Can specific pain symptoms help in the diagnosis of endometriosis? A cohort study of women with chronic pelvic pain

Karen Ballard, Ph.D.,[a] *Hazel Lane, B.Sc.,*[a] *Gernot Hudelist, M.D.S.,*[b] *Saikat Banerjee, M.B.B.S.,*[b] *and Jeremy Wright, M.B.B.S., M.B.A.*[a,b]

[a] University of Surrey, Postgraduate Medical School, Guildford; and [b] Ashford and St. Peter's National Health Service (NHS) Trust, St. Peter's Hospital, Chertsey, United Kingdom

Objective: To investigate whether different dimensions of chronic pelvic pain are useful in the diagnosis of endometriosis.

Design: A prospective questionnaire-based study of 185 women.

Setting: Southeast of England.

Patient(s): Women undergoing a diagnostic laparoscopy for chronic pelvic pain.

Intervention(s): Preoperative questionnaire.

Main Outcome Measure(s): Descriptions of pain, areas of pain, and pain intensity.

Result(s): One hundred thirteen women (61%) had histologically confirmed endometriosis. Three pain descriptors were reported more commonly by women with endometriosis: throbbing, gnawing, and dragging pain to the legs. Compared with women with superficial endometriosis, those with deep disease were more likely to report shooting rectal pain and a sense of their insides being pulled down. Individual pain areas were unrelated to the surgical diagnosis. Area of pain was unrelated to area of endometriosis. Pain intensity was unrelated to the surgical diagnosis. Dyschezia was more severe in women with endometriosis.

Conclusion(s): Women with endometriosis are more likely to report their pain as throbbing and experience dyschezia when compared with women with an apparently normal pelvis. These dimensions of pain may usefully contribute to the diagnostic picture. (Fertil Steril® 2010;94:20–7. ©2010 by American Society for Reproductive Medicine.)

Key Words: Endometriosis, diagnosis, pain symptoms, areas of pain, pain severity, pain descriptors

Reporting on a series of case histories in 1918, Cuthbert Lockyer drew attention to some of the diagnostic symptoms of deep infiltrating endometriosis, which he described as migrating adenoma (1). In addition to his own vignettes of women presenting with rectovaginal endometriosis, Lockyer drew on the published experience of Cullen (2), who detailed the symptomatology of pelvic pain, dyschezia, and dyspareunia. Sampson (3), in his predominantly pathophysiological descriptions of endometriosis, also identified typical symptoms, emphasizing the presence of menorrhagia, possibly to support his theory of retrograde menstruation.

Specific menstrual symptoms have been reported to occur more frequently in women with endometriosis when compared with a control group. For example, Cramer and colleagues (4) reported a linear trend for increasing risk of having endometriosis with an increasing intensity of dysmenorrhea in women seeking infertility treatment when compared with women who had conceived. The relationship between pain intensity and endometriosis severity, however, is unclear, with studies reporting both increasing pain with increasing depth of endometriotic lesions (5) and no relationship between pain intensity and stage of disease (6). More recently, in a United Kingdom national case-control study, the symptoms of abdominopelvic pain, dysmenorrhea, menorrhagia, and dyspareunia were shown to be strongly associated with endometriosis, with 83% of women with endometriosis reporting one or more of these symptoms compared with just 29% of women without endometriosis (7). Despite the growing awareness of these symptoms, diagnosing the condition remains problematic, with studies reporting a diagnostic delay of 8 years (8, 9).

A key problem in diagnosing endometriosis arises from the considerable symptom overlap with other conditions such as irritable bowel syndrome (IBS) and chronic pelvic inflammatory disease (PID), not forgetting that many women with chronic pelvic pain will never receive a definitive diagnosis.

Indeed, women with endometriosis have been found to be 3.5 times more likely to have a diagnosis of IBS and 6.4 times more likely to have a diagnosis of PID when compared with women without endometriosis (10).

