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Hemorrhagic Shock Revealing an Ectopic Pregnancy Associated with an Evolving Intrauterine Pregnancy Case Report

N. Elachhab[1], Y. Hilia[1*], H. Zemrani[1], Y. Elharfaoui[1], S. Chajai[1], S. Lahbabi[1], N. Ouadghiri[1], R. Tachinante[1]

[1]Maternal Critical Care and Anesthesiology Department Ibn Sina Hospital Rabat, Morocco

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***Corresponding author:** Y. Hilia
Maternal Critical Care and Anesthesiology Department Ibn Sina Hospital Rabat, Morocco

Abstract **Case Report**

Background: This case report discusses a rare occurrence of heterotopic pregnancy, defined as the simultaneous presence of an intrauterine pregnancy and an extrauterine pregnancy. ***Case Presentation***: The patient was a 29-year-old primiparous woman with no history of assisted reproduction, who consulted us at her fourteenth week of amenorrhea for pelvic pain with metrorrhagia. After clinical examination, an evolutive triple pregnancy was suspected, with moderate peritoneal effusion. Abdominal-pelvic magnetic resonance imaging confirmed the triple pregnancy. The patient was admitted to the operating theatre where general anaesthesia was performed, followed by extraction of the ectopic pregnancy and adnexectomy. ***Conclusions***: Heterotopic pregnancy presents diagnostic and therapeutic challenges. Surgical treatment, even by laparotomy, does not appear to interfere with the development of the intrauterine pregnancy. Particular attention must be paid to anesthesia and post-operative monitoring to ensure favorable outcomes for both mother and fetus.

Keywords: Heterotopic, Pregnancy, Hemorrhagic shock, Anesthesia.

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INTRODUCTION

Heterotopic pregnancy is defined as the simultaneous presence of an intrauterine pregnancy and an extrauterine pregnancy. These are biovular twin pregnancies in which one of the nests is in the uterine cavity and the other is ectopic, usually in the fallopian tube. The first case was reported by Duvernet in 1708 during an autopsy [1]. In the literature, the frequency of heterotopic pregnancies in spontaneous cycles is 1/30,000 [2, 3]. In this article, we report on the diagnosis and intraoperative management of a patient in shock with an evolving pregnancy.

OBSERVATION

The patient was a 29 year old primiparous woman with no previous history of medically assisted reproduction, who consulted us in her fourteenth week of amenorrhea for pelvic pain with metrorrhagia.

On examination, the patient was conscious, well oriented in time and space, and apyretic. Clinical examination revealed conjunctival pallor, diffuse abdominal pain with tachycardia at 120 beats per minute and blood pressure at 105 systolic and 72 diastolic, with sweating, thirst and oliguria. Nevertheless, the extremities are warm. Abdominal examination revealed a slightly distended abdomen with diffuse tenderness to palpation.

Vaginal examination showed a dilated cervix at 1 finger, with a right latero uterine mass with irregular contours and limited mobility. Speculum examination showed moderate blackish bleeding of uterine origin, with pain on mobilization of the uterus. The rest of the somatic examination was unremarkable. Following this examination, a ruptured extrauterine pregnancy was suspected, and an abdomino pelvic ultrasound was performed, revealing an evolving triple intrauterine pregnancy estimated at 15 weeks amenorrhea, with moderate peritoneal effusion (Figure 1).

Figure 1: Pelvic ultrasound showing triple pregnancy

After conditioning the patient by vascular filling with 1 liter of ringer lactate, the hemodynamic state was deemed stable. We performed an abdominopelvic magnetic resonance imaging with a sagittal T1 sequence and a T2 sequence, given the difficulty in determining the location of the placental insertion and its relationship with the intra abdominal organs. This magnetic resonance imaging confirmed the triple pregnancy (Figure 2, 3, 4, 5).

