Endometriosis and ovarian dysgenesis: A case report

G. Kourounis[1], A. Fotopoulos[2], G. Decavalas[1], G. Michail[1]

[1]Department of Obstetrics & Gynecology, University of Patras, Rion;
[2]Department of Obstetrics & Gynaecology, Kamalata General Hospital, Kalamata (Greece)

Summary

The pathogenesis of endometriosis remains unclear. The latest studies have integrated information which clarify various aspects, but the data remain incomplete.

The term "ovarian dysgenesis" represents a wide variety of syndromes, in which Turner syndrome is the most prevalent.

The coexistence of endometriosis and Turner syndrome is extremely rare, and therefore poses certain questions on the mechanisms of endometriosis.

We present a case of a 33-year-old woman with Turner syndrome, primary amenorrhea and menopausal hormonal profile in which peritoneal endometriosis (white opacification type) was revealed laparoscopically.

Key words: Endometriosis; Ovarian dysgenesis.

Introduction

Most of the current clinical and laboratory studies attribute the presence of ectopic endometrium to hormonal stimuli regarding its pathogenesis and natural history.

Nevertheless, some clinical results have been reported that partially disconnect the dependence of ectopic endometrium from ovarian function [1, 2].

"Ovarian dysgenesis" is a group consisting of many complex syndromes that vary concerning their severity and clinical aspects. Turner syndrome is the commonest entity among other syndromes, like 46,XX ovarian dysgenesis, pure gonadal dysgenesis (Swyer syndrome - 46,XX ovarian dysgenesis), testicular feminization syndrome and mixed ovarian dysgenesis.

We present the case of a patient with Turner syndrome, whose laparoscopically obtained peritoneal specimens were histologically confirmed as endometriosis.

Case Report

Our patient was a 33-year-old woman with diagnosed Turner syndrome who presented to our department because of atypical abdominal pain. The patient did not have any other acute symptoms.

Concerning the patient's history, primary amenorrhea led to a subsequent karyotypic workup that resulted in the diagnosis of Turner syndrome. Karyotype was identified as 45,XO mosaicism (45,XO/46,XX). FISH and PCR were not available as the patient did not give informed consent.

At presentation, during physical examination, the patient's height was 142 cm. Of note is that the patient had received growth hormone substitution combined with androgens for a 1.5 year period in order to achieve a satisfactory height. Treatment was initiated at 16 years of age, soon after the syndrome had been diagnosed. No apparent malformations of the elbows or knees were evident. The patient had very mild lymph edema that was hardly visible in the hands and feet.

Revised manuscript accepted for publication August 16, 2004

At this point we should stress that the patient was not under any form of hormonal therapy (HRT or ERT) and denied using any in the past.

On funcitonal enquiry no cardiac or other abnormalities were evident. The patient was quite cooperative and well-tempered.

Gynecological examination revealed that the outer genitalia were normal without any enlargement of the clitoris, and the vagina had normal length with atrophy detected in spots (the patient mentioned dyspareunia when she was asked). The cervix had a normal appearance with spots of atrophy. Bimanually, the uterus seemed atrophic, while the adnexa were unpalpable. The Douglas pouch was empty.

Transvaginal ultrasound was performed using a 5.0 MHz probe, showing an atrophic uterus and especially thin endometrium (4 mm). No clear depiction of the ovaries could be revealed within the right or left ovarian fossa.

No leucocytosis was revealed and C. Reactive Protein (CRP) and Erythrocyte Sedimentation Rate (ESR) were not elevated.

The patient's hormonal profile was as follows: FSH = 45 mIU/ml, LH = 36 mIU/ml, E_2 < 9 pg/ml. Serum CA125 levels were 38 (moderately elevated). All other tumor markers that were assessed (CEA, CA 19.9, CA 15.3, CA 72.4, a FP, β HCG) were within normal range.

