Pregnancy after Sclerotherapy and Embolization of Ovarian Varicose Veins in a Patient with Infertility and Deep Endometriosis

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Abstract

We describe 1 case of pregnancy after the embolization of ovarian varicose veins in a patient with infertility and deep endometriosis.

Keywords: Pregnancy; Sclerotherapy; Embolization; Ovarian varicose veins; Endometriosis

Introduction

Endometriosis is an estrogen-dependent disease that is present in 60 to 70% of patients with chronic pelvic pain, dysmenorrhea, and dyspareunia [1]. Studies indicate that 40 to 50% of patients with endometriosis are associated with infertility [2].

Ovarian varicose veins may cause the same symptoms as endometriosis and are present in 50% of patients with chronic pelvic pain [3,4]. Furthermore, there is a relationship of the etiopathogenesis of endometriosis and pelvic varicose veins with estradiol and hormone receptors [5,6]. An elevated level of estradiol in varicose dilations in the pelvis may promote endometriosis. Although it has not been proven in the medical literature Galkin, et al. [7], suggests the hypothesis that ovarian varices alter the functions of the ovary, causing infertility in the same manner in which varicocele does in men [8]. We report a case of pregnancy in a woman with infertility and endometriosis after treatment with sclerotherapy and embolization of the ovarian varicose veins.

Case Report

The patient was a 31-year-old woman who complained of chronic pelvic pain, dysmenorrhea, dyspareunia and constipation for 10 years. She reported having taken hormones (progesterone) over the last three years in order to try to become pregnant; however, it had been unsuccessful. She underwent an MRI, which revealed deep endometriosis of the posterior pelvic compartment with signs of involvement of the rectal wall with a hematic cyst and/or endometrioma of the left ovary.

We decided to perform a transvaginal ultrasound with color Doppler, which showed varicose veins of the right ovarian venous plexus with a diameter of 7.2 mm and the left plexus with a diameter of 8.2 mm in the broad ligament of the uterus.

With the informed consent of the patient, we decided to perform the phlebography and embolization of the ovarian varicose veins, as the pelvic varices could have led to venous thrombosis and/or pulmonary embolism [9].

The presence of ovarian varices were confirmed by selective retrograde pelvic phlebography. We were able to catheterize the vena cava followed by the right gonadal vein with a 125 MPA cook catheter; using the right basilic vein as a pathway to realizing the selective retrograde pelvic phlebography, the "the varicose plexus" was highlighted. Through this catheter, we injected 6 ml of polidocanol 3% dense foam, reaching the varicose plexus side of the right and left sides of the ovary. Then, we placed 5 metal coils along the right gonadal vein. We inserted a catheter into the left renal vein with the aim of progressing through the left gonadal vein; however, this was not possible.

Three days after the procedure, the patient reported that chronic pelvic pain, from which she had suffered for ten years, had disappeared. In addition, the patient stated that she no longer was experiencing constipation, which had lasted for 8 days, and that she was having regular bowel movements and intestinal functioning. She began having two bowel movements a day. She was treated in April 2013 and became pregnant in August 2013. She gave birth by caesarean section in April 2014 to a female baby (Figures 1 and 2).

Figure 1: Selective retrograde phlebography of the right gonadal vein with reflux and varices on the varicose plexus on the side of the right ovary.

Figure 2: Selective retrograde phlebography of the left gonadal vein with reflux and varices on the varicose plexus on the side of the left ovary.
Discussion

The underlying cause of varicose veins in the testes and ovaries is the congenital failure of venous valves. It has been shown in autopsy studies in women 15% absence of valves in the left ovarian vein and 6% in the right [10]. Compression of the left renal vein by the superior mesenteric artery and multiple pregnancies may contribute to the development of pelvic varices [11,12].

Venous collected in the groins of patients with pelvic varices is two times higher than that of the blood collected in the arm [5]. Venography of the pelvic veins [15]. Several authors have shown that the treatment of pelvic varices by embolization has good results and low rate of complications [16-20]. The pharmacological induction of false pregnancy or menopause leads to a state of hypoestrogenism and improves the symptoms of ovarian endometriosis and varicose veins.

