Attractiveness of women with rectovaginal endometriosis: a case-control study

Paolo Vercellini, M.D.,[a] Laura Buggio, M.D.,[a] Edgardo Somigliana, M.D.,[a] Giussy Barbara, M.D.,[a] Paola Viganò, Ph.D.,[b] and Luigi Fedele, M.D.[a]

[a] Clinica Ostetrica e Ginecologica, Istituto "Luigi Mangiagalli," Università degli Studi, and Fondazione IRCCS "Ca' Granda"–Ospedale Maggiore Policlinico; and [b] Istituto Scientifico San Raffaele del Monte Tabor, Milan, Italy

Objective: To evaluate physical attractiveness in women with and without endometriosis.
Design: Case-control study.
Setting: Academic hospital.
Patient(s): Three hundred nulliparous women.
Intervention(s): Assessment of attractiveness by four independent female and male observers.
Main Outcome Measure(s): A graded attractiveness rating scale.
Result(s): A total of 31 of 100 women in the rectovaginal endometriosis group (cases) were judged as attractive or very attractive, compared with 8 of 100 in the peritoneal and ovarian endometriosis group and 9 of 100 in the group of subjects without endometriosis. A higher proportion of cases first had intercourse before age 18 (53%, 39%, and 30%, respectively). The mean ± SD body mass index in women with rectovaginal endometriosis, in those with other disease forms, and in those without endometriosis was, respectively, 21.0 ± 2.5, 21.3 ± 3.3, and 22.1 ± 3.6. The median (interquartile range) waist-to-hip ratio and breast-to-underbreast ratio were, respectively, 0.75 (0.71–0.81), 0.76 (0.71–0.81), and 0.78 (0.73–0.83), and 1.15 (1.12–1.20), 1.14 (1.10–1.17), and 1.15 (1.11–1.18).
Conclusion(s): Women with rectovaginal endometriosis were judged to be more attractive than those in the two control groups. Moreover, they had a leaner silhouette, larger breasts, and an earlier coitarche. (Fertil Steril® 2013;99:212–8. ©2013 by American Society for Reproductive Medicine.)
Key Words: Endometriosis, attractiveness, body mass index, breast size, waist-to-hip ratio

Discuss: You can discuss this article with its authors and with other ASRM members at http://fertstertforum.com/vercellinip-attractiveness-women-rectovaginal-endometriosis/

Use your smartphone to scan this QR code and connect to the discussion forum for this article now.*

* Download a free QR code scanner by searching for "QR scanner" in your smartphone's app store or app marketplace.

The observation that subjects with specific phenotypic traits are prone to the development of particular organic or psychiatric disorders is an old medical tenet. Nowadays, these relationships tend to be explained based on genotype-phenotype associations, which have been suggested for over one hundred disorders, including diabetes, obesity, Crohn's disease, and hypertension (1, 2). Along this line, some recent advances in endometriosis research fit this view, as multiple studies have contributed to the definition of a general phenotype associated with the disease (3–12). Intriguingly, such an emerging phenotype appears to be indirectly linked with attractiveness, because several of the physical characteristics studied, including body size, body mass index (BMI), and pigmentary traits (4, 5, 7, 8, 11–13), have an impact on perception of beauty (14, 15). A biological gradient between the degree of expression of these traits and the degree of severity of endometriosis has also emerged. As an example, with regard to body size and figure, an inverse relationship has been observed between BMI and severity of the disease in general (8), and in particular in patients with deep endometriosis (12). Despite this growing body of evidence, studies formally investigating attractiveness in women with endometriosis are lacking.

To verify the potential relationship between endometriosis and attractiveness, and to substantiate a possible biological gradient between aggressiveness of the disease and degree of attractiveness, we designed

Received March 13, 2012; revised July 13, 2012; accepted August 20, 2012; published online September 15, 2012.
P.V. has nothing to disclose. L.B. has nothing to disclose. E.S. received conference support and honoraria for occasional consultancies from Bayer. G.B. has nothing to disclose. P.V. has nothing to disclose. L.F. has nothing to disclose.
Supported by a research grant from the University of Milan School of Medicine (FIRST number 12-01-5068118-00067).
Reprint requests: Paolo Vercellini, M.D., Clinica Ostetrica e Ginecologica I, Università di Milano, Istituto "Luigi Mangiagalli," Via Commenda, 12, 20122 Milan, Italy (E-mail: paolo.vercellini@unimi.it).

Fertility and Sterility® Vol. 99, No. 1, January 2013 0015-0282/$36.00

http://dx.doi.org/10.1016/j.fertnstert.2012.08.039

a case-control study recruiting three groups of subjects, that are, women with deep rectovaginal forms, women with peritoneal implants and/or ovarian cysts but without rectovaginal lesions, and women without endometriosis. The degree of physical attractiveness, the main study outcome, was assessed by independent female and male observers. Secondary outcomes were definition of selected morphological characteristics and sexual habits. Information on pain at intercourse and on sexual functioning in the three study groups is reported elsewhere.

