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Case Report

Obstetrics and Gynaecology Section

A Rare Case of Heterotopic Pregnancy in a Unicornuate Uterus

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ABSTRACT

Heterotopic pregnancy, a condition involving simultaneous intrauterine and extrauterine pregnancies, is a rare clinical scenario, particularly when associated with a unicornuate uterus. This rarity underscores the importance of recognising and managing such cases promptly. A 24-year-old primigravida presented at 10 weeks of gestation with per vaginal spotting and abdominal pain, along with a history of ovulation induction. Pelvic ultrasound showed a heterotopic pregnancy in a unicornuate uterus, with a possible pseudo-gestational sac and a left ruptured tubal ectopic pregnancy. The combination of a ruptured ectopic pregnancy and an intrauterine pregnancy highlights the importance of early detection and surgical management. This case emphasises the rarity of heterotopic pregnancy in a unicornuate uterus. A unicornuate uterus with rudimentary horns results from incomplete Müllerian duct fusion and carries significant risks, including rupture during pregnancy. Early diagnosis and surgical intervention are essential to prevent life-threatening complications, with treatment options varying based on the patient's condition and gestational age.

Keywords: Müllerian duct fusion, Ovulation induction, Pseudo-gestational sac, Ruptured ectopic pregnancy, Uterine pregnancy

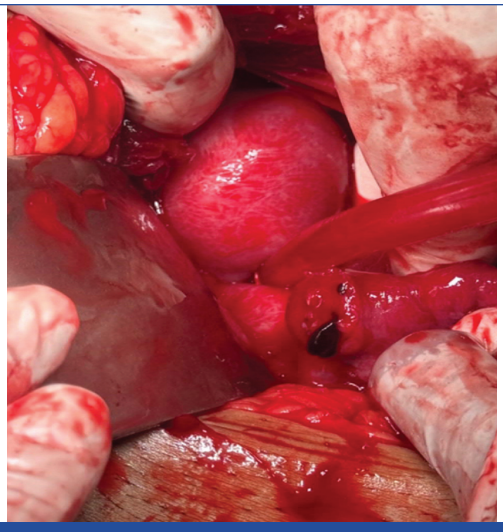
CASE REPORT

A 24-year-old primigravida, conceived through ovulation induction (as verbally documented by the patient), presented at 10 weeks of gestation, calculated by her last menstrual period, with per vaginal spotting for two days and abdominal pain for one day. She had no urinary or bowel symptoms, and her menstrual cycles had been irregular. On general examination, the patient was conscious and oriented to time, place, and person but exhibited tachycardia. Abdominal examination revealed a soft abdomen with minimal tenderness. On per vaginal examination, the uterine size could not be assessed. Cervical motion tenderness was present, and there was left-sided forniceal fullness and tenderness, while the right side was free and non-tender.

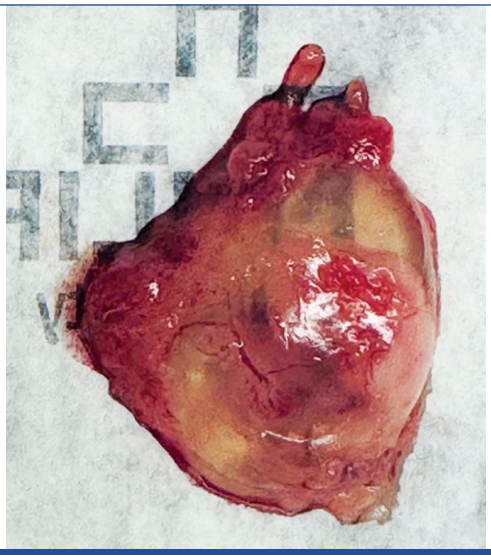
Pelvic ultrasound showed a unicornuate gravid uterus with a heterogeneous decidual reaction and an irregular gestational sac or a pseudo-gestational sac-like structure. The left-sided thickened fallopian tube showed evidence of an anechoic cystic lesion or an irregular gestational sac with deformed contents and no cardiac activity, with a "ring of fire" appearance noted on Doppler imaging. Mild fluid was noted in Morrison's pouch, approximately 120 cc.

After thorough counselling of the couple, as well as a pre-anaesthetic check-up and consent, the patient underwent an emergency laparotomy. Left salpingectomy with dilation and evacuation of the uterine cavity was performed. Intraoperative findings included a unicornuate uterus with a rudimentary horn, a healthy right fallopian tube, a left fallopian tube arising from the horn, a left ruptured tubal ectopic pregnancy with the product of conception [Table/Fig-1] and a uterine pregnancy.

