosis: a rare case and review of the literature. *Eur J Med Res* 2015;20:48

- 6 Lee HJ, Park YM, Jee BC, Kim YB, Suh CS. Various anatomic locations of surgically proven endometriosis: A single-center experience. *Obstet Gynecol Sci* 2015;58(01):53–58
- 7 Badawy SZ, Shrestha P. Recurrent catamenial pneumothorax suggestive of pleural endometriosis. *Case Rep Obstet Gynecol* 2014;2014:756040
- 8 Huang H, Li C, Zarogoulidis P, et al. Endometriosis of the lung: report of a case and literature review. *Eur J Med Res* 2013;18:13
- 9 Mostafa HA, Saad JH, Nadeem Z, Alharbi F. Rectus abdominis endometriosis. A descriptive analysis of 10 cases concerning this rare occurrence. *Saudi Med J* 2013;34(10):1035–1042
- 10 Nezhat C, King LP, Paka C, Odegaard J, Beygui R. Bilateral thoracic endometriosis affecting the lung and diaphragm. *JSLs* 2012;16(01):140–142
- 11 Veeraswamy A, Lewis M, Mann A, Kotikela S, Hajhosseini B, Nezhat C. Extragenital endometriosis. *Clin Obstet Gynecol* 2010;53(02):449–466
- 12 Nominato NS, Prates LFVS, Lauar I, Morais J, Maia L, Geber S. Caesarean section greatly increases risk of scar endometriosis. *Eur J Obstet Gynecol Reprod Biol* 2010;152(01):83–85
- 13 Nominato NS, Prates LFVS, Lauar I, Morais J, Maia L, Geber S. [Scar endometriosis: a retrospective study of 72 patients]. *Rev Bras Ginecol Obstet* 2007;29(08):423–427 Portuguese
- 14 Sinha R, Kumar M, Matah M. Abdominal scar endometriosis after Caesarean section: a rare entity. *Australas Med J* 2011;4(01):60–62
- 15 Chang Y, Tsai EM, Long CY, Chen YH, Kay N. Abdominal wall endometriomas. *J Reprod Med* 2009;54(03):155–159
- 16 Papavramidis TS, Sapalidis K, Michalopoulos N, et al. Spontaneous abdominal wall endometriosis: a case report. *Acta Chir Belg* 2009;109(06):778–781
- 17 Wasfie T, Gomez E, Seon S, Zado B. Abdominal wall endometrioma after cesarean section: a preventable complication. *Int Surg* 2002;87(03):175–177
- 18 Sirito R, Puppo A, Centurioni MG, Gustavino C. Incisional hernia on the 5-mm trocar port site and subsequent wall endometriosis on the same site: a case report. *Am J Obstet Gynecol* 2005;193(3 Pt 1):878–880
- 19 Rao R, Devalia H, Zaidi A. Post-caesarean incisional hernia or scar endometrioma? *Surgeon* 2006;4(01):55–56
- 20 Leite GKC, Carvalho LFP, Korkes H, Guazzelli TF, Kenj G, Viana AdeT. Scar endometrioma following obstetric surgical incisions: retrospective study on 33 cases and review of the literature. *Sao Paulo Med J* 2009;127(05):270–277
- 21 Ding Y, Zhu J. A retrospective review of abdominal wall endometriosis in Shanghai, China. *Int J Gynaecol Obstet* 2013;121(01):41–44
- 22 Vilarino FL, Bianco B, Martins ACM, Christofolini DM, Barbosa CP. [Surgical scar endometriosis: a series of 42 patients]. *Rev Bras Ginecol Obstet* 2011;33(03):123–127 Portuguese
- 23 Ecker AM, Donnellan NM, Shepherd JP, Lee TT. Abdominal wall endometriosis: 12 years of experience at a large academic institution. *Am J Obstet Gynecol* 2014;211(04):363.e1–363.e5
- 24 Horton JD, Dezee KJ, Ahnfeldt EP, Wagner M. Abdominal wall endometriosis: a surgeon's perspective and review of 445 cases. *Am J Surg* 2008;196(02):207–212
- 25 Zhao X, Lang J, Leng J, Liu Z, Sun D, Zhu L. Abdominal wall endometriomas. *Int J Gynaecol Obstet* 2005;90(03):218–222
- 26 Akbulut S, Sevinc MM, Bakir S, Cakabay B, Sezgin A. Scar endometriosis in the abdominal wall: a predictable condition for experienced surgeons. *Acta Chir Belg* 2010;110(03):303–307
- 27 de Oliveira MA, de Leon ACP, Freire EC, de Oliveira HC. Risk factors for abdominal scar endometriosis after obstetric hysterotomies: a case-control study. *Acta Obstet Gynecol Scand* 2007;86(01):73–80
- 28 Wicherek L, Klimek M, Skret-Magierlo J, et al. The obstetrical history in patients with Pfannenstiel scar endometriomas—an analysis of 81 patients. *Gynecol Obstet Invest* 2007;63(02):107–113
- 29 Nissotakis C, Zouros E, Revelos K, Sakorafas GH. Abdominal wall endometrioma: a case report and review of the literature. *AORN J* 2010;91(06):730–742, quiz 743–745