The decision to proceed without delay to laparoscopy was mainly attributed to the theoretical risk of transformation of the dysgenetic gonads to gonadoblastoma which could account for the main symptom of abdominal discomfort. However, recent studies have shown that patients at risk of developing gonadoblastoma are those where the supernumerary marker chromosomes (46, X/46, X+m) can be karyotypically detected, which was not the case for our patient. This marker probably originates from Y chromosome sequences and its presence places the carriers at considerable risk of carcinogenesis [3, 4].

Under general anesthesia we performed laparoscopy (a 12-mm laparoscope with a 7.3-mm operative channel). The uterus was seen as smaller than normal, the tubes presented cystic changes, and the ovaries were ribbon-like. Biopsies were obtained from both ovaries – the histological examination revealed cortical ovarian tissue without follicles.

Near the broad ligament, proximal to the ovarian fossa we recognized a focus of peritoneal endometriosis (white opacification type). The lesions were transparent with spots of vesicular blebs and clear papules and were biopsied using a biopsy forceps.

Rectovaginal endometriosis was not detected, nor were other endometriotic lesions (yellowish-brown peritoneal patches, circular peritoneal defects, etc.).

The histological examination that was performed in many sections of the specimen revealed endometrial glands and stroma. The overall pattern was typical of non-pigmented endometriosis.

Morphometric analyses were subsequently performed revealing poor vascularization and absence of mitosis. These parameters are typical of white lesions.

The histological re-evaluation of the specimen concurred with the initial diagnosis.

Discussion

The pathogenesis of endometriosis remains an enigma. The morphological similarity with more than one epithelia, the presence of steroid receptors and the epithelial resemblance concerning antigenic and cytokeratin expression are related to the fact that the endometrium is the epithelium of origin, and therefore endometrium implantation seems to be the most probable mechanism of endometriosis.

However there are data (such as the existence of endometriotic foci in males [5]) that cannot be explained on the basis of the implantation theory. In such cases the appearance of endometriosis could be attributed to a transformation of the coelomic epithelium into endometrial glands, as a result of unspecified stimuli.

In our case, despite the menopause-like hormonal profile and the laparoscopic and histological confirmation of inactive ovaries, the presence of endometrial glands and stroma were confirmed histologically. The laparoscopic pattern of the endometriotic lesions was that of the "white opacification type", which represents a latent stage of endometriosis appearing due to poor vascularization.

Since 1986 several studies on endometriosis have been published in which the lesions did not have the typical pigmented appearance but were confirmed histologically as endometriosis [6, 7]. In the study of Stripling *et al.* [16] endometriosis was confirmed in 81% of the white opacification lesions, while later Stripling *et al.* [8] raised the rate to 91%.

There are few reports in the literature of cases where endometriosis coexisted with ovarian dysgenesis.

Cavins *et al.* [9] were the first to report a case of endometriosis in a woman with primary hypogonadism, followed by Doty *et al.* [10] 12 years later, who studied two patients with 46,XY pure gonadal dysgenesis (Swyer's syndrome), one of whom presented endometriosis on the mesosalpinx.

Peress *et al.* [11] in 1982 presented another case of pelvic endometriosis in a patient with Turner syndrome and one year later Binns *et al.* [12] reported a case of endometriosis in a woman with Turner syndrome treated with a cyclical estrogen/progestogen regimen.

Four years later in 1987, Bosze *et al.* [13] studied a case of endometriosis in a streak gonad syndrome patient. In 1989 [14] Meinen *et al.* reported a case of peritoneal endometriosis and ascites in a patient under prolonged estrogenic stimulation.

Finally, Tazuke *et al.* [15] in 2002 reported a case of an endometrioma on the uterine serosa and pelvic endometriosis arising in a mosaic Turner's patient receiving HRT. In the paper we find a comprehensive review of the literature up to now.

