

## **Ruptured Non-Communicating Right Rudimentary Horn Pregnancy**

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**Pregnancy in non-communicating rudimentary horn is extremely rare and unpredictable in women who have had a vaginal delivery. It carries grave consequences for the mother and fetus. The pregnancy usually terminates by rupturing in second trimester. Therefore, excision of the rudimentary horn and associated fallopian tube advised when diagnosed.**

**We present a case of ruptured rudimentary horn pregnancy where the diagnosis was missed by sonogram at 14 weeks gestation and presented as an acute abdomen and hypovolemic shock. She was managed through emergency lower midline laparotomy together with simultaneous resuscitation. Excision of the rudimentary horn and the right fallopian tube was done. The right ovary was conserved. Postoperative recovery was uneventful.**

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Pregnancy in a rudimentary horn of a unicornuate uterus is a very rare condition<sup>1</sup>. The incidence of a pregnancy on a rudimentary uterine horn is about 1 in 76,000-1,50,000<sup>2</sup>. A rudimentary horn usually results from Mullerian duct anomalies in which there are defective fusions or defective absorption during embryonic life.

The aim of this report is to present a case of rupture non-communicating rudimentary horn of a unicornuate uterus in a Bahraini woman at 14 weeks of gestation.

### **THE CASE**

The patient was Bahraini teacher, 36 year-old, gravida 5, para 3 and had one abortion. She presented to the accident and emergency department in shock. She was pregnant with an estimated gestational age of 14 weeks.

She presented with generalized abdominal pain of 24 hours duration associated with non-projectile vomiting and diarrhea. She also had dizziness and palpitation. However, there was no bleeding per vagina. At presentation, she was extremely pale, cold and clammy skin. Her pulse was 130 beats per minute and blood pressure of 80/50. The abdomen was distended with

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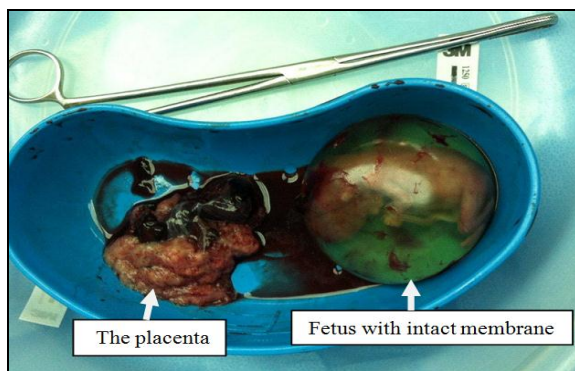
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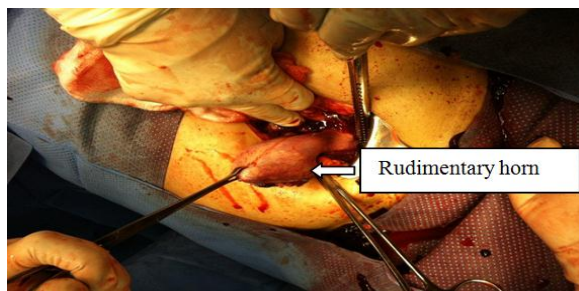
generalized tenderness. There was a mass arising from the pelvis corresponding to the size of 14 weeks pregnancy. The cervix was firm, posterior and the os was closed. There was no active vaginal bleeding.

Laboratory values were as follows: hemoglobin was 8.2 g/dl; packed cell volume was 20%. Ultrasonographic evaluation revealed bulky uterus with an empty cavity, placenta and a non-viable pregnancy of 14 weeks gestation was outside the myometrium. Large intraperitoneal effusion, suggesting an abdominal pregnancy was revealed.

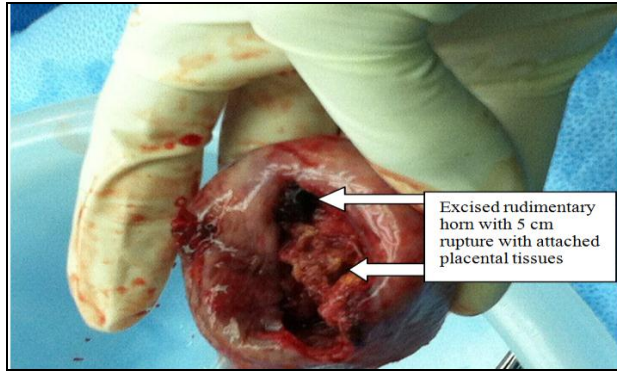
An urgent lower midline laparotomy was performed together with simultaneous resuscitation of the patient. Hemoperitoneum of about two liters and a dead fetus with intact amniotic sac floating in the peritoneal cavity was seen, see figure 1. Right rudimentary horn of the uterus with 5 cm rupture on the superior margin was seen, see figure 2. The placenta was still within the uterine horn, see figure 3. The cavity of the horn did not communicate with uterine cavity. The right fallopian tube was of normal length and attached to the rudimentary horn. The right ovary was normal and attached by its ligament to the rudimentary horn. The uterus was bulky with left fallopian tube and left ovary attached. Excision of the rudimentary horn and the right fallopian tube was done, see figure 4. The right ovary was conserved. Postoperative recovery was uneventful. Her hemoglobin rose on fourth post operative day to 11 g/dl. She was counseled on family planning and educated on the need for antenatal care and elective cesarean section for any future pregnancy. Intravenous urography was requested, unfortunately, the patient did not attend the follow-up visit.



