



**ORIGINAL RESEARCH PAPER**

**Obstetrics & Gynaecology**

**PREGNANCY IN RUDIMENTARY HORN OF UTERUS - A CASE SERIES**

**KEY WORDS:** rudimentary horn, unicornuate, ectopic pregnancy, hemicorpus, RHP

**Dr Sowjanya S B\*** Senior Resident, GMCH, Miraj. \*Corresponding Author

**Dr Shrutika Makde** Senior Resident, LTMGHMC, Sion, Mumbai.

**Dr Nisha Gusain** Senior Resident, GMCH, Miraj.

**ABSTRACT**

Unicornuate uterus with rudimentary horn is a very rare uterine anomaly, pregnancy in a rudimentary horn is even more rare, represents a form of ectopic pregnancy. The diagnosis of the rudimentary horn pregnancy (RHP) is very difficult before it ruptures and it's an emergency scenario once it ruptures. Delayed and initial misdiagnosis can result in catastrophic outcome both for the foetus as well as the mother, so having high index of suspicion is the crux especially in resource limited setting where most patients present with rupture as they do not get early scan. Hereby reporting 3 cases with RHP; 2 were ruptured rudimentary horn pregnancy and one more with unruptured rudimentary horn pregnancy.

**INTRODUCTION**

Unicornuate uterus results from defective fusion of the malformed duct with contra-lateral duct. The failed Mullerian duct fusion leads to the formation of an isolated hemi uterus without a contralateral structure (in complete failure cases) to various degrees of a rudimentary horn (in partial failure cases)<sup>1</sup>. The most frequent form of uterine anomalies is uterine septum whereas the least form is unicornuate uterus with a rudimentary horn<sup>2</sup>. Pregnancy in rudimentary horn is a very rare condition and the incidence of rudimentary horn pregnancy is quoted as 1:76,000-1:140,000<sup>3</sup>. These pregnancies are characterised by high risk of miscarriage. When the pregnancy exceeds the first trimester there is increased risk of uterine rupture. Over 89% of such pregnancies end-up experiencing rupture in the 2nd trimester and only 1% may succeed with live birth<sup>4</sup>. Uterine rupture in such cases is a serious life-threatening situation complicated with maternal haemorrhagic shock<sup>4</sup>, even leading to maternal mortality if not diagnosed and treated timely. Rudimentary horn pregnancy often diagnosed late especially diagnosed after rupture when patients come with complaints. Ultrasound aids diagnosis, but laparoscopy and hysteroscopy help in definitive diagnosis. The standard treatment involves foetal extraction with or without excision of rudimentary horn along with the ipsilateral tube.

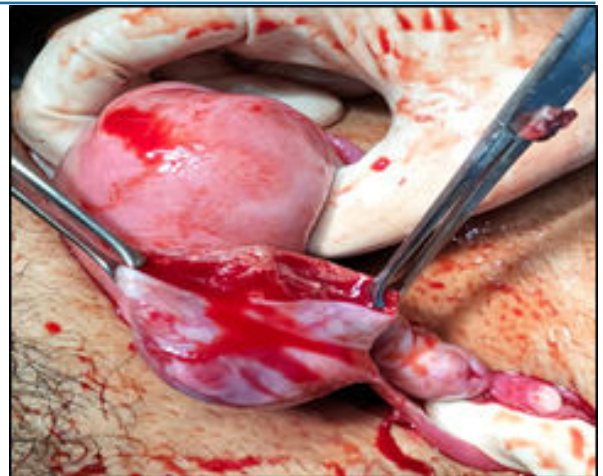
**CASE SERIES**

Here we report 3 cases of rudimentary horn pregnancy who were managed in our hospital. This case series was conducted over 3 years duration.

**CASE-1**

A 28-year-old G2P2L1 with 4 months of amenorrhea brought by relatives to casualty with acute pain in abdomen since 4 hours and haemorrhagic shock. She had full term institutional vaginal delivery 3 years ago. She had no other major surgical and medical illness. She neither had any ultrasound report nor the exact LMP was known. On examination she was pale, with cold and clammy extremities with PR-160bpm, low volume, blood pressure-80/58mmhg. She was resuscitated with fluids and started on inotropic supports; blood sent for crossmatching. Routine labs and ordered for blood and blood products.

