

Manifestations of chronic venous disease of the pelvis in pregnancy

Abstract

Taylor first described pelvic venous insufficiency in 1949. Pelvic congestion syndrome affects 15-20% of women. Chronic venous disorders affecting pelvic veins and varicose veins developed among uterus, ovaries and hypogastric plexus, including stasis results in congestion and pelvic pain. Pregnancy is a precipitating factor of occurrence, the vulnerability of vessels, based on hemodynamic factor through vascular incompetence, dilatation and retrograde flow. Secondary pelvic congestion syndrome can be caused by genital prolapse, the prolonged use of progestin agents, infections, uterine fibroids, endometriosis and uterine involution postpartum. Imaging methods that can be used for pelvic congestion syndrome diagnosis and follow-up are transvaginal ultrasonography, computer tomography, magnetic resonance, angiography and venography. Various classes of medications have been used over time, but their effect is transitory and their side effects do not allow their long-term use. Minimally invasive venous embolization remains the treatment with the best results. Areas that remain in continuous research are the optimal agencies for embolization, risk factors predictive of pelvic congestion syndrome and the significance of asymptomatic cases of ovarian venous reflux and pelvic varicosities. Without ignoring the multitude of pathologies that can lead to chronic pelvic pain, pelvic congestion must be one of the diagnostic options, considering its incidence among the population and their frequent association. We review in this article the most important studies found in the literature.

Keywords: pelvic congestion syndrome, ultrasound, uterine varicose dilatations

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Introduction

Chronic venous disease of the pelvis includes pelvic congestion syndrome and vulvar varicosities and associates chronic disability, diminished quality of life and high health care costs. The main physiopathological mechanism of both these entities is the venous insufficiency, which was described by Taylor in 1949⁽¹⁾. The definition of chronic venous disease includes specific morphological aspect and functional abnormalities, diver's signs and symptoms. Pelvic congestion syndrome affects 15-20% of women⁽²⁾ and is characterized by pelvic discomfort exacerbated by prolonged standing and intercourse⁽³⁾. There are no definitive diagnostic criteria, clinically this syndrome is suspected when the patient accuses chronic pelvic pain and discomfort apparently for no evident reason and on the next step, varicosities satellite of pelvic organs is being observed on imaging studies. Next to it, vulvar varicose veins contribute in addition to chronic pelvic pain but often appear asymptomatic⁽⁴⁾. Vulvar varicose veins mainly occur during pregnancy isolated or associated with varicose veins of the lower limb and regress spontaneously within six weeks after delivery⁽³⁾. Although ultrasound and venography bring additional significant information, differential diagnosis of the most common vascular disorder with other conditions can be difficult⁽⁵⁾.

Etiopathogeny

Chronic venous disorders affecting pelvic veins and varicose veins developed among uterus, ovaries and hypo-

gastric plexus, including stasis results in congestion and pelvic pain. Pregnancy is a precipitating factor of occurrence, the vulnerability of vessels, based on hemodynamic factor through vascular incompetence, dilatation and retrograde flow. Social and psychological factors such as anxiety, depression, stress and resentment are also considered to be involved in the genesis of the syndrome⁽⁶⁾. Genetic predisposition also plays a role in the etiology of the syndrome. The involvement of pelvic congestion in the pathogenesis of the pelvic pain syndrome has not been fully elucidated but also cannot be challenged; dilated and incompetent pelvic veins are commonly observed in asymptomatic women.

Vulvar varicosities are dilated venous paths, with the diameter greater than 3 mm, highly suggestive on clinical examination, developed from a combination of factors; the two main factors are proximal venous obstruction and valvular incompetence. Due to the anatomic characteristics, respectively the particularities of the vascular drainage of the female external genitalia the perineal veins are susceptible to the development of varices; the dorsal superficial clitoral, bulbovestibular, profundus clitoral, and posterior labial veins do not have valves.

Vulvar varicosities are most common in pregnant woman, next to anatomic changes standing physiological changes of pregnancy. Physiological changes are represented by hormonal variations, the anatomical one are increased pelvic blood flow, and mechanical compression of the inferior vena cava or iliac veins by the gravid uterus^(7,8).

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Clinical examination

As a characteristic, clinostatism can lead to the relieving of the symptoms, so the patient may be asymptomatic morning but becomes symptomatic during the day.

Physical examination may reveal vulvar varicose veins that are often associated during pregnancy, hemorrhoids, and varicose veins of small fossa, between the pelvis and legs to the internal face of the thigh, often more pronounced on the left lower limb⁽⁹⁾ (Figures 1 and 2).

In non-pregnant women, the symptoms may appear or be exacerbated by menstrual cycle. This fact may constitute a manifestation of polycystic ovarian syndrome⁽¹⁰⁾. Implicitly, menstrual disorders are frequently described in patients with pelvic congestion syndrome, studies describing a frequency of 29% to 50% for metrorrhagia and menorrhagia⁽¹¹⁾. Leucorrhea that accompanies this syndrome has been described as profuse, clear and mucous.