Ultrasonography, computed tomography and magnetic resonance imaging are used to confirm the clinical suspicion of pelvic varices, with transvaginal ultrasound being the preferred test [13-15].

The exam that confirms dilated ovarian varices is selective venography of the pelvic veins [15]. Several authors have shown that the treatment of pelvic varices by embolization has good results and low rate of complications [16-20]. The pharmacological induction of a false pregnancy or menopause leads to a state of hypoestrogenism and improves the symptoms of ovarian endometriosis and varicose veins.

A scientific paper found that the levels of ovarian hormones collected in the groins of patients with pelvic varices is two times higher than that of the blood collected in the arm [5]. Venous hypertension beside the testicles in male patients is associated with oxidative stress, DNA fragmentation of sperm, changes in hormone production, altered testicular volume, and infertility [21]. Treatment of varicocele by surgery, embolization or sclerotherapy result in improved integrity of the sperm DNA and oxidative stress, increases fertility in pregnancy by intrauterine insemination and, in adolescents, the testicles begin to grow again [22].

Endometriosis is estrogen-dependent and results in a chronic inflammatory process. The most accepted theory to explain the pathogenesis is the theory of implementation that was described by Sampson in 1927 [23]. When the desquamated endometrium enters the peritoneal cavity and adheres to mesothelial layer by cadherin protein, a process of angiogenesis is essential for the development and deployment of peritoneal endometriosis [24]. It is considered that estrogen has a significant role in stimulating the VEGF (vascular endothelial growth factor) in the endometrium to promote angiogenesis and the growth of the endometrium during the menstrual cycle [25].

Patients with endometriosis present an aberrant expression of estrogen and progesterone receptors and factors that interfere with angiogenesis [26-31]. In comparison, we can think about ovarian varices as having similar alterations as varices alongside the testicles. The results being oxidative stress (OS), damage to the DNA, and problems of infertility.

Park et al. found that OS may exercise an important role in the promotion of angiogenesis in the implantation of endometriosis and in the increase in the production of VEGF. Altered molecular genetic pathways may also contribute to the effects of OS in the pathogenesis of endometriosis and endometriosis-associated infertility [32]. The increase of DNA damage in spermatozoa, oocytes and embryos seems to be responsible for the numerous abortions and for fertilization and implantation failure among endometriosis patients [33].

Pacheco et al. sent a preview of our study to the Brazilian College of Surgeons, from 2013 to 2014, in which we examined 50 patients, 25 with diagnostically-confirmed endometriosis and 25 without. There was a prevalence of ovarian varices with a diameter ranging from 5 mm to 8 mm in 80% of the group with endometriosis and 24% in the control group.

In Medical Literature, we found 17 cases of pregnancy after the embolization of pelvic varicose veins in women with a history of infertility. A medical team reported that they treated 19 patients considered to be infertile by embolization of the pelvic varicose veins and documented that 14 of them became pregnant [7].

Other authors have also described two cases of pregnancy after embolization of pelvic varicose veins [34].

Ghosh et al. reports a case of successful pregnancy after sclerotherapy of ovarian varicose veins with ethamolin [35]. Carolyn Wassong, et al. [36] describes a 13 year old child with endometriosis associated with ovarian varices. As the Medical Literature confirms positive results in the treatment of varicose veins in the lower limbs, in the ovarian varices, and in the male varicocele, we could begin think that there may be good results in the treatment of ovarian varicose veins in some cases of endometriosis.

Conclusion

Venous hypertension beside the ovary may result in the disturbance in the gland, just as it occurs in the testis in men, generating an imbalance of the genetic, hormonal, and immunological aspect. In women, this may provoke the chronic inflammatory process and Oxidative Stress inherent to endometriosis. We suggest that more studies be conducted in order to evaluate the role of pelvic varicose veins in infertility and endometriosis.

References