MATERIALS AND METHODS

Women undergoing surgery for benign gynecological conditions at the "Luigi Mangiagalli" Department of Obstetrics and Gynecology, University of Milan, Italy, from January 2006 to March 2011, were consecutively evaluated for inclusion in the study. This large academic department is a tertiary-level referral center for the treatment of endometriosis from a nationwide catchment area. However, patients with other benign disorders are also referred. The local institutional review board approved the research protocol and all participants signed an informed consent.

Participants were informed that the study focused on several phenotypic variables and they knew that, in general, the overall physical appearance would be assessed. All the practical aspects relative to the planned evaluations were described in detail. However, in order to limit potential unintentional seductive behaviors that might have swayed the raters' judgment, information on the specific hypothesis of different degrees of attractiveness in the three study groups was not given in advance of the physical evaluation. Women were aware that the study focused also on patterns of sexual behavior associated with various benign gynecological conditions. All patients admitted for surgery to our unit routinely undergo a standardized diagnostic interview and examination, which include collection of general and gynecological data, physical examination, and transvaginal ultrasonography.

After completion of the baseline screening, women were considered for recruitment in the study. Inclusion criteria were age between 20 and 40 years, nulliparity, Caucasian origin, no previous pelvic procedures before the index surgery, and a regular menstrual cycle. Exclusion criteria were malignancy, ongoing pregnancy, congenital anomalies, acquired physical defects (e.g., following an accident of any type or a medical/surgical disease with physical consequences), previous esthetic and plastic surgery procedures, presence of visible tattoos or piercing, fixed orthodontic appliances, colored contact lenses, and completely dyed hair.

Before surgery, eligible subjects were asked to complete a standardized questionnaire. The women were left alone in a quiet room for as long as they needed. If a companion was present, he or she was requested to leave the room. Trained physicians were available to clarify any aspect of the questionnaire. Initially investigated items included general demographic and anthropometric variables, personal habits, and obstetric and gynecological information. The second part aimed at investigating sexual history and sexual habits. Most items were evaluated using a 5-point rating scale. Thereafter, women underwent a physical examination by the two trained physicians, including weight and height assessment, measurement of hip, waist, breast and underbreast circumferences. Once this overall evaluation was completed, other four different physicians (two females and two males), blinded to the women's preoperative diagnosis but not to the study hypothesis, independently gave a judgment, based on direct evaluation, on patient attractiveness on a 5-point rating scale (5 = very attractive; 4 = rather attractive; 3 = averagely attractive; 2 = little attractive; 1 = not at all attractive). The mean of the scores expressed by the four independent evaluators defined three separate categories (>3.5 = very attractive or rather attractive; 2.5–3.5 = averagely attractive; <2.5 = little or not at all attractive) that were used for data analysis. Two male and one female evaluator remained the same throughout the study period, whereas the fourth female evaluator changed twice.

Surgery was performed between 3 and 4 weeks after the preoperative evaluation. Cases and controls were selected postoperatively, excluding women with both endometriosis and additional coexisting gynecological anomalies.

Cases were women with a diagnosis of rectovaginal endometriosis based on vaginal and rectal examination and visible endometriotic lesions at speculum inspection, transvaginal and transrectal ultrasonography, intraoperative findings, and histological demonstration of endometriosis in the posterior fornix. Although the diagnosis of rectovaginal endometriosis was generally clinically obvious preoperatively, cases were finally selected only after pelvic visualization at surgery in order to rule out the presence of concomitant genital disorders.

Controls were the first age-matched women who underwent surgery after a case and with [1] a diagnosis of peritoneal endometriosis and/or ovarian endometriomas without rectovaginal lesions or [2] a diagnosis of other benign conditions without visual or histological demonstration of any form of endometriosis. Because rectovaginal lesions are almost invariably associated with superficial peritoneal implants or ovarian endometriomas (16), women were categorized based on the worst lesion present (12, 17, 18). Therefore, for any index case, two age-matched controls were selected to form three different study groups, that are, rectovaginal endometriosis, peritoneal and/or ovarian endometriosis, and other benign conditions without endometriosis.

Rectovaginal lesions were excised at laparoscopy in 63 patients, and at laparotomy in 37. The accessible portion of the pouch of Douglas was explored, the ureters were bilaterally identified, pararectal spaces were developed, and the anterior rectal wall was detached from the posterior fornix. After excision of the vaginal plaque, the anterior rectal wall was treated according to the shaving technique, unless a low anterior rectal resection was deemed necessary.

Data analysis was carried out with the Statistics Package for Social Sciences (SPSS 18.0). Statistically significant differences were determined using χ^2 or Fisher's exact test, or ANOVA and Fisher's least significant difference post hoc test, or unpaired Wilcoxon test, as appropriate. For categorical variables, within-group comparisons were performed only if a statistically significant difference emerged for the