Our patient was mosaic Tuner's (45,XO/46,XX), aged 33, with primary amenorrhea and at the time of diagnosis was not receiving HRT or ERT. The endometriotic lesions were located near the broad ligament and under the ovarian fossa and were of white opacification type.

Although we recognize that molecular karyotyping procedures (FISH and/or PCR) might have added precious information, we believe that our paper contributes to the discussion regarding the enlightening of endometriosis pathogenesis.

References

[1] Nap A.W., Groothuis P.G., Demir A.Y., Evers J.L., Dunselman G.A.: "Pathogenesis of endometriosis". *Best Prac. Res. Clin. Obstet. Gynaecol.*, 2004, *18*, 233.

[2] Paul Dmowski W., Braun D.P.: "Immunology of endometriosis". *Best Pract. Res. Clin. Obstet. Gynaecol.*, 2004, *18*, 245.

[3] Canto P., Kofman-Alfaro S., Jimenez A.L., Soderlund D., Barron C., Reyes E. *et al.*: "Gonadoblastoma in Tuner syndrome patients with nonmosaic 45,X karyotype and Y chromosome sequences". *Cancer Genet. Cytogenet.*, 2004, *150*, 70.

[4] Gravholt C.H., Fedder J., Naeraa R.W., Muller J.: "Occurrence of gonadoblastoma in females with Turner syndrome and Y chromosome material: a population study". *J. Clin. Endocrinol. Metabol.*, 2000, *85*, 3199.

[5] Oliker A.J., Harris A.E.: "Endometriosis in the bladder of a male patient". *J. Urol.*, 1971, *106*, 858.

[6] Jansen R.P., Russel P.: "Non-pigmented endometriosis: clinical, laparoscopic and pathologic definition". *Am. J. Obstet. Gynecol.*, 1986, *155*, 1154.

[7] Martin D.C., Hubert G.D., Van der Zwaag R., El Zeky F.A.: "Laparoscopic appearance of peritoneal endometriosis". *Fertil. Steril.*, 1989, *51*, 63.

[8] Stripling M.C., Martin D.C., Chatman D.L., Van der Zwaag R., Poston W.M.: "Subtle appearance of pelvic endometriosis". *Fertil. Steril.*, 1988, *49*, 427.

[9] Cavins A.W.: "Endometriosis in a case of primary hypogonadism". *J. Indiana State Med. Assoc.*, 1968, *61*, 996.

[10] Doty D.W., Gruber J.S., Wolf G.C., Winslow R.C.: "46,XY pure gonadal dysgenesis: report of 2 unusual cases". *Obstet. Gynecol.*, 1980, *55* (suppl. 3), 61S.

[11] Peress M.R., Sosnowski J.R., Mathur R.S., Williamson H.O.: "Pelvic endometriosis and Turner's syndrome". *Am. J. Obstet. Gynecol.*, 1982, *144*, 474.

[12] Binns B.A., Banerjee R.: "Endometriosis with Turner's syndrome treated with cyclical oestrogen/progestogen. Case report". *Br. J. Obstet. Gynaecol.*, 1983, *90*, 581.

[13] Bosze P., Gaal M; Toth A., Laszlo J.: "Endometriosis and streak gonad syndrome". *Arch. Gynecol.*, 1987, *240* (4), 253.

[14] Meinen K., Crusius M., Schulz U.: "Turner syndrome with peritoneal endometriosis and ascites-therapeutic effects of buserelin therapy (in German)". *Arch. Gynecol. Obstet.*, 1989, *245*, 943.

[15] Tazuke S.I., Milki A.A.: "Endometrioma of uterine serosa in a woman with mosaic Turner's syndrome receiving hormone replacement therapy: case report". *Hum. Reprod.*, 2002, *17*, 2977.

Address reprint requests to:
G. KOUROUNIS, M.D.
Associate Prof. of Obstetrics and Gynaecology
Head of the Obstetrics and Gynecology Department
Patras University (Greece)