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Case Report

Pregnancy in a noncommunicating rudimentary horn of a unicornuate uterus: Prerupture diagnosis and management



Yu-Ju Lai, Chen-Hsien Lin, Wen-Chien Hou, Kwei-Shuai Hwang, Mu-Hsien Yu, Her-Young Su*

Department of Obstetrics and Gynecology, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

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ABSTRACT

Objective: The estimated incidence of rudimentary horn pregnancy is one in 76,000. It is a life-threatening entity with a 50% risk of uterine rupture. With advances in prenatal ultrasound in recent decades, there may be an opportunity to detect rudimentary horn pregnancy earlier, resulting in a lower incidence of maternal morbidity and mortality. Management is typically resection of the rudimentary horn and the ipsilateral fallopian tube by either laparotomy or laparoscopy.

Case Report: Here, we present the case of a 22-year-old woman with a suspected ectopic pregnancy of 12 weeks' gestation. Ultrasound and magnetic resonance imaging were performed as preoperative evaluations. A definitive diagnosis was made during laparotomy, and resection of the rudimentary horn pregnancy was performed.

Conclusion: Diagnosis and management of rudimentary horn pregnancy remain a challenge. We should be alert to prenatal ultrasound with the intention of making an earlier diagnosis, thereby resulting in decreased maternal morbidity and mortality.

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Introduction

The prevalence of unicornuate uterus in the general population is 0.1% [1]. Nondevelopment or rudimentary development of one müllerian duct results in a unicornuate uterus. A rudimentary horn may exist due to partial development of one müllerian duct; this accounts for 74% of unicornuate uterus. The rudimentary horn may fuse to the unicornuate uterus, resulting in a communicating uterine horn as opposed to a noncommunicating horn when fusion has not occurred; 70–90% of rudimentary horns are noncommunicating [2]. The presence of a uterine anomaly may increase the risk of preterm birth, breech presentation, placenta previa, placenta abruption, intrauterine growth retardation, and ectopic pregnancy [3]. The incidence of rudimentary horn pregnancy is reported to be one in 76,000 pregnancies [4]. While in sporadic cases a live infant may be delivered, most rudimentary horn pregnancies experience

uterine rupture at 10–15 weeks of gestation [5], which is a critical, life-threatening condition. Here, we present a case of a 12-week gestation viable pregnancy in a rudimentary horn detected by ultrasound and treated with laparotomy.

Case Report

A 22-year-old woman, gravida 2, para 1, was referred from Penghu branch with a suspected ectopic pregnancy of 12 weeks' gestation following prenatal ultrasound. An ultrasound examination upon admission revealed a gestational sac with a viable fetus inside, with a crown–rump length of 5.46 cm, over the left aspect of the uterus (Figure 1). Magnetic resonance imaging (MRI) revealed that the sac was surrounded by a wall with the same signal intensity as that of myometrium and without thinning (Figure 2). An ectopic pregnancy was assumed, and laparotomy was performed. The procedure revealed a rudimentary horn pregnancy of the left cornual region (Figure 3). Resection of the rudimentary horn was performed with ligation and coagulation. A fetus of approximately 6 cm was found inside (Figure 4). The patient was discharged 2 days after the procedure.

* Corresponding author. Department of Obstetrics and Gynecology, Tri-Service General Hospital, 325, Section 2, Chenggong Road, Neihu District, Taipei, Taiwan.
E-mail address: su108868@gmail.com (H.-Y. Su).

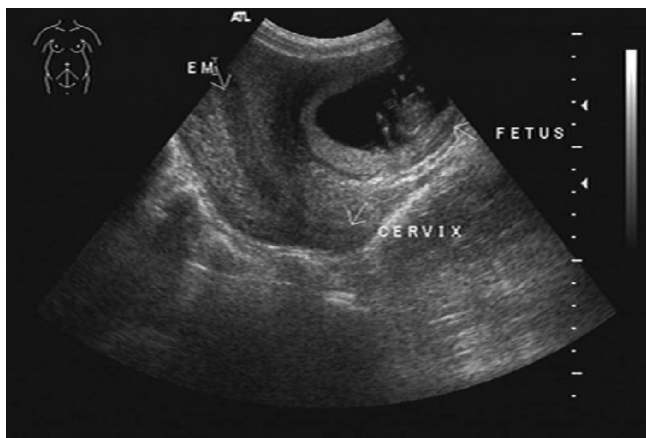


Figure 1. A rudimentary horn pregnancy was suspected under sonography.

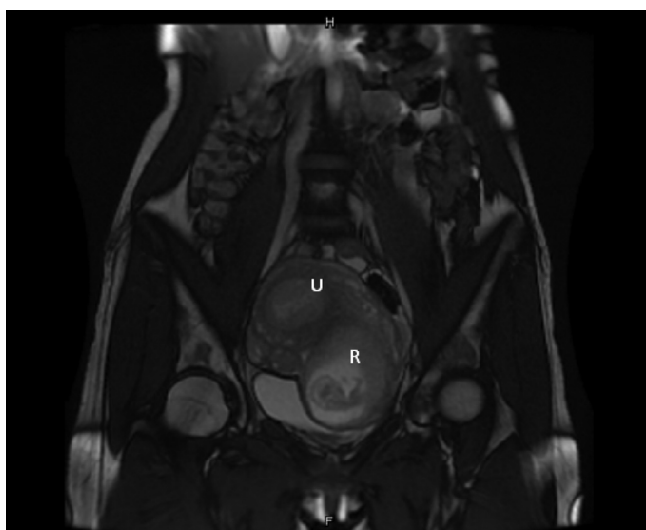


Figure 2. Magnetic resonance imaging T2 coronal view of the uterus (U) and the rudimentary horn (R) pregnancy.

