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Rudimentary Horn Pregnancy – An Overview

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Abstract

Pregnancy in rudimentary horn is rare and carries a grave consequence to the mother and the fetus. It can be difficult to diagnose clinically and even with diagnostic images. Early diagnosis of this uterine anomaly is essential before pregnancy if possible or in the first trimester. Therefore, location of pregnancy and detection of uterine malformation is essential. Understanding the sonographic appearance of early pregnancy in a non-communicating rudimentary horn is important and can be lifesaving.

Keywords: Rudimentary; horn pregnancy; malformation

Introduction

The incidence of mullerian duct malformation in the general population is estimated to be 4.3% while that of unicornuate uterus is about 0.4%[1,2]. Mullerian anomalies were classified in 1979 by Buttram and Gibbson and further revised by the American Society of Reproductive Medicine in 1988. Rudimentary horn pregnancy occurs in approximately 1/760,000 to 1/150,000 pregnancies[3, 4]. 72-85% of the rudimentary horns are non-communicating with the cavity[5]. Unicornuate uterus is a type 2 classifications with unilateral hypoplasia or agenesis that can be further sub classified into 4 variants, according to the criteria from the American Fertility Society[5]. Isolated unicornuate uteruses are the most common type, with a reported frequency of 35%. When a rudimentary horn is present, in 33% cases it is the non-cavitary type, in 22% of cases is the cavitary but non-communicating type, and the cavitary and communicating type in 10% of cases[6, 7]. By ESHRE classification it is classed U4a (Hemi uterus with rudimentary cavity) [1].

Materials and Methods:

We reviewed the data regarding the pregnancy outcomes of patients with a rudimentary horn who were managed at 2 institutes from January 2013 to December 2020 in Pune, Maharashtra, India. There were 3 cases during this period.

Case 1:

A 25 yrs old, gravida 3, para2, two preterm deliveries at home at 7 months of GA with 14 wks pregnancy came to the OPD with USG report s/o? ectopic gestation of 13.4 weeks, Cornual pregnancy? Mostly in the right rudimentary horn / Right tube / abdomen. She had no complains. On per abdominal examination uterus around 14-16 weeks size and relaxed. Per vaginal examination bicornuate uterus felt with? pregnancy in right horn of uterus which was enlarged up to 14-16 weeks, non-tender; left horn felt separately, bulky. A MRI was performed and the findings were as follows: MRI showed a fetus outside the uterus within a clearly defined gestational sac. The placenta was seen with definitive borders located in the posterior part of the sac. No signs of placental invasion of the neighbouring structures were observed. Myometrial tissue was seen surrounding the gestational sac. Tubular structure was seen along inferior aspect of the sac with communication with the uterus. Right fallopian tube was not seen separately. Single vagina and cervix were seen non communicating with uterine cavity. There were no urologic anomalies (Figure 1).

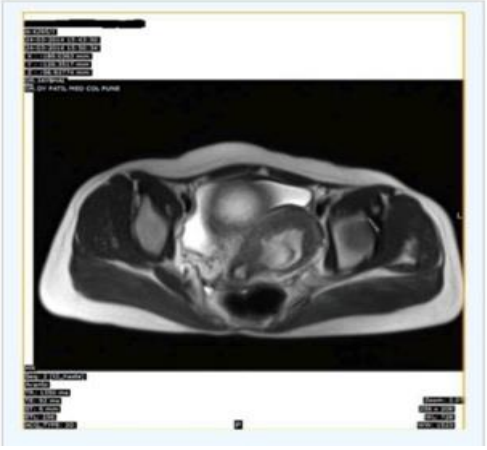

Fig 1 MRI showing RHP

Case 2:

A 20yr old, gravida 2, abortion 1 (spontaneous at 7weeks gestation) with 13 weeks pregnancy came with USG report s/o right rudimentary horn pregnancy of 12.2 weeks. She had no complains. On P/A examination uterus was around 12 weeks size (just palpable). Per vaginal examination bicornuate uterus felt with pregnancy in right horn which was enlarged up to 10-12 weeks, non-tender; left horn felt separately. Patient had pre-pregnancy MRI report s/o unicornuate uterus with non-communicating rudimentary horn. (Fig 2)