A positive diagnosis of endometriosis can only be made at surgery and, as recommended by the Royal College of Obstetricians and Gynaecologists guidelines on the management of endometriosis (11), should ideally be accompanied by histological confirmation of both typical and atypical lesions. Laparoscopic surgery, however, is not without risks, with a large multicenter study reporting a complication rate of 2.4 per 1000 cases (12), predominately complications associated with entry techniques. There are also personal and institutional financial consequences attached to any surgery as well as the potential anxiety for women undergoing the procedure. This is particularly pertinent since 21% of women with chronic pelvic pain are found to have no discernable pathology at laparoscopy (13). Although nonsurgical methods, in the form of transvaginal ultrasound, have been shown to reliably diagnose ovarian endometriomas (14), to date, other soft markers such as symptom reports and clinical examination have been unreliable (15).

In this study, we examine whether there are specific dimensions of chronic pelvic pain (descriptions, intensity, and location) that are useful in the diagnosis of endometriosis.

METHODS
This is a prospective questionnaire-based study of 185 women undergoing laparoscopy for chronic pelvic pain.

Sample
Following ethical and governmental approval, women were recruited from two gynecologists' surgical lists between August 2006 and July 2007. All women with chronic pelvic pain undergoing a diagnostic laparoscopy and, where relevant, surgical treatment were invited to participate in the study.

Data Collection
A questionnaire was developed to determine three different aspects of pain: [1] descriptions of pain, [2] anatomical areas of pain, and [3] intensity of pain. To elicit pain descriptions, women were provided with 40 different pain descriptors and asked to select any that described their pain. The pain descriptors used on the questionnaire were derived from data collected in a previous study of in-depth interviews with 32 women with chronic pelvic pain, where they were asked to describe the nature of their pain (9). Examples of descriptions from the interviews are as follows:

"During my period it actually feels like someone's got their hands inside me and twisting up all my insides and pulling them in every direction. And the other times, it's probably more of … er … a cramp" (28-year-old woman with superficial endometriosis and adhesions).

"The pains were … shooting. It felt as if I … I'd just sat on a spike. It was that sort of shooting pain. But it was … it was right up … like through the middle of me" (34-year-old woman with deep endometriosis).

The full methods for this interview-based study have been described in detail elsewhere (9).

Area of pain was measured by asking women to mark where they experienced pain on an anatomical diagram containing a grid divided into 50 areas on the front of the body and 50 areas on the back. These areas were subsequently combined to provide 15 broader pain areas for data analysis.

Pain intensity was measured using two separate 10-point scales: one for pain when it is at its worst and one for usual pain (when not at its worst). A score of 0 indicated no pain, and a score of 10 indicated excruciating pain. For both of these scores, women were asked to state how many days out of 28 they experienced this level of pain. A daily severe pain score and a daily usual pain score was calculated by multiplying each of the two pain intensity scores by the number of days that the pain was experienced and then dividing this by 28.

A further measure of pain intensity was obtained from a 10-point score of pain on opening bowels during a period. Again, a score of 0 indicated no pain, and a score of 10 indicated excruciating pain.

The questionnaires were completed in hospital before the women underwent the laparoscopy and were handed to the ward nurse who was not involved in the study.

At laparoscopy, the surgeon mapped the pathology on a pelvic diagram containing a grid divided into 16 areas. Visually detected sites of endometriosis and adhesions were documented on this grid. Where endometriosis was suspected, excision biopsies were sent for histological confirmation. Histologically confirmed endometriosis was classified as deep disease if tissue involvement was clinically judged to be 5 mm or greater in depth and superficial disease if tissue involvement was less than 5 mm. Women who had both deep and superficial disease in different discrete areas of their pelvis were classified as having deep disease. The completed patient questionnaire, surgical findings, and histological results were returned to the researchers (KB, HL) for analysis.

Data Analysis
Data were tabulated and entered into SPSS, version 14 (SPSS, Inc., Chicago) for analysis.

Data were analysed using χ^2-square tests to compare the frequency of specific pain descriptors in women with and without endometriosis. Odds ratios (ORs, with 95% confidence intervals [CIs]) for specific pain descriptions were calculated using conditional logistic regression analysis. Univariate and stepwise conditional logistic regression analyses (criteria for inclusion, $P<.05$) were performed to identify which pain descriptions were risk factors for endometriosis compared with women with an apparently normal pelvis.