Figure 1. Vulvar varicose veins (A) accompanied of the left superior member varicose dilatations(B), (at the same case)



Figure 2. Intraoperator aspect of pronounced uterine venous dilatation (A) and risk factor for hemorrhage during C-section (B)

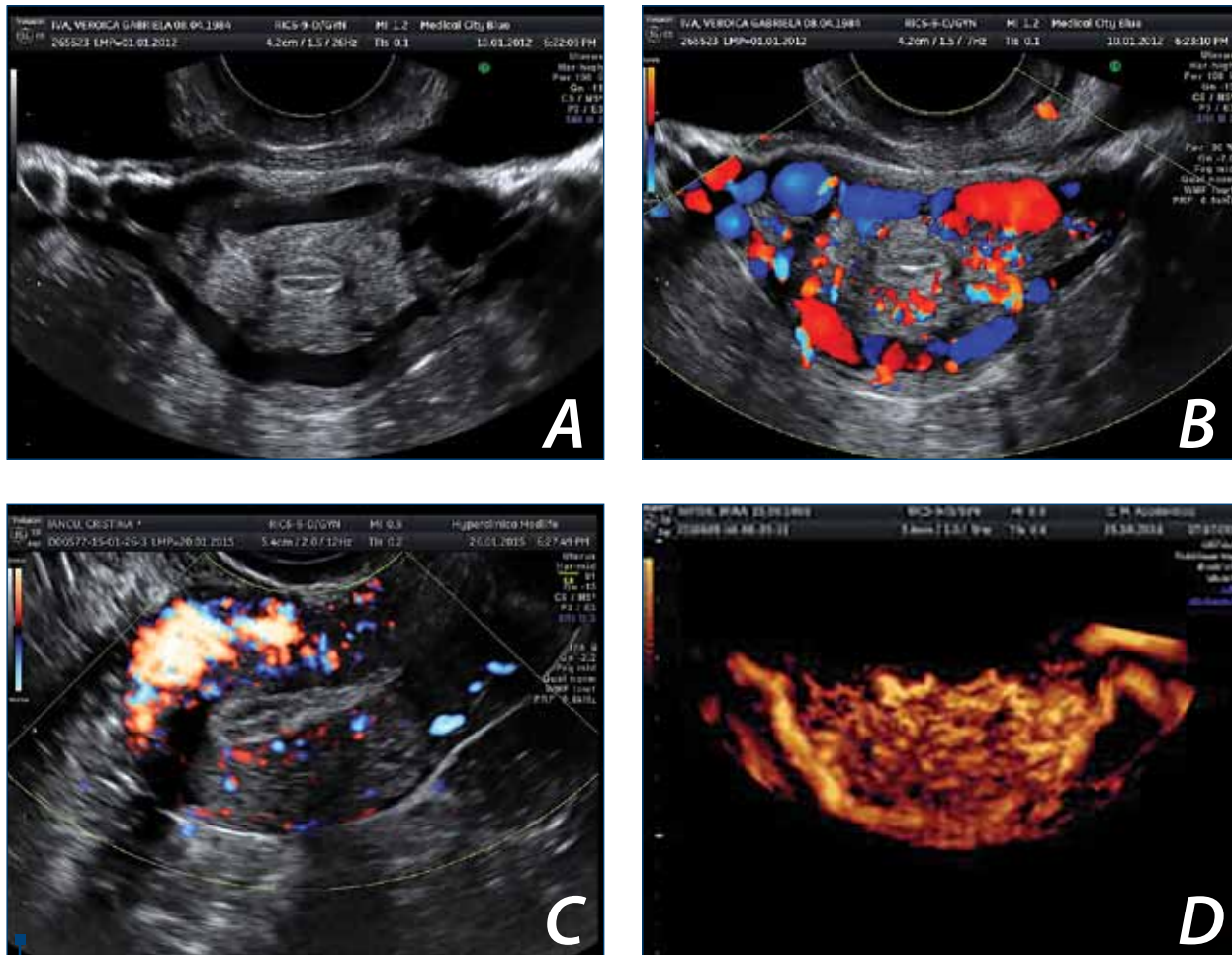


Figure 3. Uterine varicose plexus with turbulent flow. Preview mode B (A), color Doppler (B) HD Doppler Flow (C), 3D Color Doppler (D)

Multiparity was shown to be a major predisposing factor for pelvic congestion syndrome, being frequently present in patient's history. Venous dilation is present in the ovaries during each pregnancy without reversibility after birth⁽¹²⁾. Even if this condition is included in primary vein disorders and can also be seen in nulliparous, this happens much less often.

