



Hysterotomy for Placental Delivery after Angular Pregnancy: A Case Report

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Abstract

Introduction: Angular pregnancy is a condition in which the embryo is implanted medial to the uterotubal junction in the lateral angle of the uterine cavity, close to the proximal ostium of the fallopian tube. Although angular pregnancy can progress to term pregnancy, it may be associated with major obstetric complications such as placental retention.

Case: A 16-year-old woman, primipara, underwent an uncomplicated vaginal delivery, had a retained placenta with postpartum hemorrhage and endometritis required hysterotomy because the placenta was inaccessible due to its angular location. No relevant risk factor in the medical history for angular pregnancy was found.

Conclusion: In a case of suspected retained placenta, a coronal incision can be made into the myometrium overlying the placenta as an alternative to remove the placenta and preserve the patient's reproductive future.

Keywords: Ectopic Pregnancy; Angular pregnancy; Placenta retained; Hysterotomy

Introduction

Ectopic pregnancy is a pregnancy in which the developing blastocyst becomes implanted at a site other than the endometrium of the uterine cavity. It occurs in approximately 2,0% of all pregnancies. The most common extrauterine location is the fallopian tube, which accounts for 96% of all ectopic gestations. Other types of ectopic pregnancy are ampullary, isthmic, fimbrial, ovarian, interstitial, angular and abdominal [1].

The main causes of ectopic gestation are associated with disruption of normal tubal anatomy as pelvic inflammatory disease, surgery, congenital anomalies, or tumors. However, if contraceptive failure occurs, the risk of ectopic pregnancy is higher in women using an intrauterine device, using oral estrogen/progestin contraceptives, or who have undergone sterilization [2].

Angular pregnancy is a rare condition in which the embryo is implanted medial to the uterotubal junction in the lateral angle of the uterine cavity, close to the proximal ostium of the fallopian tube. Although angular pregnancy can progress to

term pregnancy, it may be associated with major obstetric complications such as uterine rupture, placental retention, placenta accrete, postpartum hemorrhage, or may need further surgery and hysterectomy [3,4,5].

Case Presentation

A 16-year-old woman reported a vaginal birth with 35 gestational weeks in another hospital. On the fifth day postpartum, she was transferred to our hospital with diagnosis of retained placenta and vaginal bleeding. On the third day of puerperium, she had undergone an unsuccessful uterine curettage. The patient had abdominal pain at deep palpation, subinvolved uterus, retained placenta and fever for two days. At speculum examination, heavy uterine bleeding with clots and stink was noted.

In transvaginal ultrasound (TVUS) showed increased uterus volume (1796cm³) with presence of placenta in the endometrial cavity mainly the right cornual. In this location, the myometrial thinning was less than 5mm until a total disappearance in a small portion, however showed no signs of placenta accrete (Figure 1 and 2). The possibility of inadequate implantation of the placenta was considered, which occurs in angular pregnancies. Since one could not be sure of the absence of placenta accreta, the patient went to the surgical center with the possibility of hysterectomy if placenta accreta was detected or hysterotomy for delivery of the placenta if it were a case of a retained placenta after angular pregnancy. No relevant risk factor in the medical history for angular pregnancy was found.

The patient was submitted to antibiotic treatment, blood transfusion and a laparotomy. Examining the uterus during the surgical procedure having been verified a deformed and asymmetric uterus and confirmed the reduction of myometrial tissue in the right cornual uterine region where the placenta was implanted. In this location of uterus, there was a few amounts of myometrial tissue and a persistence of uterine serosa (Figure 3).

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Figure 1 Placental retention in the right cornual region.

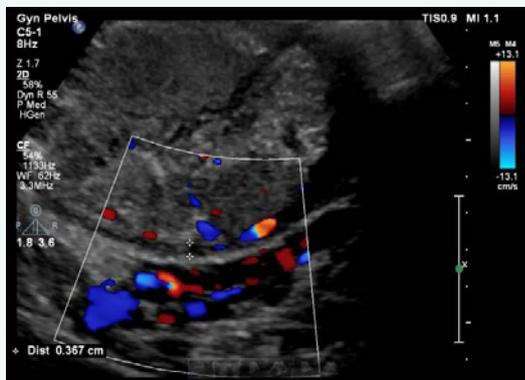


Figure 2 Color Doppler imaging of the right cornual region and the fundus of the uterus. A myometrial thinning until a total disappearance of the zone of interception between myometrium and placenta in right cornual region and adjacent posterior wall.



