Cervical varices complicated by thrombosis in pregnancy

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KEYWORDS: cervical varices; placenta previa; pregnancy; thrombosis; varices

ABSTRACT

We present a case of a 36-year-old pregnant woman with varicose veins of the uterine cervix diagnosed during the second trimester. The cervical tissue was completely replaced with dilated venous plexus. Therapeutic decisions were further complicated by the presence of blood clots within the dilated vessels. Pregnancy proceeded uneventfully, no bleeding occurred and the patient underwent a planned Cesarean delivery. This is the first reported case in the medical literature where the rare phenomenon of cervical varices was accompanied by thrombosis. Copyright © 2011 ISUOG. Published by John Wiley & Sons, Ltd.

CASE REPORT

A 36-year-old woman, gravida 1 para 0, was admitted to our maternity ward at 28 weeks’ gestation following the sonographic diagnosis of varicose veins in the uterine cervix. Her prenatal follow-up was normal except for placenta previa observed during fetal anatomic scan at 16 weeks (Figure S1). At 23 weeks, however, dilated cervical blood vessels were observed on transabdominal ultrasonography. Power Doppler imaging demonstrated extensively dilated venous vessels replacing part of the normal cervical tissue (Figure 1). The patient was referred for hospital consultation at 26 weeks due to worsening of the condition.

On admission, transvaginal sonography demonstrated significantly dilated blood vessels that appeared as a venous plexus that completely replaced the normal cervical tissue (Figure 2, Video S1). Within the dilated vessels two blood clots were observed, one located distally measuring 7 × 6 mm in diameter, and the other proximally measuring 10 × 6 mm in diameter (Figure 3, Figure S2 and Video S2). Dilated blood vessels were also observed in the lower uterine segment and parametrium, albeit with no evidence of thrombosis. The placenta was posterior and low lying, with a low insertion of the umbilical cord. The fetus was appropriate for gestational age with an amniotic fluid index of 16 cm and a normal biophysical score. A speculum examination showed dilated and tortuous hemorrhoid-like varices surrounding the external cervical os (Figure S3).

During her hospital stay the patient was followed by a multidisciplinary team that included a maternal–fetal medicine specialist, a hematologist and an ultrasound specialist. Deep vein thrombosis was ruled out by Doppler ultrasound of the lower extremities, and no clinical evidence of a thromboembolic disease existed. Laboratory work-up for thrombophilia was negative. Because of the increased risk of excessive bleeding from the varices, we decided not to initiate anticoagulant treatment, despite the evidence of thrombosis. The patient was discharged at 28 + 4 weeks, upon completion of work-up.

A repeat examination at 30 weeks showed similar findings (Figure S4), with mild regression in the size of the two thrombi. The patient was hospitalized again at 36 weeks pending delivery. Repeat ultrasound scans demonstrated...
spontaneous resolution of one thrombus and further regression in size of the other by 1–3 mm. The cervical canal was still surrounded by extensive varicose veins. The fetus showed normal growth. We decided that the optimal mode of delivery for this patient would be a Cesarean section, due to the increased risk of massive bleeding with vaginal delivery, should cervical laceration occur. A Cesarean delivery was scheduled for $37 + 2$ weeks. Laparotomy was performed through Pfannenstiel incision. Dilated venous blood vessels were observed on the left side of the lower segment (Figure S5). No other abnormal findings were seen. A low transverse incision was performed, avoiding the dilated vessels. After extraction of the fetus, inspection of the interior of the cervix and lower segment demonstrated dilated blood vessels protruding into the lumen, with active bleeding necessitating hemostatic sutures. The remainder of the surgery was uneventful, with estimated blood loss of 1000 mL. A male infant was delivered with a birth weight of 3695 g and Apgar scores of 8 and 10 at 1 and 5 min, respectively.

In the immediate postpartum period anticoagulant treatment with low-molecular-weight heparin was initiated. Transvaginal sonographic examination on the third postpartum day demonstrated considerable regression of the varicose veins (Figure S6, Video S3). The postoperative course was uneventful, and the patient was discharged on the fourth day. A repeat examination at 1 month postpartum demonstrated complete resolution of the condition (Figure 4, Video S4).

DISCUSSION

Varicose veins are a common complication of pregnancy, observed most commonly in the lower extremities, anus and vulva\(^1\). Varices of the uterine cervix, however, are rare, and only a few cases have been reported\(^2\)–\(^7\). Generally, varicose veins are the result of increased venous pressure caused by the increased intravascular volume and compression of the inferior vena cava by the enlarging uterus, in addition to hormonal changes\(^1\). However, the etiology of this condition in the uterine cervix is unknown, and the paucity of such cases suggests a different etiology. It is possible that uterine over-distension further contributes to the production of cervical varices through increased pressure on the pelvic vasculature, as reflected by the association between this condition and multifetal pregnancy and polyhydramnios in previous cases\(^2\),\(^3\). In addition, increased drainage of the placental bed into the cervical venous plexus that occurs with low placental implantation might contribute to the production of cervical varices, as reflected by an association between this condition and placenta previa in half of the published cases (Table 1). It is possible that in our case, an 'occult' thrombosis of the pelvic venous systems or another type of vascular obstruction caused increased hydrostatic pressure leading to the production of varices. Antepartum diagnosis of this condition is important because severe bleeding can be anticipated (Table 1). This
Thrombosis of cervical varices

