Assessment of pain and stress intensity among women with ovarian endometriomas versus teratomas

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BACKGROUND: In recent years, numerous studies have considered endometriosis to be a subclinical, local inflammatory process in the pelvic peritoneum, the main symptom of which is pain.

OBJECTIVES: To assess pain intensity and pain-related stress in women with ovarian endometriomas versus teratomas.

METHODS: In total, 860 women (18 to 38 years of age) treated laparoscopically for lesions in the adnexa between September 2006 and November 2013 were included in the present study. After an intraoperative review of their histopathological lesions, the patients were divided into two study groups: group E (n=480), with histopathologically confirmed ovarian endometriomas; and group T (n=380), after laparoscopic treatment of ovarian teratomas. A questionnaire was generated for the study and completed by each group. Statistical analysis was performed using the Mann-Whitney U test (P≤0.05).

RESULTS: Median pain scores for group E versus group T were as follows: pain during menstruation, 6 versus 3 (P=0.003); pain outside of menstruation (in professional life), 2 versus 2 (P=0.014); and pain during sexual intercourse, 3 versus 1 (P=0.006). Pain-related stress scores were higher in group T versus group E (5 versus 3; P=0.007).

CONCLUSION: Ovarian endometriomas caused more pain than ovarian teratomas, likely due to the endometrial tissue component and not a mass effect. The assessment of pain and pain-related stress associated with the pelvis minor showed a high level of pain intensity and lower level of pain-related stress among patients with ovarian endometriomas.

Key Words: Chronic pelvic pain syndrome; Ovarian endometriomas; Ovarian teratoma

Endometriosis is a chronic, estrogen-dependent disease characterized by endometrial hyperplasia outside of the uterine cavity. Endometriosis can manifest as peritoneal grafts and adhesions, as well as endometrial cysts (1-3). The etiopatogenesis of ovarian endometriomas has yet to be clearly defined (3). In recent years, numerous studies have considered endometriosis to be a subclinical, local inflammatory process, the main symptom of which is pain (1).

Endometriosis affects 6% to 15% of the general female population, with its peak incidence typically occurring between 30 and 40 years of age (4-6). Incidence is higher among women treated for pain of the pelvis minor (40% to 60%) (5,6). Endometriosis also affects younger women and approximately 3% (between 2% and 5%) of women after menopause (4,5). The prevalence of endometriosis (45% to 70%) in women with chronic pelvic pain syndrome increases with age (7). The main symptom of endometriosis is chronic pain with a typical, periodic nature, and intensity of perimenstrual symptoms (maximum intensity during menstruation). Endometriosis does not necessarily negatively impact quality of life. Women with endometriosis may adapt to the disease; a high level of disease acceptance may mitigate the negative impact on psychosocial functioning.

The purpose of the present study was to assess pain intensity and accompanying stress in women with ovarian endometriomas versus teratomas.

METHODS

The present prospective study involved 860 women (18 to 38 years of age) treated laparoscopically at the Obstetrics and Gynaecology Hospital of the Poznan University of Medical Sciences (Poznan, Poland) for lesions in the adnexa (ovarian endometriomas and ovarian teratomas), between September 2006 and November 2013. Inclusion criteria were as follows: unburdened obstetric history; good health without any accompanying diseases; and intraoperative diagnosis of ovarian endometriomas or ovarian tumour in the form of a mature teratoma (patients with dual pathology were excluded).
criteria included burdened obstetric history and history of treatment for infertility, irregularities in the blood coagulation system and menstrual disorders. No irregularities in the blood coagulation system were observed during the preoperative tests, and the patients also had no history of treatment for infertility.

The laparoscopy was performed during the first stage of the menstrual cycle in all patients. The women were divided into groups based on histopathological assessment: group E (n=480; histopathologically confirmed ovarian endometrioma) and group T (n=380; mature teratoma). Other endometrial implants and their locations and type were confirmed ovarian endometrioma) and group T (n=380; mature teratoma). Other endometrial implants and their locations and type were

Comparison of general characteristics (Table 1)

Group E and group T were significantly different with regard to median age (31 years versus 26 years; P=0.002) and duration of menstruation (approximately six days versus five days; P=0.021).

Ovarian endometriomas were most often observed among unmarried women (54.2%) with secondary-school education (60.4%) residing in towns with <5000 residents (64.6%). Mature teratomas were more often diagnosed in married women (58.0%) with higher education (52.6%) residing in towns with <5000 residents (47.4%).

Pain analysis (Table 2)

Pain was analyzed with regard to the occurrence of pain or the lack thereof. Chronic abdominal pain was observed in more than one-half of the patients, regardless of the type of lesion (group E, 52.1% versus group T, 55.3%; P=0.916). Painful menstruation was significantly more frequently reported by women with ovarian endometriomas than those with teratomas (70.8% versus 39.5%; P<0.001). Furthermore, pain during intercourse was significantly more frequently reported in patients with ovarian endometriomas than patients with teratomas (41.7% versus 13.2%; P<0.006).

Visual assessment of pain and pain-related stress (Table 3)

On an NRS, patients rated their degree of pain intensity and pain-related stress on a scale of 0 to 10 (0 = no pain/stress and 10 = maximum pain/stress). The median pain intensity score during menstruation was 6 in patients with endometriomas and 3 in patients with teratomas (P=0.001). Statistically significant differences were also observed for the intensity of pain during menstruation, in professional life (median scores 2 versus 2; P=0.014) and during sexual intercourse (3 versus 1; P=0.006). The degree of pain-related stress was higher in group T than in group E (5 versus 3; P=0.007).

