Case Report

A case of spontaneous uterine artery pseudoaneurysm in a primigravid woman at 16 weeks gestation

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ABSTRACT

We report a case of a uterine artery pseudoaneurysm in a 29-year-old primigravid woman at 16 weeks gestation. The woman presented to the emergency room with lower left quadrant pain and vaginal bleeding. Ultrasound revealed a left adnexal mass consistent with a pseudoaneurysm. Percutaneous thrombin injection was chosen to avoid contrast and radiation risks to the fetus. Ultrasound demonstrated thrombosis of the pseudoaneurysm with no evidence of fetal distress. On postprocedure day 2, the patient presented again with similar complaints of lower quadrant pain and vaginal bleeding. The pseudoaneurysm was found to have recanalized and a decision was made to treat with computed tomography angiography and coil embolization. The procedure was successful, with angiography revealing an incidental branch of the pseudoaneurysm that was subsequently embolized.

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Introduction

Uterine artery pseudoaneurysm (UAP) is a relatively rare condition of vascular damage where blood flows through the layers of the arterial wall. Complications include hemorrhage, maternal death or fetal death if antepartum. UAP is typically iatrogenic, and is usually seen postpartum [1] in association with obstetric or gynecological procedures like caesarean section [2–5], or in association with a traumatic delivery or abortion [6].

Review of current literature suggests that this condition is rarely diagnosed antepartum, with only a handful of reported cases available. Many of these cases involved a patient with

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a history of either previous delivery, or some form of pelvic surgery [7]. To our knowledge, only one case of a primigravid, antepartum woman presenting with a UAP has been reported. In that case, the UAP was thought to be secondary to a previous myomectomy [8].

We present a rare and novel case of a spontaneous UAP diagnosed in a G1P0 woman at 16 weeks gestation with no known history of vascular disease or pelvic surgery. After failed direct thrombin injection, the UAP was successfully treated with coil embolization. At 37 weeks gestation, the patient was induced and gave birth to a healthy infant.

**Case report**

A 29-year-old primigravid woman at 16 weeks gestation presented to the emergency room with a 5-week history of worsening left lower quadrant pain and vaginal bleeding. The patient had previously been evaluated by her obstetrician, where she was told that her pain was related to sciatica and that light vaginal bleeding was normal for this stage of her pregnancy. Ultrasound revealed a 3.8 cm x 2.3 cm x 3.1 cm anechoic left adnexal mass with to-and-fro flow on color Doppler consistent with a pseudoaneurysm. Magnetic resonance imaging (MRI) demonstrated a mixed signal intensity mass correlating with ultrasound findings (Fig. 1).

Pain was managed with a single dose of 1-mg Dilaudid IV and 5-325 Percocet every 4 hours. Percutaneous ultrasound guided thrombin injection was chosen to avoid radiation and contrast-associated risks to the fetus. Post procedure ultrasound demonstrated complete thrombosis of the UAP (Fig. 2).

A separate fetal survey showed patency of umbilical cord vessels and no evidence of fetal compromise.

Two days postprocedure, the patient presented again with complaints of severe left lower quadrant pain and vaginal bleeding. Ultrasound demonstrated recanalization of the UAP. A decision was made to perform angiography with coil embolization.

Angiography showed 2 pseudoaneurysms arising from the left uterine artery (Fig. 3). There was difficulty obtaining distal access to the larger pseudoaneurysm. Therefore, coil embolization was performed at the origin of the larger pseudoaneurysm, followed by coil embolization around the origin of the smaller pseudoaneurysm. A right internal iliac arteriogram demonstrated no cross filling between the pseudoaneurysms. Different obliquities, appropriate collimation, low dose fluoroscopy/digital subtraction angiography, and low frame and pulse rates were used during the procedure to minimize the radiation dose to the fetus. The total skin entrance dose was 1.9 Gy and estimated fetal dose was 0.2 Gy. The patient’s pain improved and she was discharged the following day. Subsequent pelvic ultrasound and MRI performed one month later confirmed persistent thrombosis of the pseudoaneurysms.

At 37 weeks gestation, the patient was induced and gave birth to an unremarkable infant via forceps assisted vaginal delivery, due to pre-eclampsia. The pre-eclampsia was not thought to be related to the UAP.

**Discussion**

Based on a review of current literature, this is the first reported case of a UAP in a pregnant woman with no history of connective tissue disease, pelvic surgery, or pregnancy. Determining which initial treatment could provide the best outcome while minimizing risk to the fetus was a complex decision that required consults with interventional radiology, vascular surgery, and obstetrics. At this stage in the pregnancy, secretory function of the corpus luteum had transitioned to the placenta. Therefore, oophorectomy, thrombin injection, and embolization were thought to carry little risk of infarction to the corpus luteum should the ipsilateral ovary containing it be removed or injured.

Thrombin injection was chosen as the first line of treatment, despite risks of incomplete thrombosis of the pseudoaneurysm, thrombosis of the uterine artery, or possible infarction of the placenta or fetus. After recanalization of the UAP, options such as embolization, conservative management, and surgery were weighed. Embolization was chosen for definitive treatment via a minimally invasive approach, although both the radiation and iodinated contrast posed a risk to the fetus. In regards to ionizing radiation, it has been demonstrated that an embryo is most vulnerable during organogenesis and in the early fetal period. The patient was between 16- and 17 weeks gestation, although at this stage of the pregnancy, non-cancer health risks have been observed if the radiation dosage is above 0.05 Gy [9]. In regards to iodine toxicity, contrast administration during pregnancy has been demonstrated to depress fetal thyroid function, increasing the risk of hypoth-
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