On per abdomen examination, there was tenderness, guarding, rigidity, distension, paracentesis was positive suggesting hemoperitoneum. Uterus was 14 weeks, with tenderness and fullness in fornices, no bleeding. Foley's catheterization done and urine pregnancy test was done which was positive. With provisional diagnosis as ruptured ectopic with? gestational weeks, she could not be shifted for ultrasound examination as she was vitally unstable.



**Fig no.1-** Ruptured Left RHP



**Fig no.2-** Excision of horn

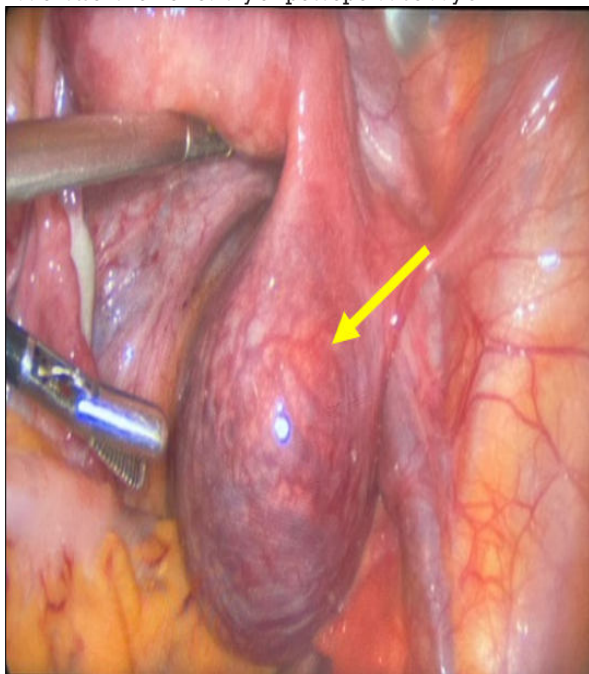
On exploratory laparotomy, here was evidence of hemoperitoneum of 2 litres, 300gm of clots, unicornuate uterus with rudimentary horn on the left side which was ruptured and was bleeding (Fig no.1). A foetus of CRL around 8 to 9cm along with placenta was in the peritoneal cavity (Fig no.3). Right side tube was normal, ovaries were healthy. The rudimentary horn along with ipsilateral tube was clamped, excised and trans fixation sutures were taken along haemostatic sutures (Fig no.2). Patient withstood procedure well and she was shifted to ICU for further treatment and monitoring. 4 PRBC, 4 platelets and 4 plasma were transfused. Patient recovered well. She went home healthy on postoperative day 7.



**Fig no.3-** Foetus With Placenta Expelled Into Peritoneal Cavity

**CASE-2**

A 26-year-old G3P2L2 with 3 months of amenorrhea, came with complaints of pain in abdomen since 6 hours. She had previous 2 institutional vaginal deliveries. She was 10 weeks 3 day by her last menstrual period. No other major medical or surgical illness. On examination, she was vitally stable, she was not pale and on per abdomen examination, there was mild tenderness in the right iliac fossa otherwise there was no guarding, rigidity or signs of hemoperitoneum. Uterus was 8weeks size with a mass felt in the right side, felt separately from the uterus and fornices were free and non-tender, no fullness, no bleeding P/V. She had two ultrasound reports which were done 1 day prior, one with impression single live intrauterine pregnancy with CRL 24.8mm (9.2weeks), evidence of bicornuate uterus; other report read as ectopic pregnancy in the adnexa of around 10weeks. So, decision of diagnostic laparoscopy taken to confirm the diagnosis after explaining risk and prognosis to the relatives. There was evidence of unicornuate uterus with pregnancy in right unruptured rudimentary horn (fig no.4). Rudimentary horn along with ipsilateral tube was removed. The specimen was cut which showed the foetus en sac(Fig no.5). Postoperative stay was uneventful, did not need any blood transfusion. Patient went home healthy on post operative day 5.



