

# Ruptured Rudimentary Horn Pregnancy in a Multiparous Patient: A Case Report and Literature Review



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## Abstract

**Back ground:** Pregnancy in a rudimentary horn of uterus is a rare condition and it can have grave consequences for mother and fetus.

**Keywords:** Mullerian duct; Embryology; spermatozoa; Haemoglobin; Hypovolaemic; Laparotomy; Cornual pregnancy; Sonographic; Myometrial tissue

**Abbreviations:** ESHRE: European Society of Human Reproduction and Embryology; ED: Emergency Department; USG: Ultrasonography

## Case Report

We present a case report of 31 yrs old Gravida 4 para 2+1 patient with two previous term vaginal deliveries. She presented with a rupture of undiagnosed rudimentary horn of uterus at 18 weeks. Laparotomy was performed and rudimentary horn was excised with good recovery postoperatively. The need for high index of suspicion and early diagnosis using ultrasonography is emphasised. Conclusion: Pregnancy in a rudimentary horn carries grave risk to the mother. There is need for increase awareness of this rare condition and to have a high index of suspicion at time of booking.

## Introduction

Mullerian duct anomalies occur during embryonic development due to defective fusion, canalization or absorption of the median septum of the Mullerian ducts in the female reproductive system [1]. The prevalence of mullerian duct anomalies in the general female population is 4-7% [2]. According to the European Society of Human Reproduction and Embryology (ESHRE), Mullerian duct anomalies are divided into class U1 to U6. The U4 variant describes the Hemi-uterus (unicornuate uterus) which may or may not be associated with a rudimentary horn [3]. The rudimentary cavity may be communicating or non communicating of which the latter comprises of 83% of majority. The incidence of pregnancy occurring in a non-communicating rudimentary horn is 1/100,000 – 1/140,000 [4]. This is thought to be as a result of transperitoneal spread of spermatozoa [5]. Diagnosis of rudimentary horn pregnancy prior to rupture is difficult; despite recent advances in technology, only 5% of cases are diagnosed preoperatively [6]. Maternal mortality has

decreased from 90% in 1950s to 5% due to better management of a potentially life threatening event. We present a case of an eighteen week pregnancy in a non-communicating rudimentary horn, in a Multiparous woman who has had two term vaginal deliveries. We will discuss the diagnostic challenges of this case and management of the complications that ensued.

## Case report

A 31 year old Gravida 4 Para 2+1, with two previous term vaginal deliveries and a complete miscarriage at six weeks gestation. In her current pregnancy, she had an ultrasound scan with a single normal intrauterine pregnancy, gestation was appropriate for her date of 13 weeks and 4 days, with a low lying placenta reported. She presented to the emergency department (ED) at 18 weeks and 2 days gestation, having collapsed at home. This had been preceded by a severe sudden onset upper abdominal pain, following an episode of diarrhoea and vomiting. Five days prior to this admission, she had been seen in the ED with non specific abdominal pain. Bloods investigations were unremarkable with haemoglobin of 12.4g/dL. Obstetric examination was normal. She was discharged and given a follow up appointment in our antenatal clinic. On examination in the ED, she was found to be extremely pale, hypotensive with a blood pressure of 73/37mmHg, and Pulse 78bpm, with normal oxygen saturation. Her haemoglobin was 8.5g/dL, which is a significant drop compared to her previous Haemoglobin of 12.4g/dL. On abdomen examination, there was abdominal distension, tenderness and guarding in the right iliac fossa. Initial resuscitation was commenced with the crystalloid and

colloid infusions, but despite this, she deteriorated rapidly and developed full blown hypovolaemic shock. Repeat Haemoglobin after approximately 1hour 50minutes was 3.6g/dL. A massive transfusion protocol was activated, and she was rapidly transfused 4 units of Red blood cells. A bedside ultrasound was performed, which confirms a single fetus with fetal heart beat, and evidence of intraperitoneal bleeding was noted.

She was transferred to theatre for emergency Laparotomy. In Theatre at laparotomy, haemoperitoneum of approximately 6L of blood was noted, with a live non viable fetus and ruptured right rudimentary horn. She was further transfused 4 units of red blood cells and 4 units of fresh frozen plasma, 2 units of platelets and 2g Fibrinogen. The total blood loss was estimated at 7.2L. The right rudimentary horn with ipsilateral fallopian tube was excised, the edge of the cavity obliterated, and the specimen was sent for histopathology. A sterile USS of main body of the uterus was done intraoperatively; the endometrium was thickened at 14mm with an empty cavity. The patient was managed post operatively in ICU for 2 days, and subsequently transferred to ward. She was discharged home on day 8 post operatively and followed up in outpatient clinic. Histopathology identified 2 specimens i.e. placenta and right rudimentary horn. The presence of cornua indicating entrance of fallopian tube, confirms that specimen is a rudimentary horn. There was evidence of placenta percreta with invasion of full thickness of the myometrium. Postoperative Ultrasound showed a left uterine horn that is anteverted, and deviated to the left, with normal appearance of its cavity. A remnant right uterine horn (2.9 x 1.6 x 2cm) was also identified attached to upper body of the left uterine horn, no endometrial cavity was identified. Post operative MRI confirmed that there were no renal tract abnormalities.

### Conclusion

The major complication of pregnancy in rudimentary horn is risk of rupture, patient presenting with severe abdominal pain, intra-abdominal bleed and signs of haemorrhagic shock. High index of suspicion and early diagnosis is essential in order to reduce morbidity and mortality. Early diagnosis of RHP is a major challenge in modern obstetrics. Ultrasonography (USG) plays an important role in early diagnosis and management. It is commonly misdiagnosed either as tubal pregnancy, cornual pregnancy, abdominal pregnancy or even as normal intrauterine pregnancy as in the case under discussion. Sonographic criteria suggested in the literature for diagnosing this condition are

- Pseudo-pattern of an asymmetrical bi-cornuate uterus
- Absent visual continuity between cervical canal and lumen of pregnant horn
- Presence of myometrial tissue surrounding gestational sac [7].

The coronal view of 2D -USG or 3D -USG can be useful. A MRI has also proven to be useful and a non-invasive diagnostic tool

for mullerian anomalies. Multiplanar images of both internal and external structure of uterus will be shown with minimal hazard of ionizing radiation. In case of RHP, both sagittal and axial planes are used for accurate assessment of rudimentary horn communication with the uterine cavity [4].

There is paucity in the literature regarding specific management of RHP both ruptured and unruptured. A rudimentary horn diagnosed pre-pregnancy can be removed laparoscopically. If RHP is diagnosed before rupture it can be managed conservatively in selected cases with larger myometrial mass until viability is achieved, if the patient is well informed and if emergency surgery can be performed anytime. Medical management is also reported using methotrexate and its resection by laparoscopy if diagnosed at early gestation [8]. Cases that present as rupture in pregnancy require expert multidisciplinary management due to the rapid deterioration of the patient as in this case report. Rapid replacement of blood products in view of massive blood loss can be life saving as is rapid surgical removal of the pregnancy and rudimentary horn. In the case under discussion a non-viable live fetus was delivered before securing haemostasis, excising rudimentary horn, ipsilateral salpingectomy and obliterating the endometrial cavity. Delay in appropriate intervention due to the fact that patient had two previous vaginal deliveries at term and was believed to have a normal intrauterine mid trimester pregnancy according to her booking scan at 14 weeks. Despite good outcome, and excellent surgical management. It is to be highlighted that in this case there was no suspicion of RHP in the view of two normal deliveries at term and this result in a delay of patient transfer from the emergency department to operating theatre.

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