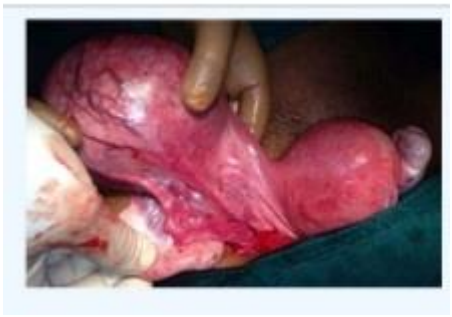

Fig 2 Uterus with 2 horns separated by fibromuscular band with pregnancy in right horn which was enlarged up to 14 weeks size

In both of the above cases laparotomy was done. In laparotomy the pregnancy was situated in right horn. Two horns were separated by thick mucsulo -fibrous band (Fig 2). Left horn was enlarged and bulky. Excision of rudimentary horn with ipsilateral salphingectomy was done. Ovary was conserved. Post operative recovery was uneventful.

Fig 3 Rudimentary horn pregnancy showing fetus in chorion and placenta

Case 3:

21 yrs old primigravida with 9wks of pregnancy came with c/o severe pain in abdomen, 3/4 episodes of vomiting, pv spotting. Patient was hemodynamically unstable (P- 110/m, BP-90/60mmHg, Severe pallor with Hb of 4gm). Urgent USG was done which was s/o of haemoperitoneum with ruptured ectopic gestation. Immediate laparotomy was done. Laparotomy showed ruptured left rudimentary horn pregnancy with haemoperitoneum. Two horns were separated by 3*2 cm thick fibromuscular band. Excision of left rudimentary horn with epsilateral salphingectomy was performed. The entire left cavity with the left tube was removed. Hemostasis was achieved with 0braided sutures. Around 1 L of blood was aspirated from abdominal cavity. Four units of blood were transfused intra- and post operatively. Post op recovery of patient was uneventful.

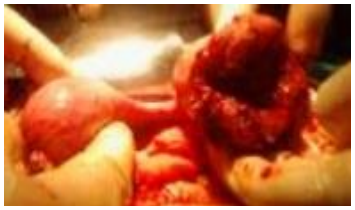

Fig 4: Ruptured left rudimentary horn

Discussion

Although the incidence of RHP is rare, the risk of serious maternal morbidity and mortality is high. A rudimentary horn with unicornuate uterus results from failure of complete development of one of the mullerian ducts and incomplete fusion with the contralateral side. Pregnancy in non communicating rudimentary horn occurs through the transperitoneal migration of sperm or fertilized ovum[1,2].

Most cases of RHP provide a diagnostic challenge and are diagnosed after rupture, which leads to emergency surgery, blood transfusions, and increased morbidity[7-9]. Early diagnosis before rupture is essential for the successful management and prevention of maternal morbidity and mortality. Although ultrasonography and MRI are currently the most accurate prenatal diagnostic methods, in most cases, the initial radiological assessment leads to an incorrect diagnosis, particularly when patients present with emergency conditions. The ultrasonographic sensitivity for diagnosing RHP is low, ranging from 29–33%[10, 11]. In addition, 3D ultrasound and MRI may help with the diagnosis[2]. The following criteria have been suggested b y Tsafri et al for sonographic diagnosis of RHP[12]: pseudo pattern of an asymmetrical bicornuate uterus, absent visual continuity between the cervical canal and the lumen of pregnant horn, and the presence of Myometrial tissue surrounding the gestational sac.

The timing of rupture varies from 5 to 35 weeks depending on the horn musculature and its ability to hypertrophy and dilate. 79-90% ruptures before 20 weeks and can be catastrophic. As the uterine wall is thicker and more vascular, bleeding is more severe in rudimentary horn pregnancy rupture. Maternal mortality rate of rudimentary horn pregnancies are always associated with catastrophic outcome, effort should be made to diagnose them at an early gestation by an ultrasound though the sensitivity remains only 26%[12].

The reproductive outcomes of women with unicornuate uterus are poor; the associated live birth rate is only 29.2% and the prematurity rate is 44%[13, 14]. Moreover, women with this anomaly present spontaneous abortion rates of 24.3% in the first trimester and 9.7% in the second trimester[15].

Conclusion

We stress the need for an accurate diagnosis before pregnancy, a proper consultation and a quick surgical treatment only in these severe and rare cases. Early diagnosis before rupture is essential for the successful management and prevention of maternal morbidity and mortality.

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