**Fig no.4-** Right Unruptured RHP- PostView (laparoscopic)



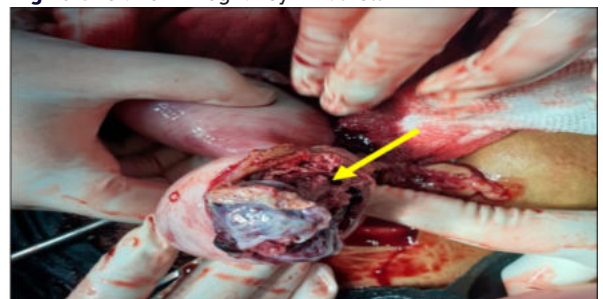
**Fig no.5-** Cut Section Of Excised Horn Showing Foetus

**CASE-3**

A 27-year-old G3P1L1A1 with 3 and a half months of ANC came to labour room with complaints of pain in abdomen since 2 days and she was brought to casualty with haemorrhagic shock. She had done urine pregnancy test which was positive, she was 14 weeks 2 days by her dates. She had one full term vaginal delivery followed by spontaneous abortion of 2 months. She had no major surgical or medical illness. On examination she was very pale, cold and clammy extremities with PR-156bpm, low volume, blood pressure-88/60mmhg. She was resuscitated with fluids and started on inotropic supports; On per abdomen examination, mild tenderness, distension present. Uterus size of 12 weeks, with tenderness and fullness in fornices. On ultrasound, evidence of adnexal mass with hemoperitoneum, with provisional diagnosis as ruptured ectopic. On exploratory here was evidence of hemoperitoneum of 1.5 litres, unicornuate uterus with rudimentary horn on the left side which was ruptured and was bleeding (Fig no.6,7). Right side tube was normal, ovaries were healthy.

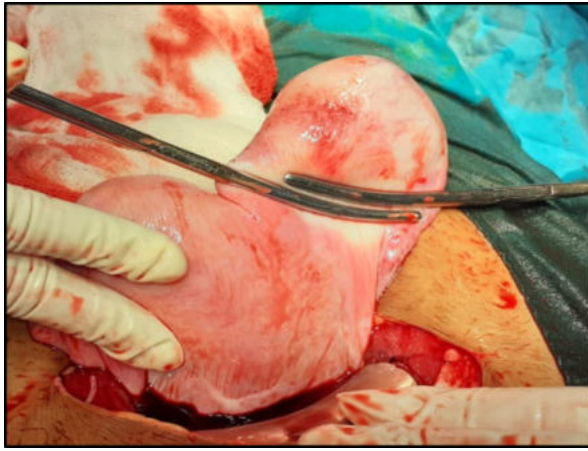


**Fig no.6** Left Horn Pregnancy- AntView



**Fig no.7** Ruptured LHP- PostView





**Fig no.8** Clamping & Excision Of Rudimentary Horn

The rudimentary horn along with ipsilateral tube was clamped, excised. Procedure uneventful and she was shifted to ICU for further treatment and monitoring. 3 Units of PRBC, 4 units platelets and 4units of plasma were transfused. Patient recovered well and was discharged on postoperative day 8.

**DISCUSSION**

Rudimentary horn pregnancy is a rare and catastrophic condition. Pregnancy in the rudimentary horn is an absolute emergency since pregnant rudimentary horn can rupture imminently, especially between 10th and 15th weeks of gestation<sup>5</sup>. They can present with pain in abdomen, bleeding vaginally, state of shock, dizziness, collapse. In the above cases, 2 cases presented in second trimester who came with complaints of pain in abdomen and signs of hemoperitoneum (ruptured) and one in first trimester came with pain in abdomen only (unruptured). Later the presentation, more is the complications like rupture, haemorrhagic shock, ICU stay, massive transfusion (table no.1). Rudimentary horn pregnancy should always be considered as a differential diagnosis of tubal pregnancy, cornual pregnancy, and intrauterine pregnancy in a bicornuate uterus<sup>6</sup>. In our case scenarios, two were misdiagnosed as ruptured adnexal pregnancy, other as intrauterine pregnancy in a bicornuate uterus. Criteria for the early diagnosis of rudimentary horn pregnancy: (1) pseudo pattern 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<sup>7</sup>. Despite the increased use of early ultrasonography screening, it is still challenging to establish a pre-rupture diagnosis of RHP. Reports show that preoperative diagnosis is established in only 29% of obstetrical cases, which indicates that a majority of diagnoses can be confirmed only after laparotomy<sup>8</sup>. Like in our series, none of them were diagnosed preoperatively. Even on laparotomy the diagnosis is difficult due to hypertrophy of the rudimentary horn. In tubal ectopic the round ligament is placed downwards where as in the rudimentary horn they are placed laterally; in case of bicornuate uterus the uterosacral ligaments are attached separately to each of the horns; in case of unicornuate uterus with rudimentary horn both the uterosacral ligaments are attached to unicornuate uterus<sup>9</sup>. Routinely performed ultrasonography, especially in the first trimester of pregnancy, assumes great importance for a clear diagnosis and also high index of suspicion should be there especially in cases of second trimester ectopic pregnancy, cornual pregnancy, intrauterine pregnancy in a bicornuate uterus. In a vast majority (83%) of the patients, the rudimentary horn is non-communicating<sup>10</sup> and another study<sup>8</sup> reported 92.8% had non-communicating rudimentary horn, which was true in our cases also where all 3 cases were non communicating rudimentary horn. Pregnancy in a non-communicating rudimentary horn is believed to develop from transperitoneal sperm migration<sup>5</sup>. Following the

