

PELVIC VENOUS CONGESTION WITH EXTENSIVE PARAMETRIAL AND PERIVAGINAL VARICOSITIES DURING PREGNANCY: MRI FINDINGS OF A RARE CASE

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ABSTRACT

Pelvic venous congestion syndrome is a rare syndrome presenting mostly in females with a constellation of signs and symptoms including dyspareunia, dysmenorrhea, pelvic pain, dysuria and varicose veins in the vaginal and vulvar regions. Although it is an infrequent presentation during pregnancy, only 2-4% develop vulvar varicose while the incidence of vaginal varicose is rarer.¹ These varices develop mostly during the second and third trimesters and may show spontaneous resolution after pregnancy, however present a threat to the patient in case of bleed.³ It is therefore crucial for the radiologists to be aware of such findings while evaluating patients with symptoms of pelvic venous congestion syndrome. Here we present a case of a pregnant female with imaging findings consistent with pelvic venous congestion with parametrial and perivaginal varicosities.

Keywords: Pelvic venous congestion syndrome, varicose veins, MRI findings.

Introduction

Various hormonal, physical and emotional changes occur in a female body during pregnancy. One of the various physical changes is the development of vulvo-vaginal varicosities. Vulvar varices are a rare presentation during pregnancy, according to studies develop in only 2-4% percent of all pregnancies, vaginal varicosities are rarer.¹ These varices develop due to the increased abdominal pressure that results in venous engorgement. Most of the patients present with a spectrum of symptoms with most patients presenting during the 12th-26th weeks of pregnancy.¹ Louis Alfred first described the pelvic venous congestion syndrome in 1857, females of child bearing age experience chronic dull pelvic pain due to gonadal vein reflux and venous engorgement, this engorgement is the result of incompetent valves or external

obstruction of vessels as seen in our case.⁶ Later in 1949 Taylor also showed a hormonal association of the disease.² Pelvic venous congestion results in pelvic pain, dyspareunia, dysuria, vulvar and vaginal varicosities, these vaginal varicosities can rupture causing hemorrhage and become a challenge for the gynecologist during delivery.¹ It can result in complications during delivery and death of patients due to hemorrhage in severe cases.

The veins of pelvis and external genitals are connected, and these connections cause the development of these varices. The anatomical drainage of vulvar veins is into the external and internal pudendal veins which internally drain the blood into the great saphenous and internal iliac veins. The draining veins of labia majora and minora drain have anastomoses

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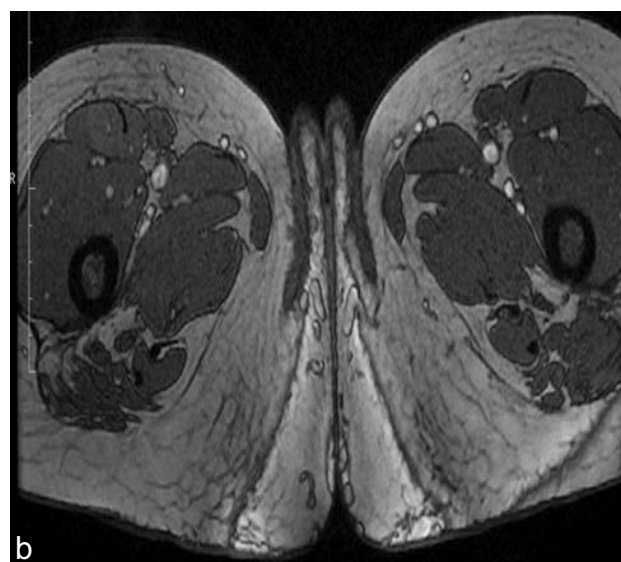
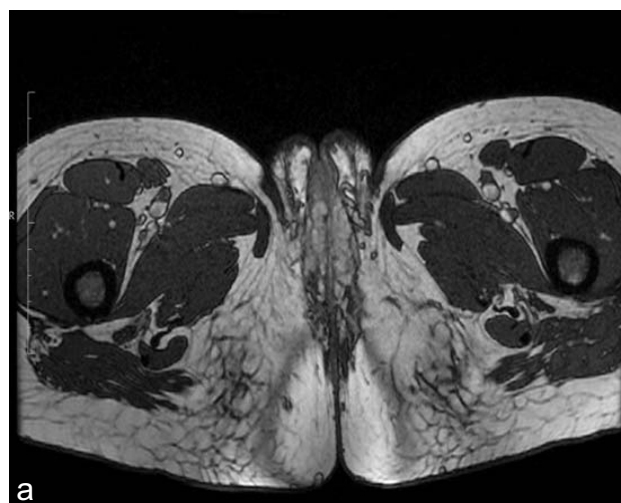
with the uterovaginal plexus. Other connections are through the obturator, superficial circumflex, groin and clitoral veins.⁵

After appropriate history and examination, the patients are mostly referred for duplex ultrasounds and MRI to identify these dilated veins and the extent of varicosities. CT scan and catheter venography are contraindicated during pregnancy due to the radiation exposure risk to the fetus.² Imaging plays an important role in the identification of these varices and aids in the further management of these patients. Rupture of these varices can be a life-threatening condition for females during delivery. Hence, we have discussed the case of one such female and her MRI findings.

