

**Pregnancy in a Non-Communicating Rudimentary Horn of a Unicornuate Uterus: A Rare and Potentially Life-Threatening Condition**

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**Abstract**

Rudimentary horn pregnancy (RHP) is a rare and potentially catastrophic form of ectopic pregnancy, arising from implantation within a non-communicating Müllerian duct remnant. Early diagnosis remains challenging, with most cases presenting after rupture. We present a detailed radiology-oriented case report combining early transvaginal ultrasonography (6–8 weeks gestation) and MRI findings, highlighting key diagnostic imaging criteria, pitfalls, and management implications.

**Introduction**

Rudimentary horn pregnancy results from implantation in a malformed hemi-uterus, typically a non-communicating segment of a unicornuate uterus. Early identification is critical as rupture occurs in 80–90% of cases, often before 12 weeks. Ultrasound remains the first-line modality but has limited sensitivity, with many diagnoses missed on initial scans.

The importance of accurate radiological evaluation is well documented. Early sonographic signs such as an eccentric gestational sac, thick myometrial mantle around the sac, and absence of continuity with cervix improve diagnostic confidence [1]. MRI has emerged as a complementary tool that better delineates uterine anatomy and differentiates RHP from angular and interstitial pregnancies [2]. A structured imaging approach significantly reduces misdiagnosis and associated morbidity [3].

Awareness of Müllerian duct malformations and their imaging spectrum is essential for radiologists involved in early pregnancy evaluation [4].

**Case Presentation**

A female patient presented at approximately 6–8 weeks gestation for early pregnancy viability assessment. Transvaginal ultrasonography and MRI pelvis were performed.

**Ultrasound Findings (6–8 weeks):**

- A well-defined gestational sac containing a viable embryo is visualized outside the expected endometrial cavity location.
- The main uterine cavity is seen separately, containing normal endometrial stripe but no gestational sac.
- The gestational sac is surrounded by a thick myometrial mantle, confirming implantation within a muscular structure distinct from the primary uterus.
- No continuity is seen between the gestational sac and the cervix, supporting a diagnosis of pregnancy in a non-communicating uterine horn.
- Corpus luteum identified on the ipsilateral ovary, suggesting functional support to the anomalous horn.

**MRI Findings:**

The MRI (PDF attached by patient) demonstrates:

- Unicornuate uterus with a well-formed primary horn and a smaller, non-communicating rudimentary horn located laterally.
- The gestational sac is clearly localized within the rudimentary horn, with surrounding intact myometrium.
- No communication between the rudimentary horn and the endometrial cavity or cervix is visualized.
- Adjacent pelvic structures appear normal without free fluid.



These combined imaging findings confirm the diagnosis of non-communicating rudimentary horn pregnancy.

Ultrasound Images





### Discussion

Rudimentary horn pregnancy is rare, occurring in approximately 1 in 76,000–150,000 pregnancies. Diagnostic delays often lead to rupture due to limited distensibility of the rudimentary horn.

### Radiological Challenges & Key Diagnostic Points:

- Misdiagnosis as intrauterine pregnancy: The sac is surrounded by myometrium, making it appear deceptively intrauterine. Absence of continuity with the cervical canal is a crucial clue <sup>[5]</sup>.
- Distinguishing from angular pregnancy: Angular pregnancy lies at the uterine angle but remains within the endometrial cavity, unlike RHP. MRI is highly useful here <sup>[6]</sup>.
- Differentiation from interstitial pregnancy: Interstitial pregnancy is located within the intramural portion of the fallopian tube and shows the “interstitial line sign.” RHP lacks this feature and shows thicker surrounding myometrium <sup>[7]</sup>.
- Role of MRI: MRI allows clear visualization of uterine morphology, demonstrating a unicornuate uterus with a separate, non-communicating horn, thus confirming diagnosis when ultrasound is inconclusive <sup>[8]</sup>.
- Importance of early recognition: Early surgical removal of the rudimentary horn is recommended to prevent rupture and preserve future fertility <sup>[9]</sup>.

This case highlights the synergy of early transvaginal ultrasound and MRI in diagnosing RHP before complications occur.

### Conclusion

Early detection of rudimentary horn pregnancy is lifesaving. Radiologists must recognize specific sonographic and MRI features to prevent misdiagnosis. This case demonstrates successful early imaging-based detection, enabling timely management and preventing catastrophic uterine rupture.

### References

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