Two containers were sent to the pathology laboratory: the first containing the gestational sac obtained from the ruptured site [Table/Fig-2] and the second containing the product obtained via dilation and evacuation from the uterine cavity. Both samples were sent for histopathological examination, and the pathologist confirmed the suspicion of heterotopic pregnancy with ectopic implantation at the level of the left fallopian tube. After the procedure, her Beta-human Chorionic Gonadotropin (hCG) value decreased from 35,228.6 to 2,843.2 mIU/mL. The patient was monitored postoperatively and



[Table/Fig-1]: Ruptured site of the non-communicating rudimentary horn showing product of conception.



[Table/Fig-2]: The gestational sac from the ruptured site.

remained comfortable throughout her recovery. She was discharged on postoperative day four.

DISCUSSION

Uterine anomalies arise from the incomplete fusion of the Müllerian ducts during embryonic development, affecting approximately 4.3% of the general population [1]. A unicornuate uterus with a rudimentary horn is particularly rare among these anomalies. This condition results from the incomplete development of one Müllerian duct and its partial fusion with the opposite side [2]. Pregnancy within a rudimentary horn is exceedingly uncommon, with an incidence of 1 in 76,000 to 1 in 150,000 [3]. This type of pregnancy occurs when sperm or a fertilised ovum migrates transperitoneally to the rudimentary horn, which is often associated with a higher risk of rupture due to the underdeveloped myometrium and dysfunctional endometrium, as seen in our case [4,5]. Clinical suspicion is crucial for early diagnosis, though signs such as severe dysmenorrhoea may not always be present, particularly if the rudimentary horn lacks a functional endometrium. The literature reveals that the management of pregnancies in rudimentary horns often involves laparotomy to prevent rupture [6]. However, recent studies have reported successful outcomes with laparoscopic approaches, highlighting advancements in minimally invasive techniques [7].

Due to the weak musculature of a rudimentary horn, rupture commonly occurs between the 10th and 20th weeks of gestation. Therefore, if a pregnancy is detected in a rudimentary horn, surgical excision is essential and can be performed via either laparotomy or laparoscopy [8]. Heterotopic pregnancy is defined as the simultaneous presence of an intrauterine pregnancy—either viable or non-viable, single or multiple—and an extrauterine pregnancy located in the fallopian tube, ovary, uterine cornua, cervix, or peritoneal cavity. The first documented case dates back to 1708 when the diagnosis was made post-mortem during an autopsy [9]. The incidence of spontaneous heterotopic pregnancy is about 1 in 30,000, but it increases to 1 in 100 with assisted reproductive technologies [6]. Risk factors include previous tubal damage, a history of ectopic pregnancy, and the use of assisted reproductive techniques [7].

The absence of a tubal connection to the unicornuate uterus, along with a corpus luteum in the contralateral ovary, supports the diagnosis of heterotopic pregnancy. However, the mechanisms behind the transperitoneal movement of embryos remain unclear and warrant further investigation. It is still unknown whether chemotactic or other factors are involved in the transport of gametes or embryos across the peritoneal cavity to reach the contralateral and heterotopic tube [10].

This case report highlights several unique aspects that contribute to the existing literature. The combination of a unicornuate uterus with a rudimentary horn and a heterotopic pregnancy is rare and underscores the complexity of managing such cases. Our findings emphasise the importance of early detection and tailored surgical intervention to mitigate the risks of rupture and complications. While conservative treatments like methotrexate are available for isolated extrauterine pregnancies, surgical intervention, most often via laparoscopy, usually becomes necessary in cases of heterotopic pregnancy. To preserve the intrauterine pregnancy, conservative surgical approaches such as salpingotomy or salpingostomy are particularly noteworthy [11]. Unlike more common presentations of heterotopic pregnancies, this case adds value by demonstrating the effectiveness of combining traditional surgical methods with advanced laparoscopic techniques.

CONCLUSION(S)

This case illustrates the extreme rarity and complexity of heterotopic pregnancy in a unicornuate uterus with a rudimentary horn, a condition carrying a high risk of rupture and maternal morbidity. Diagnosis is challenging due to nonspecific symptoms and reduced sonographic sensitivity as the pregnancy advances, complicating differentiation from abdominal pregnancy. Routine first-trimester ultrasound is essential for accurate pregnancy localisation. Successful management through prompt diagnosis and emergency laparotomy highlights the importance of timely surgical intervention. Clinicians should maintain a high index of suspicion, particularly in patients with uterine anomalies or assisted conception, ensuring early detection and individualised treatment to optimise patient outcomes and safety.

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