Case Report

A 32 year female patient, with no known co-morbid and with gestational amenorrhea of 28 weeks, presented to the Gynecology OPD with complain of perineal pain. After her detailed history and examination, she was referred to the ultrasound department for her initial imaging workup. The ultrasound pelvis showed vascular malformation.

She was later referred for an MRI pelvis to look for large dilated vessels² for further evaluation of the vascular malformation noted on ultrasound. A contrast enhanced MR angiography can be performed for better evaluation. However it might be costly of unavailable in some settings. Our patient's MRI showed multiple dilated serpiginous vascular structures in pelvis bilaterally in parametrium, around the lower 1/3rd of uterus and cervix and along the entire length of vagina. These were causing marked compression over the vagina, showing high signals on T2 weighted images and low signals on T1 weighted images. There was no evidence of signal void in them. There was associated dilatation of right internal iliac vein. The ischio-rectal fossa, pelvic side walls and pelvic floor muscles were normal, and no pelvic lymphadenopathy was seen. All these findings were consistent with pelvic venous congestion with parametrial and perivaginal varicosities.



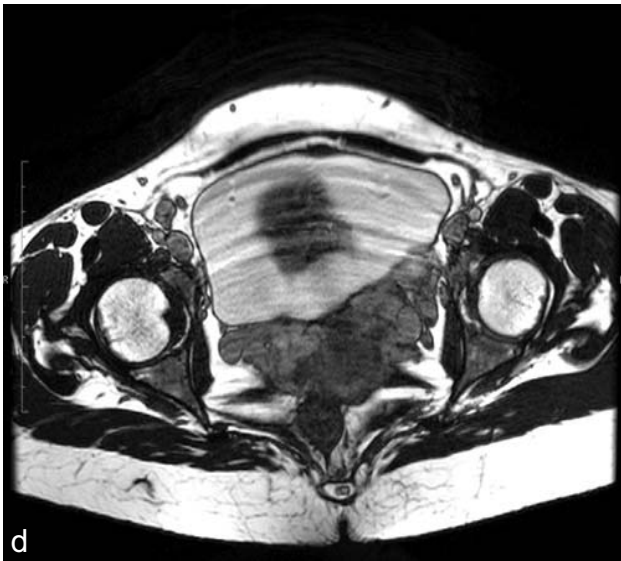


Figure 1A: Dilated venous channels in the region of vagina. **B:** Prominent vessels in vulvar region bilaterally **1C & 1D:** Markedly dilated venous channels in parametrium on both sides

Discussion

Pregnancy is a hyper vascular state due to the hormonal influence. According to studies pregnancy leads to resistance to angiotensin, also due to the increase in prostacyclin during the third trimester there is increased vascular resistance to angiotensin II.¹ In order to make up for the body's need vascular dilatation occurs. Apart from these hormonal influences the increased pressure on the pelvis caused by the fetus further exacerbates the venous stasis. Although a rare presentation but lead to development of varices in 2-4 % females. Vaginal varices are extremely rare and only a few cases have been reported in the literature.³ These patients can be asymptomatic; however patients can present with pelvic discomfort, vaginal bleed and pelvic venous congestion syndrome as mentioned previously.^{2,3} Our patient presented during her third trimester with perineal discomfort. The varicosities may increase on standing due to the increased pressure. Another reason for the development of these varicosities is the pressure on the IVC caused by the fetus. These varices are a constant threat to the female as rupture can lead to hematoma formation and in case of severe bleed lead to fetomaternal compromise

and ultimately death. There can also be thrombosis of these veins leading to further complications hence vigilant diagnosis is important.³ Ultrasound is mostly the first and screening modality it however has its limitations as it is operator dependent. Ultrasound findings are also dependent on the body habitus of the patient and abdominal gases. MRI is the ultimate investigation of choice in pregnant females as it can show minor details of the varices, the extent, location and proximity to adjacent viscera s.² Our patient went through an MRI scan. Her MRI showed multiple dilated serpiginous vascular structures in pelvis bilaterally in parametrium associated with dilatation of right internal iliac vein. Her findings were consistent with pelvic venous congestion syndrome.

The available treatment options for vulvar and vaginal varicosities during pregnancy is conservative with support hose, pelvic supporters, leg elevation, minimizing exertion.¹ Vaginal varices alter the delivery plan of such patients and most patients are delivered through caesarian sections. Vaginal varices may resolve in most patients after delivery.


Conclusion

Pelvic venous congestion is a complicated and underdiagnosed disease. It can lead to death of the pregnant females in severe cases. It is therefore important for radiologists to be aware of this rare condition and the MRI findings of such patients.

Conflict of Interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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