Figure 3 Photograph of angular pregnancy during laparotomy. View of the posterior and right lateral side of the uterus shows right cornual mass containing the placenta. There was a few amount of myometrial tissue and a persistence of uterine serosa.

A corporal hysterotomy was performed which resulted in spontaneous, prompt and complete extrusion of the placental tissue. The exploration of the endometrial cavity revealed no retained placental fragments and a normal cavity. This area was sutured using 0 vicryl seromuscular stitches to close the uterine muscle and ensure the recovery of myometrial tone (Figure 4).

The bleeding and fever ceased after laparotomy. Postoperative period was uneventful and the patient was discharged on the 3th postoperative day.

Discussion

An angular pregnancy is an eccentric *intrauterine* pregnancy with implantation of the embryo in the lateral superior angle of the uterine cavity. It results in asymmetric enlargement of the uterus and lateral displacement of the round ligament [4]. Angular pregnancy may evolve to term pregnancy and lead to complications during pregnancy and delivery, such as persistent pelvic pain and bleeding, spontaneous abortion, increased risk of preterm delivery, placental abruption, growth restriction, uterine rupture, retained placenta, placenta accreta, postpartum endometritis and severe bleeding leading to hysterectomy [4,6,7].

Angular pregnancy is seldom discussed in the medical literature and is perceived to be rare with <100 cases reported in the literature [8]. The first 39 cases were compiled in a systematic review published in 1981 and reported a 38.5% chance of spontaneous abortion, 13.6% chance for uterine rupture, and a 28% live birth rate [4]. This was updated in 2014 with the addition of 46 subsequent cases, adjusting estimates to 18% risk of spontaneous abortion and 28% risk of uterine rupture [8]. The overall live birth rate was similar at 25%, but of those pregnancies managed expectantly and not terminated, this rose to 69% [7,9].

In 1981 Jansen and Elliot [10], proposed the following criteria for angular pregnancy: 1) Clinical presentation with painful asymmetric enlargement of the uterus, followed by 2) Directly



Figure 4 (A) – A coronal incision in right cornual region and extrusion of the placental tissue. (B) - The area was sutured in right cornual region.



observed lateral distension of the uterus, with or without rupture, accompanied by displacement of the round ligament reflection laterally; 3) Retention of the placenta in the uterine angle. The reported case presented these three criteria.

Angular pregnancy can be accurately diagnosed with endovaginally sonography, especially during early gestational weeks. Alternatively, 3-D ultrasound and magnetic resonance exams can facilitate diagnosis, reduce the possibility of diagnosis failure, evaluate placenta implantation anomalies, and predict the risk of uterine rupture. However, when magnetic resonance is not available, we believe that the most useful approach for an exact diagnosis is sequential ultrasound evaluations to determine whether the gestational growth is towards the uterine cavity. Diagnostic laparoscopy may be a final step in determining pregnancy location. When viewed from the exterior of the uterus during laparoscopy or laparotomy, the uterine enlargement caused by an angular pregnancy displaces the round ligament superiorly and laterally, while remaining medial to the ligament itself [11].

The diagnosis of angular pregnancy of this case was suspected five days after vaginal delivery by ultrasonographic finding of retained placenta eccentrically located in the right cornual region of the uterus. The placenta was retained due to the lack of a myometrial layer in the implantation uterine region.

Conventionally, surgical management of retained placental tissue is largely performed using dilatation and curettage [12]. However, the curettage was unsuccessful performed in puerperal period. Hysteroscopic resection could have been a therapeutic option if it was a placental retention in an early pregnancy. In the case described, the large placental volume did not favor the indication of this therapeutic method.

Hysterectomy might have been appropriate surgery if the placenta accrete [13], but remained as a second option because the patient was a young adolescent after the first preterm delivery.

In a case of suspected retained placenta, a coronal incision can be made into the myometrium overlying the placenta [13]. However, if the placenta is removed through a hysterotomy, the patient will have an increased risk of abnormally invasive placentation in future pregnancies [14].

In literature, we found only two cases of angular pregnancy complicated by retained placenta requiring hysterotomy for placenta delivery [7,15]. Thus, there is no consensus about the best therapy in these specific cases of placental retention.

In the present case, because of unsuccessful curettage, signs of infections, the persistence of transvaginal bleeding and the difficulty to rule out the possibility of placenta accreta, the hysterotomy was indicated as chosen surgery. During the surgery, the placenta had not been accreta and successful hysterotomy. The diagnosis of angular pregnancy was confirmed.

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