confirmation of RHP, either by laparoscopically or laparotomy depending on the haemodynamic condition of the patient, excision of the horn is done by cutting fibromuscular band through which it is attached to the unicornuate uterus. In addition to it, ipsilateral fallopian tube should be removed to avoid future risk of ectopic pregnancies<sup>5</sup>.

**CONCLUSION**

Rudimentary horn pregnancy is a rare condition and fatal condition if not diagnosed early. Once it ruptures it leads to catastrophic hemoperitoneum, fatal to mother, so it is important to diagnose and treat before it ruptures. Though there are advances in imaging technology, antenatal diagnosis of RHP remains difficult and challenging. Hence a high index of clinical suspicion for uterine anomalies in the early gestation can reduce the mortality rate, also paves for early treatment.

**REFERENCES**

1. Panayotidis, C., Abdel-Fattah, M., & Leggott, M. Rupture of rudimentary uterine horn of a unicornuate uterus at 15 weeks' gestation. *Journal of Obstetrics and Gynaecology*, 2004; 24(3), 323-324.
2. Brady PC, Molina RL, Muto MG, et al. Diagnosis and management of a heterotopic pregnancy and ruptured rudimentary uterine horn. *Fertil Res Pract.* 2018; 4: 6, doi: 10.1186/s40738-018-0051-7, indexed in Pubmed: 30279994.
3. Tsafirir, A., Rojansky, N., Sela, H. Y., Gomori, J. M., & Nadjari, M. Rudimentary horn pregnancy first-trimester prerupture sonographic diagnosis and confirmation by magnetic resonance imaging. *Journal of Ultrasound in Medicine*, 2005; 24(2), 219-223.
4. O'Leary JL, O'Leary OA; Rudimentary horn pregnancy. *Obstet Gynecol* 1963; 22:371
5. Elif A. Acaayak, Nurullah Peker, Mustafa Yavuz, Fatih Mehmet Fındık, Mehmet Siddik Evsen, Talip Gül; Rudimentary horn pregnancy — ten years of experience. *Ginekologia Polska* 2020; 91, 3: 117-122
6. Tonguç Arslan, Ergün Bilgiç, M Baki Sentürk, Neşe Yücel; Rudimentary uterine horn pregnancy: a mystery diagnosis. *Fertil Steril* 2009; 92:2037. e1e3.
7. 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.
8. Yu-Ju Lai, Chen-Hsien Lin, Wen-Chien Hou, Kwei-Shuai Hwang, Mu-Hsien Yu, Her-Young Su; Pregnancy in a noncommunicating rudimentary horn of a unicornuate uterus: Prerupture diagnosis and management. / *Taiwanese Journal of Obstetrics & Gynecology* 55 (2016) 604e606, <http://dx.doi.org/10.1016/j.tjog.2016.06.009>
9. Mayuri Ahuja, Ruchi Srivastava, Shehla Jamal, Pregnancy in the rudimentary horn - the culprit behind a catastrophic outcome, *The New Indian Journal of OBGYN.* 2019; 6(1): 71-3.
10. Thurber BW, Fleischer AC. Ultrasound Features of Rudimentary Horn Ectopic Pregnancies. *J Ultrasound Med.* 2019; 38(6): 1643-1647, doi: 10.1002/jum.14847, indexed in Pubmed: 30341954.