

Pregnancy in a non-communicating rudimentary horn of a unicornuate uterus

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Abstract

Background: The non-communicating rudimentary horn of a unicornuate uterus is the rare result of abnormal development of the Müllerian ducts during embryogenesis.

Case description: We report a rare condition of a pregnancy of eight weeks of gestation in a non-communicating rudimentary horn of a unicornuate uterus, which was diagnosed without specific symptoms and treated through laparoscopy.

Conclusion: Early diagnosis and treatment are essential to prevent the high maternal risk of life-threatening bleeding complications. HIPPOKRATIA 2019, 23(2): 92-94.

Keywords: Pregnancy, non-communicating rudimentary horn, unicornuate uterus

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Introduction

In 1669 Mauriceau and Vassal described a pregnancy in a rudimentary horn, while in 1950, Latto et al described the first case of a ruptured rudimentary horn pregnancy treated by laparotomy¹.

The unicornuate uterus is the result of abnormal development of the Müllerian ducts during embryogenesis, which has a prevalence of only 0.1 % in the general population^{2,3}. According to the American Fertility Society the following types of unicornuate uterus are distinguished: rudimentary horn with a cavity communicating with a unicornuate uterus (class II-A), with a non-communicating cavity (class II-B), without a cavity (class II-C), and without a rudimentary horn (class II-D)^{4,5}.

The reported incidence of a pregnancy in a rudimentary horn is one in 76,000-150,000 pregnancies^{2,6-8}. The majority are symptomatic at the time of diagnosis; thus, only 8 % of rudimentary horn pregnancies are diagnosed before symptoms appear⁹. We report a case of a vital pregnancy in a non-communicating rudimentary horn of a unicornuate uterus without specific symptoms, incidentally found by a medical check-up in our clinic and treated through laparoscopy.

Case report

A 16-year-old woman, 170 cm tall, 83 kg weight, was referred by a general practitioner for unspecific symptoms such as nausea, vomiting, headache during the preceding three weeks. Her last menstrual period was approximately eight weeks prior, after having experienced regular menstrual cycles with average volumes of blood loss and duration. Menarche was at the age of 12, and no contraception methods had been used. She reported having bronchial asthma under therapy with salbutamol

and cortisone, and no previous history of operations. Her family history was unremarkable. There were no reported problems in micturition and defecation, as well as no nicotine or alcohol abuse.

Vaginal examination showed a normally formed vagina and cervix, an anteverted uterus of typical dimensions, deviated to the left side. On the left side, palpation was unremarkable, but on the right side, a painless mass was noticed.

The vaginal ultrasound scan showed a uterus of normal dimensions, and a proliferated endometrium with an anteroposterior diameter of 20 mm without signs of an intrauterine pregnancy. On the right side of the uterine corpus next to the right ovary, a chorionic cavity with a vital embryo was detected. The crown-rump length measured 9 mm, corresponding to 7+0 weeks post menstruation (90 % confidence interval 6+3 to 7+5 weeks¹⁰). The mean gestational sac diameter was 22 mm, corresponding to 7+1 weeks (90 % confidence interval 6+1 to 8+2 weeks¹⁰). No free fluid in Douglas' pouch was apparent as there were no signs of intraabdominal bleeding. A right tubal pregnancy was suspected (Figure 1). Blood testing showed a hemoglobin level of 13.5 g/dl and a beta-human chorionic gonadotrophin (β -HCG) concentration of 61,512 IU/l.

At laparoscopy, unremarkable adnexa were seen. The left tube was arising from the uterus, but on the right side, there was only a fibrous streak that entered into a uterine horn, about 4-5 cm in size, with a normal tube on the opposite side. Thus the pregnancy was located in a non-communicating rudimentary horn of a unicornuate uterus (class II-B, Figure 2). To prevent rupture of the rudimentary horn as well as right tubal pregnancy in the future, the rudimentary horn was excised together with the right



Figure 1: Vaginal ultrasound view of the uterus with a proliferated endometrium without signs of an intrauterine pregnancy. Next to the right ovary, a chorionic cavity with a vital embryo.

tube. Postoperative recovery was uneventful. The postoperative blood test showed a hemoglobin level of 12.3 g/dl and β -HCG concentration of 6,180 IU/l. The abdominal ultrasound did not reveal any urinary tract malformations. Histological examination of the excised tissue confirmed a pregnancy inside a rudimentary uterine horn.

Discussion

We report a rare Müllerian duct anomaly complicated by a pregnancy that implanted in the non-communicating rudimentary horn of a unicornuate uterus in an asymptomatic young woman unaware of her uterine abnormality. In the literature, there are only a few reported cases that were diagnosed in the first trimester, and most of them were known as having a uterine abnormality^{11,12}.

The diagnosis is difficult, having no clear clinical criteria to detect this life-threatening condition¹⁰. The sensitivity of sonography was said to be only 26 % decreasing with advancing gestational age^{7,13}. Early diagnosis is essential to prevent complications of this life-threatening condition¹⁴, *id est* especially rupture of the rudimentary uterine horn with severe bleeding. The time of uterine rupture varies from 5 to 35 weeks, depending on the horn musculature and its ability to hypertrophy^{2,7}. Blood loss may be severe and increases directly proportionally with the thickness and vascularity of the uterine walls, and the gestational age^{7,15}. Live birth after cesarean section in the third semester is extremely rare, with the additional risk of fetal prematurity or intrauterine growth restriction^{7,9}.