Discussion

Unicornuate uterus accounts for 2.4–13% of müllerian anomalies [1]; 84% of cases have a contralateral rudimentary horn [6]. The incidence of rudimentary horn pregnancy is estimated to be one in 76,000 pregnancies [4]. The male gamete may migrate transperitoneally to the contralateral noncommunicating unicornuate horn. Rudimentary horn pregnancy should always be considered as a differential diagnosis of tubal pregnancy, cornual pregnancy, and intrauterine pregnancy in a bicornuate uterus [7]. Tsafir [8] suggests criteria for the early diagnosis of rudimentary horn pregnancy: (1) pseudopattern of an asymmetrical bicornuate uterus, (2) absent visual continuity between the cervical canal and the lumen of the pregnant horn, and (3) the presence of myometrial tissue surrounding the gestational sac. In the case presented here, a rudimentary horn pregnancy was suspected following ultrasound and was confirmed by MRI. MRI is a noninvasive and useful diagnostic tool for müllerian anomalies [9]; it is able to reveal internal and external uterine structures without the hazard of radiation [8].

An early diagnosis is crucial since uterine rupture due to poor musculature of the rudimentary horn is a frequent, life-threatening complication. However, diagnosis is difficult because the women concerned have often had a previous normal delivery [2].

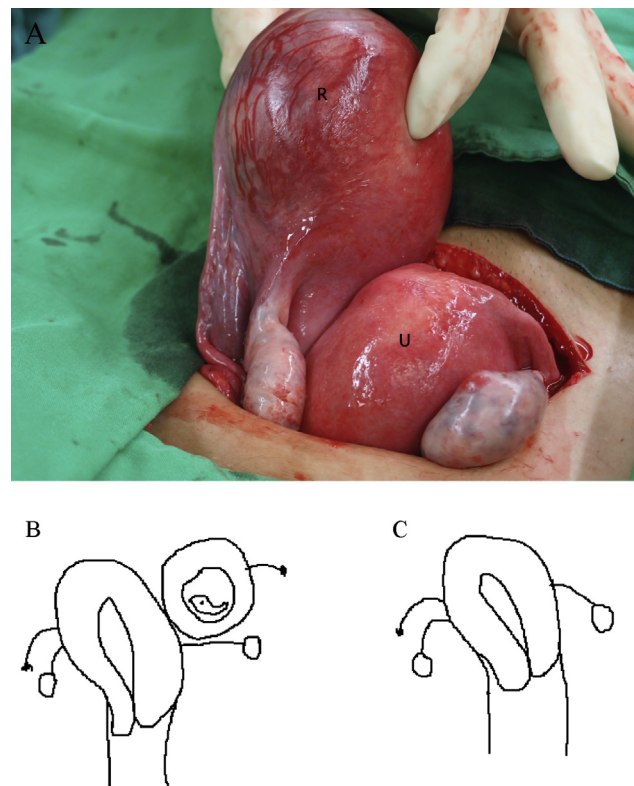


Figure 3. (A) Caudal view of the rudimentary horn (R) and the uterus (U). (B) The relationship of the uterus and the rudimentary horn. (C) Anatomy after surgery.



Figure 4. A fetus with a crown–rump length of approximately 5 cm (12 weeks) in the rudimentary horn was resected.

Management consists of excision of the pregnant rudimentary horn and ipsilateral fallopian tube, traditionally by laparotomy. The first case of using laparoscopy was reported in 1996, and the horn was resected through a vaginal incision [10]. With the advancement of laparoscopy, it may be an attractive option given the advantage of early recovery. However, in this case, the pregnant horn was approximately 7–8 cm, which was as large as the uterus proper, and therefore, laparotomy was the preferred choice for surgery.

The reproductive outcome of a unicornuate uterus is discussed in some articles. However, hardly any of them have discussed the reproductive outcome after resection of the rudimentary horn.

George [11] has followed eight cases for 21 years who have ever undergone laparoscopic excision of functional, noncommunicating rudimentary horn. Seven out of these eight patients have conceived. Two of them received assisted reproduction techniques. All of them had preterm delivery by cesarean section at about 33 weeks of gestational age due to hypertension, intrauterine growth restriction, and elective cesarean section. Those patients who have ever undergone resection of a rudimentary horn should be considered a high-risk group in the following pregnancy.

In conclusion, rudimentary horn pregnancy is a rare condition that may be misdiagnosed prior to surgery. Ultrasound in the first trimester may provide a means of an early diagnosis. MRI may provide additional confirmation.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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