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DISCUSSION

The main symptom of endometriosis is chronic pain with a typical, periodic nature, and intensity of perimenstrual symptoms (maximum intensity during menstruation). Patients most frequently report pain during menstruation, or dyspareunia, dysuria, painful defecation, sacral pain, discomfort or periodical abdominal pain, flatulence and diarrhea. However, gastrointestinal and urinary disorders are rarely observed
Petrelluzzi et al (15) observed that women with endometriosis and chronic pelvic pain report a high level of perceived stress, associated with a poorer quality of life, compared with healthy female volunteers. Despite being sufficient to assess the intensity of pain, the NRS is unidimensional and does not consider the mental condition of the patients. A limitation of the study was that other endometriotic implants and their locations and type were not taken into account. The limitations, as reported in Petrelluzzi et al (15), are related to the pain measures and, most likely, the stress measure. We also did not include the type and dosage of analgesics; clearly, it is necessary to perform further, controlled clinical studies. A study by De Graaff et al (16) investigated the effect of endometriosis-associated symptoms and health-related quality of life on education, work and social well-being. Their results revealed that endometriosis affected work and relationships in 51% and 50% of participants, respectively, at some time during their life. Dysmenorrhea was reported by 59%, dyspareunia by 56% and chronic pelvic pain by 60% of women. Quality of life was decreased in all eight dimensions (16). A study by Luczak et al (17) included an analysis and psychological profile of women with endometriosis (17). This study assessed the quality of life and methods of coping with the negative effects of endometriosis by means of psychological tests. Professionally active women with higher education (65.4%) and white collar workers (61.5%), who had been diagnosed with endometriosis for one to 13 years (4.4 years on average) were included in the study. Professionally active women with higher education (65.4%) and white collar workers (61.5%), who had been diagnosed with endometriosis for one to 13 years (4.4 years on average) were included in the study. They suppressed their anger and evaluated relationships and their sense of control. The question is: why do these women have less stress than those with ovarian endometriomas? As mentioned, ovarian endometriomas may be painful because of their endometrial tissue composition, or due to a mass effect. In the present study, the ovarian endometriomas and teratomas were not significantly different in size, thus effectively negating the mass effect. Therefore, the increased pain in group E was likely due to endometriosis.

**Table 2**

<table>
<thead>
<tr>
<th>Pain</th>
<th>Group E (n=480)</th>
<th>Group T (n=380)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic abdominal pain</td>
<td>250 (52.1)</td>
<td>210 (55.3)</td>
<td>0.916</td>
</tr>
<tr>
<td>Pain during menstruation</td>
<td>340 (70.8)</td>
<td>150 (39.5)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Intensity of pain during menstration</td>
<td>370 (77.1)</td>
<td>230 (60.5)</td>
<td>0.154</td>
</tr>
<tr>
<td>Pain during everyday activities</td>
<td>70 (14.6)</td>
<td>40 (10.5)</td>
<td>0.672</td>
</tr>
<tr>
<td>Pain during gynecological examination</td>
<td>100 (20.8)</td>
<td>90 (23.7)</td>
<td>0.945</td>
</tr>
<tr>
<td>Pain during sexual intercourse</td>
<td>200 (41.7)</td>
<td>50 (13.2)</td>
<td>0.006*</td>
</tr>
<tr>
<td>Pain during urination</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Pain during defecation</td>
<td>30 (6.3)</td>
<td>0 (0)</td>
<td>0.128</td>
</tr>
</tbody>
</table>

Data presented as n (%). *Statistically significant at P<0.05 according to the Mann-Whitney test

**Table 3**

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<th>Group T (n=380)</th>
<th>P</th>
</tr>
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<tbody>
<tr>
<td>1. Pain sensation during menstruation</td>
<td>6 (5.47±2.38)</td>
<td>3 (3.49±2.23)</td>
<td>0.001*</td>
</tr>
<tr>
<td>2. Pain sensation outside of menstruation</td>
<td>2 (1.83±1.65)</td>
<td>1 (2.29±2.14)</td>
<td>0.672</td>
</tr>
<tr>
<td>3. Pain sensation during menstration, in professional life</td>
<td>2 (2.06±1.63)</td>
<td>2 (1.57±1.42)</td>
<td>0.014*</td>
</tr>
<tr>
<td>4. Pain sensation outside of menstruation, during sexual intercourse</td>
<td>3 (2.40±1.97)</td>
<td>1 (1.84±1.69)</td>
<td>0.006*</td>
</tr>
<tr>
<td>5. Pain sensation outside of menstruation, during defecation</td>
<td>2 (1.19±1.28)</td>
<td>1 (1.27±1.17)</td>
<td>0.128</td>
</tr>
<tr>
<td>6. Pain-related stress</td>
<td>3 (3.38±2.35)</td>
<td>5 (4.16±1.97)</td>
<td>0.007*</td>
</tr>
</tbody>
</table>

Data presented as median (mean ± SD) unless otherwise specified. *Statistically significant at P<0.05 according to the Mann-Whitney test.
CONCLUSIONS

Ovarian endometriomas may cause pain because of their endometrial tissue component rather than strictly a mass effect. The assessment of pain related to the pelvis minor showed a high level of pain intensity and lower level of stress related with the pain among patients with ovarian endometriomas compared with those with ovarian teratomas.

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DISCLOSURES: The authors have no conflicts of interest to declare.

IN MEMORIAM: This article is dedicated to the memory of Professor Tomasz Opala.

REFERENCES