Our case demonstrates that the laparoscopic route can prevent such events by excision of the rudimentary horn. However, this requires a diagnosis in the first trimester. An alternative therapeutic procedure in the first trimester might be the injection of methotrexate into the chorionic cavity or its systemic use, followed by excision of the rudimentary horn. Analogously, the overall success rate of methotrexate application in an unruptured cornual pregnancy with different regimens was reported to be 83 %^{16,17}. The success rate of local injection under laparo-

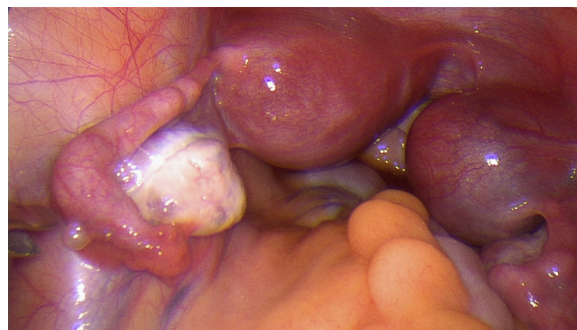


Figure 2: Laparoscopy view of the unremarkable adnexa, the left tube arising from the uterus; on the right side, a fibrous streak that entered into a uterine horn with a normal tube on the opposite side. The pregnancy was located in the non-communicating rudimentary horn of a unicornuate uterus (class II-B).

sopic or ultrasonographic guidance was 91 %, while its systemic use was successful in 79 %^{16,17}.

Conclusion

Rudimentary horn pregnancy is a rare condition that may be misdiagnosed prior to surgery and is associated with high maternal risks. Early diagnosis facilitates surgical removal that can be performed by the laparoscopic route.

Conflicts of interest

There are no conflicts of interest.

Acknowledgment

Written informed consent was obtained from the patient for publication of this case report.

References

1. Latto D, Norman R. Pregnancy in a rudimentary horn of a bicornuate uterus. *Br Med J.* 1950; 2: 926-927.
2. Lai YJ, Lin CH, Hou WC, Hwang KS, Yu MH, Su HY. Pregnancy in a noncommunicating rudimentary horn of a unicornuate uterus: Prerupture diagnosis and management. *Taiwan J Obstet Gynecol.* 2016; 55: 604-606.
3. Caserta D, Mallozzi M, Meldolesi C, Bianchi P, Moscarini M. Pregnancy in a unicornuate uterus: a case report. *J Med Case Rep.* 2014; 8: 130.
4. The American Fertility Society classifications of adnexal adhesions, distal tubal occlusion, tubal occlusion secondary to tubal ligation, tubal pregnancies, müllerian anomalies and intrauterine adhesions. *Fert Ster.* 1988; 49: 944-955.
5. Park JK, Dominguez CE. Combined medical and surgical management of rudimentary uterine horn pregnancy. *JLS.* 2007; 11: 119-122.
6. Tsafirir A, Rojansky N, Sela HY, Gomori JM, Nadjari M. Rudimentary horn pregnancy: first-trimester prerupture sonographic diagnosis and confirmation by magnetic resonance imaging. *J Ultrasound Med.* 2005; 24: 219-223.
7. Juneja SK, Gupta S, Tandon P, Gumber N. Rupture of Noncommunicating Rudimentary Horn of Uterus. *Int J App Basic Med Res.* 2017; 7: 146-147.
8. Okonta PI, Abedi H, Ajuyah C, Omo-Aghoja L. Pregnancy in a noncommunicating rudimentary horn of a unicornuate uterus: a case report. *Cases J.* 2009; 2: 6624.

9. Cheng C, Tang W, Zhang L, Luo M, Huang M, Wu X, et al. Unruptured pregnancy in a noncommunicating rudimentary horn at 37 weeks with a live fetus: a case report. *J Biomed Res.* 2015; 29: 83-86.
10. Rempen A, Chaoui R, Häusler M, Kagan KO, Kozlowski P, von Kaisenberg C, et al. Quality Requirements for Ultrasound Examination in Early Pregnancy (DEGUM Level I) between 4+0 and 13+6 Weeks of Gestation. *Ultraschall Med.* 2016; 37: 579-583.
11. Daskalakis G, Pilalis A, Lykeridou K, Antsaklis A. Rupture of noncommunicating rudimentary uterine horn pregnancy. *Obstet Gynecol.* 2002; 100: 1108-1110.
12. Smolders D, Deckers F, Pouillon M, Vanderheyden T, Vanderheyden J, De Schepper A. Ectopic pregnancy within a rudimentary horn in a case of unicornuate uterus. *Eur Radiol.* 2002; 12: 121-124.
13. Jayasinghe Y, Rane A, Stalewski H, Grover S. The presentation and early diagnosis of the rudimentary uterine horn. *Obstet Gynecol.* 2005; 105: 1456-1467.
14. Daniilidis A, Pantelis A, Makris V, Balaouras D, Vrachnis N. A unique case of ruptured ectopic pregnancy in a patient with negative pregnancy test - a case report and brief review of the literature. *Hippokratia.* 2014; 18: 282-284.
15. Chowdhury S, Chowdhury T, Azim E. Pregnancy in a non-communicating rudimentary horn of uterus: a clinical case report. *Bangladesh Med J.* 2010; 39: 47-48.
16. Rotondo NA. When Is it Appropriate to Use Methotrexate for Ectopic Pregnancy in the Emergency Department? Available at: <https://www.medscape.com/viewarticle/576935>, date accessed: 02/01/2019.
17. Onderoglu LS, Salman MC, Ozyuncu O, Bozdog G. Successful management of a cornual pregnancy with a single high-dose laparoscopic methotrexate injection. *Gynecol Surg.* 2006; 3: 31-33.