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Conservative surgical management of a ruptured non-communicating rudimentary horn of pregnancy at 13 weeks period of gestation in previous caesarean delivery: A rare case report

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Abstract
Mullerian duct anomalies in females result from fusion or defective absorption during embryonic life. Pregnancy in a non communicating horn of the uterus is rare and its diagnosis is often missed. Rupture of this horn is seen in the first or second trimester. Standard treatment is to excise the horn. We present a case where in the horn was no excised but surgically repaired and the surgery was coupled with tubectomy.

Keywords: Ruptured non-communicating rudimentary horn, Mullerian anomalies

Introduction
Mullerian duct anomalies in females result from fusion or defective absorption during embryonic life. Unicornuate uterus with non – communicating rudimentary horn occurs due to failure of complete development of one of the Mullerian ducts and incomplete fusion with the contra lateral side. The prevalence of uterine anomalies is 1: 200 to 1:600. Rudimentary horn is the rarest uterine anomaly. Prevalence of unicornuate uterus with rudimentary horn is 1: 1,00,000. 92% of rudimentary horn are non-communicating [1]. The incidence of rudimentary horn pregnancy is 1: 76,000 - 1: 1,40,000 pregnancies [2].
Pregnancy in non-communicating rudimentary horn is possible by Trans –peritoneal migration of sperms or fertilized ovum. Pregnancy in a non-communicating rudimentary horn is uncommon and usually ends in rupture of the horn during first or second trimester of pregnancy. Pre rupture diagnosis of pregnancy in rudimentary horn with ultrasonography is technically difficult and missed frequently (sensitivity 30%). Many a time it is diagnosed during laparotomy. The standard treatment is excision of the ruptured horn. However this is technically difficult due to distorted anatomy, time consuming and can lead to more blood loss. In this case the ruptured horn was repaired and the surgery was coupled with bilateral tubectomy. This is a new conservative approach to rupture non communicating horn of pregnancy.

Case Report
A 27 -year-old woman presented to us with a history of amenorrhea of 13 weeks and abdominal pain. Her obstetric score was Gravida 3 Para 2 Living 2.
She had undergone 2 prior cesarean sections which were uneventful. There was no history regarding the presence of a non-communicating horn despite the fact that she had been operated previously. Clinical examination revealed that she was in hypovolemic shock. There was abdominal guarding and tenderness. There was no bleeding on per vaginal examination. Bimanual examination was inconclusive due to the abdominal pain. On ultrasonography, gestational sac was seen outside the uterus, hence a diagnosis of rupture ectopic was made. Her hemoglobin was 5 gm% at the time of planning for surgery the patient was resuscitated and taken up for laparotomy. Intra operatively, hemoperitonum was present. The gestational sac with fetus intact was lying in the abdominal cavity. Ruptured non communicating rudimentary horn on the left side was seen. (Figure: 1).

As she was hemodynamically. unstable and she had completed her family and consented for tubectomy, a decision to repair the horn was made. The ruptured horn was sutured with in two layers with chromic catgut No.2 using continuous interlocking stitch. Bilateral abdominal tubectomy was dome by Modified Pomeroy's method. Hypovolemia was corrected with crystalloids, and blood transfusion. The patient developed mild pulmonary edema on the 2nd post-operative day which was managed conservatively. The rest of the post-operative period was uneventful and the patient was discharged in good health.

Fig 1: Ruptured non communicating horn

Fig 2: Repaired ruptured horn

Discussion

The first description of ruptured rudimentary horn was done by Mariceau and Vassal three centuries ago (6). Pregnancies can occur in communicating as well as non-communicating horns and both can rupture.

Incomplete development of one of the Mullerian duct partial fusion with the contra lateral side results in rudimentary horn with a unicornuate uterus. Transperitoneal migration of the spermatozoa can result in pregnancy in the non-communicating. Depending on the capacity of the uterine muscles to hypertrophy and stretch, the rupture of the horn can occur as early as 5 weeks of gestation to as late as 35 weeks. It has been observed that 70 - 90% ruptures are seen before 20 weeks. Maternal mortality is 0.5%, with very high morbidity in view of massive blood loss [5]. It has been described that rudimentary horn rupture can be a threat to pregnancy and a life of the mother [7].

The diagnosis of pregnancy before rupture in rudimentary horn has been help in decreasing maternal mortality [6], but the sensitivity of ultrasound to diagnose rudimentary horn pregnancy before rupture is very poor (30%) [8, 9]. Because of rarity of the diagnosis and non-familiarity of the radiologist about this potentially lethal condition, it became very difficult to diagnose antenatally and before rupture. Early diagnosis before rupture can be managed by laparoscope by immediate excision of the horn, pregnancy, and the ipsilateral fallopian tube [9].

Criteria used for ultrasonic diagnosis are: 1) A pseudo pattern of an asymmetric bicornuate uterus [2]. Absences of myometrial tissue surrounding the gestation sac and the uterine cervix and [3] The presence of myometrium surrounding the gestational sac [10]. MRI or 3-D ultrasonogram can be used to rule out this condition in doubtful cases. Primary strategy of management practicing since long time for ruptured rudimentary horn is surgical removal. Medical management with methotrexate and its resection by laparoscopy is also reported. Removal of the horn before pregnancy is preferred in order to prevent complications. Renal anomalies are found in 36% of cases; hence it is mandatory to further assess these women.

This case highlights the fact that despite having the chance for early diagnosis, that is previous cesarean section, this patient was missed to diagnose even in her previous ultrasound scanning reports. This new method of conservative surgical management coupled with tubectomy in those patients who have completed their family could be helpful in other similar cases that present with ruptured horn and cannot withstand prolonged surgery and have difficulty in getting good anatomic dissection planes. Conservative approach to the ruptured horn saves time and blood loss and does not require much surgical expertise.

Conclusion

The diagnosis of a ruptured rudimentary horn can be missed and a high index of suspicion is required to diagnose them. The diagnosis can be missed in ultrasound especially in inexperienced hands. Traditionally the ruptured rudimentary horn is managed by excision of the horn. A new conservative approach in women who have completed their families can save operative time and blood loss.

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