Table 1 Summary of published cases of cervical varices in pregnancy

<table>
<thead>
<tr>
<th>Study</th>
<th>Maternal age (years)</th>
<th>GA at diagnosis (weeks)</th>
<th>Bleeding</th>
<th>Placenta previa</th>
<th>Treatment</th>
<th>Mode of delivery</th>
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<tr>
<td>Follen et al. (1985)</td>
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<td>22</td>
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<td>NS</td>
<td>Cerclage, bed rest</td>
<td>CS</td>
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<td>25</td>
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<td>NS</td>
<td>Bed rest</td>
<td>VD</td>
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<td>Hurton et al. (1998)</td>
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<td>33</td>
<td>No</td>
<td>No</td>
<td>Hysterectomy</td>
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<tr>
<td>Yoshimura et al. (2004)</td>
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<td>8</td>
<td>Yes</td>
<td>No</td>
<td>Tocolytics, bed rest</td>
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<tr>
<td>Kusanovic et al. (2006)</td>
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<td>21</td>
<td>Yes</td>
<td>Yes</td>
<td>Packing, blood transfusion, tocolytics</td>
<td>CS</td>
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<tr>
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<td>27</td>
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<td>Yes</td>
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<td>CS</td>
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<tr>
<td>Present study</td>
<td>36</td>
<td>23</td>
<td>No</td>
<td>Yes</td>
<td>Bed rest</td>
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CS, cesarean section; GA, gestational age; NS, not specified; VD, vaginal delivery.

should be taken into account when considering anticoagulant treatment in pregnancy. We also believe that avoidance of manipulations that might cause local cervical injury and bleeding, like Pap smear, cervical biopsies or even sexual intercourse, is reasonable. The preferred mode of delivery in these patients is unclear. In the previously reported cases, seven of eight women had a Cesarean delivery and one had a spontaneous vaginal delivery (Table 1).

Due to the high risk of laceration of the varices during labor, we decided that the optimal mode of delivery was a scheduled Cesarean section.

The finding of thrombosis of cervical varices in pregnancy is even more unusual, and to the best of our knowledge no previous cases have been reported in the medical literature. This association between cervical varices and thrombosis in our case presented a therapeutic dilemma. The presence of thrombi might be considered a variant of pelvic venous thrombosis necessitating anticoagulant therapy, although the potential for embolization from this location is unclear. On the other hand, the engorged varices carry a high risk of spontaneous or labor-related rupture with resultant bleeding, and therefore anticoagulant treatment might prove hazardous. After multidisciplinary consultation, we decided that the risk of bleeding outweighed the benefits of anticoagulant therapy in a woman with no proven thrombophilia. A previous report by Leibovitz et al. described four cases of uterine venous plexus thrombosis that were diagnosed in the first trimester. These cases, however, were not associated with cervical varices carrying an increased risk of bleeding, which facilitated the decision to initiate anticoagulant therapy. Thrombosis resolved in all cases following delivery/termination of pregnancy.

In summary, we present a unique case of severe cervical varices that were further complicated by thrombosis, where conservative treatment led to successful maternal and perinatal outcomes.

REFERENCES


SUPPORTING INFORMATION ON THE INTERNET

The following supporting information may be found in the online version of this article:

Figure S1 Transvaginal scan in the median cervical plane at 16 weeks showing placenta previa. The cervical tissue appears normal (arrowheads – cervical canal).

Figure S2 Transvaginal axial scan of the cervix at 28 weeks showing one of the thrombi (arrowhead) along with the interconnected dilated vessels.

Figure S3 Examination per speculum at 28 weeks showing a protruding varix along the anterior exocervix (asterisk), resembling external hemorrhoids. (Arrow – external cervical os.)
Figure S4 Transvaginal scan in a median cervical plane at 30 weeks with color-Doppler imaging showing severely dilated tortuous venous blood vessels replacing most of the normal cervical tissue. The thrombi are no observed in this plane.

Figure S5 A photograph taken during cesarean section showing the dilated veins at the lower uterine segment (arrows). (RA, right rectus abdominis muscle; RL, left round ligament).

Figure S6 A transvaginal sagittal uterine scan at 3 days postpartum showing significant regression of the varices (arrowhead – external cervical os).

Video S1 A transvaginal parasagittal scan of the uterine cervix at 28 weeks with power-Doppler imaging showing the dilated vessels replacing most of the normal cervical tissue.

Video S2 A transvaginal parasagittal scan of the uterine cervix at 28 weeks showing the dilated vessels replacing most of the normal cervical tissue. The two thrombi are demonstrated as two rounded hyperechogenic structures within the dilated vessels.

Video S3 A transvaginal scan of the uterine cervix at 3 days postpartum showing significant regression of the varices and collapse of the dilated blood vessels.

Video S4 A transvaginal scan at 1 month postpartum showing a uterus in retroflexion with absence of any dilated blood vessels in the uterine cervix.
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