Imaging

The diagnosis chronic venous disease is based on clinical examination. Imaging methods that can be used are transvaginal ultrasonography, computed tomography, magnetic resonance, angiography (MRI) and venography⁽¹³⁾. Ultrasound has the advantage of the lack of irradiation, possibility to use during pregnancy and low cost. Beside that, the option Doppler provides additional data for setting the direction of venous flow, anterograde or retrograde and is used for differential diagnosis with other conditions that can present pelvic pain⁽¹⁴⁾ (Figure 3).

If ultrasound result is inconclusive, MRI with and without contrast agent provides a detailed analysis of anatomical pelvic structures including ovarian veins and

varicose veins; this exam presents a greater accuracy if carried out at the end of the day in the moment of maximum intensity of symptoms⁽¹⁵⁾. Ovarian and iliac venography is the gold-standard test for diagnosis of pelvic congestion⁽¹⁶⁾. The appropriate approach can be jugular or femoral vein. To study the selective flow in the ovarian veins is preferred the injection of the contrast substance in the left iliac vein, since the direct injection of ovarian vein can give false positive results by reversing the flow. Valsalva maneuver or Trendelenburg positioning table can be used as adjunctive interventions.

Treatment

Various classes of medications have been used over time; among them is progestogens (medroxyprogesterone acetate), danazol, phlebotonics, receptor agonists of gonadotropin releasing hormone (GnRH), hormone replacement therapy, dihydroergotamine, non-steroid anti-inflammatory medicines and psychotherapy⁽¹⁵⁾. In pregnant women, an expectant, non-invasive therapy is preferred taking in consideration the reduction of the varicose veins postpartum⁽¹⁷⁾. Specific management con-

sist in compression, sleeping on the left side, exercise, and avoidance of long periods of standing or sitting⁽¹⁸⁾.

As a particularity, pregnant women with massive vulvar varicosities are counselled to undergo caesarean section, regarding the risk of a significant haemorrhage in case of vulvar laceration.

Psychotherapy has been used in conjunction with ovarian suppression, without obtaining positive results when was isolated applied⁽¹⁵⁾. For cases of chronic pelvic pain of uncertain cause it is proposed a multidisciplinary approach. The main objective of drug therapy is suppression of ovarian function or vasoconstriction of dilated veins. While these targets are partially or fully achieved, the effect of the mentioned drugs is transitory, and their side effects do not allow their long-term use⁽¹²⁾.

Among the re-doubtable adverse effects of progestins used is included weight gain, GnRH agonists being responsible for the vasomotor disturbance of climax drug-induced, hot flashes, night sweats, vaginal dryness, changes in mood and decreased fertility that represents the common adverse effect of these two classes of medicines⁽⁸⁾. Drug treatment is not one to avoid while the surgical treatment postponed, the effects on the mild to moderate symptoms being favourable, but both, benefits and adverse effects should be presented to the patient from the beginning.

Studies that have examined the efficacy of surgical treatment of the pelvic pain syndrome induced by pelvic congestion shows that open or laparoscopic surgical procedures (hysterectomy, ovarian vein ligation and related collaterals) had limited success and are associated with increased morbidity and prolonged hospitalization⁽¹⁶⁾.

Selective minimally invasive embolization is currently the standard treatment for patients with pelvic congestion syndrome. Ovarian vein embolization is based on the principle used in the treatment of varicocele, whose appearance is influenced by similar pathophysiological mechanisms.

Due to the anatomical particularities, the frequency of left ovarian varicose veins is higher and clinical more pronounced, analogue to varicocele. Previously embolization, a venography of left renal vein is necessary for determining of an eventual valve incompetence of ovarian terminal veins. The process continues with the venography of ovarian veins for analysis of the extinction of venous dilatation and the selecting of embolization territories, continuing with the embolization itself⁽⁶⁾. The materials used for embolization includes vascular occlusive devices or liquid or foam sclerosings⁽¹⁹⁾. Transcatheter embolotherapy has been shown to be effective in 90% of cases, with fewer complications and relapses in under 25% of cases⁽¹⁹⁾. The most frequent adverse effect is the persistence of the pain, which often resolves in a few weeks. Rare complications related with the injection site may occur, also ovarian vein perforation during manipulation or mobilization of embolization material resulting in pulmonary embolism⁽¹²⁾.

Conclusions

The complete etiology of chronic venous disease remains unclear. Having the main manifestation pelvic congestion syndrome and vulvar varicosities this pathology is highly encountered among pregnant women. The consequences of this condition appear during pregnancy, as clinical manifestation or in the moment of delivery by complicating the parturition with massive hemorrhage. Pronounced vulvar varicose veins in a pregnant woman may indicate the association of a pelvic congestion syndrome with dilated ovarian and satellite to the uterus. Clinical signs and symptoms mainly confirm the diagnosis and the recommended management in case of pregnancy is the expectant one.

In non-pregnant, women embolization can be performed at the time of diagnostic venography and generally leads to reduction in the size of vulvar varicosities. Local sclerotherapy can be performed subsequently, if needed. ■

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