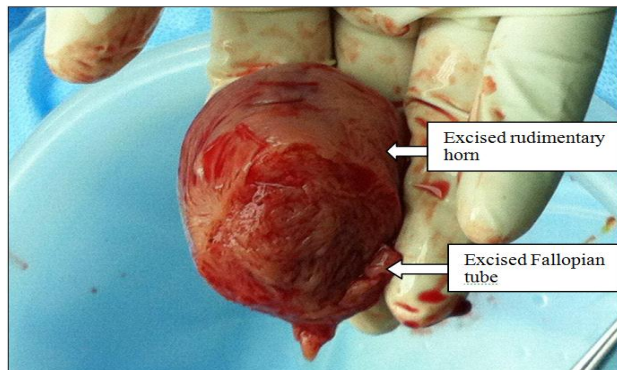
**Figure 1: Fetus with Intact Membranes and the Placenta**



**Figure 2: Intra-Operative Photograph Showing the Rudimentary Horn with 5 cm Rupture**



**Figure 3: Excised Rudimentary Horn with 5 cm Rupture at the Superior Margin and Remnants of the Placenta**



**Figure 4: Excised Rudimentary Horn with the Fallopian Tube Attached**

## DISCUSSION

Unicornuate uterus with a rudimentary horn is non-communicating in 83% of cases. The rudimentary horn results from malformation of the Mullerian duct by failure of complete development of one duct and incomplete fusion of the other duct<sup>3</sup>.

The maternal mortality rate is 5.1%; although, none was reported after 1960. However, cases of late and false diagnosis leading to uterine rupture have been reported repeatedly in the recent literature<sup>4-11</sup>.

Some cases were diagnosed only after an attempt to evacuate the uterus for termination of an incorrectly diagnosed intrauterine pregnancy, indicating that early diagnosis of rudimentary horn pregnancy (RHP) remains challenging<sup>12-14</sup>.

Pregnancy in a rudimentary horn is a form of ectopic pregnancy and it can cause mortality or severe morbidity. The usual outcome of rudimentary horn pregnancy is rupture in the second trimester in 90% of cases with fetal demise<sup>15</sup>. In our patient, she presented as emergency with

clinical features suggestive of a ruptured extrauterine pregnancy and was hemodynamically unstable.

It can occur in both communicating and non-communicating types. In the case of non-communicating rudimentary horn like our patient had, it is postulated that the fertilization was possibly due to transperitoneal migration of the sperm<sup>16</sup>.

Rudimentary horn has a thin myometrial wall and non-functioning endometrium. This could result in uterine rupture mainly in the second trimester which can be a life threatening condition.

In our patient, no clue in the patient's history or clinical condition could raise the suspicion for abnormal anatomic characteristics and rudimentary horn pregnancy. The diagnosis of ectopic pregnancy was established when she developed hypovolemic shock at 14 weeks.

Sensitivity in detecting rudimentary horn uterus through ultrasound is only 30% and the condition is commonly missed<sup>17</sup>. Nonetheless, most of the cases remain undiagnosed until it ruptures and presents as an emergency.

Tsafir et al have suggested the following criteria for early sonographic diagnosis of RHP<sup>18</sup>: “(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. Additionally, hypervascularization typical to placenta accreta may support the diagnosis of RHP”.

The non-communicating rudimentary horn rupture was only confirmed intraoperatively and removal of the rudimentary horn and ipsilateral fallopian tube was done. This was done to reduce the risk of having another ectopic pregnancy in the future and could also reduce the risk of dysmenorrhea (as a result of accumulated blood during menstrual cycle and retrograde menstruation). Therefore, this condition should be diagnosed before conception itself or at least before rupture occurs and excision of rudimentary horn is advised to prevent life threatening massive intraperitoneal hemorrhage and maternal mortality<sup>19</sup>.

Surgical removal of the pregnant horn by laparotomy is the usual method of treatment to avoid rupture and recurrence of RHP. Recently, different modalities of treatment have been described. Cases were treated by laparoscopy using various techniques or administration of methotrexate for termination of an early pregnancy in a rudimentary horn followed by elective laparoscopic resection<sup>20-24</sup>.

Thirty-one percent of patients with mullerian anomalies will also have urinary anomalies with congenital absence of a kidney; in these cases, it is mandatory to have further assessment before attempting any future pregnancy as it was advised to our patient<sup>25</sup>.

Ninety percent of rudimentary horn pregnancy usually ends with rupture and fetal demise. However, live birth cases have been reported after cesarean, for pregnancies which have progressed to the third trimester<sup>15</sup>.

## CONCLUSION

**Pregnancy in a rudimentary horn carries great risk of morbidity and mortality. Therefore, high index of suspicion is warranted to detect this rare and very important complication of pregnancy before uterine rupture occurs.**

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