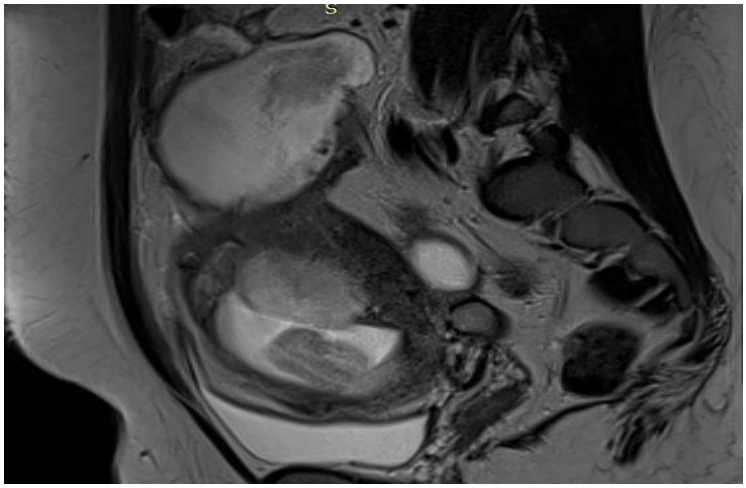

Figure 2: Sagittal cut showing the 3 uterine sac

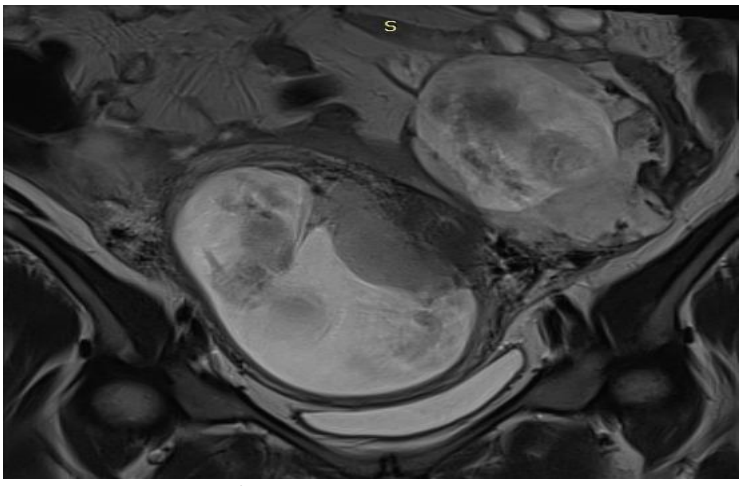

Figure 3: Coronary cut T2

Figure 4: T2 axial cut showing 3rd uterine sac

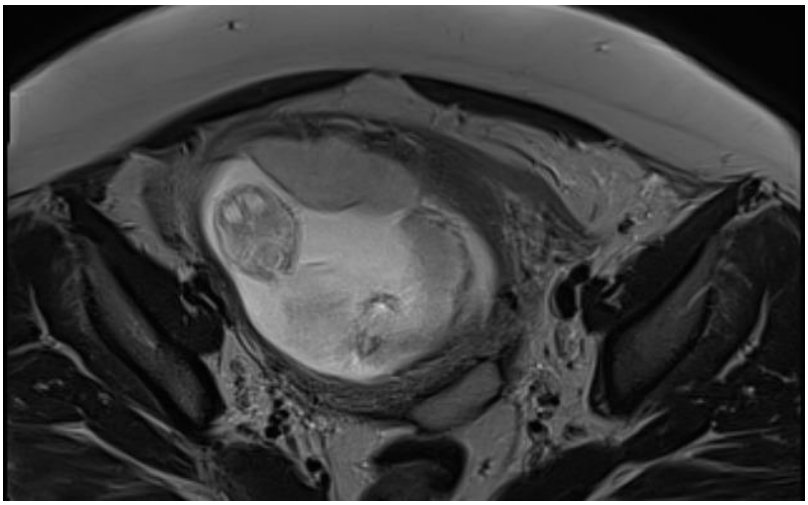

Figure 5: T2 axial cut showing both fetuses in the intrauterine

Biological workup showed hemoglobin at 9.5g/dl, white blood cells at 12,000/mm3 and platelets at 355,000/mm3. Serum beta-CG levels were initially 200,000 mIU/ml.

The patient was admitted to the operating room after a pre anaesthetic visit, where general anaesthesia was recommended. Pre oxygenation for 3 minutes with an oxygen flow of 10 Liters . General anaesthesia was performed in rapid sequence on a full stomach, using drugs adapted to the patient's hemodynamic state: ketamine 1 ml /kg with curare succinylcholine 1.6 ml/kg and fentanyl 2 gamma/kg after airway protection. An exhaled fraction of carbon dioxide between 35 and 38 millimeters of mercury is in throughout the operation to avoid placental hypoperfusion secondary to hypocapnia. Propofol is used as a maintenance agent of anesthesia before fetal extraction. Perioperative hemodynamic monitoring involves an invasive blood pressure, which enabled us to monitor blood pressure continuously while avoiding hypotension and any risk of hypoperfusion.

Blood spoliation was compensated during and after the operation by three bags of packed red blood cells. Laparotomy revealed a tubo epiploic ectopic pregnancy and a gravid uterus, suggesting a twin pregnancy.

The patient benefited from extraction of the ectopic pregnancy with adnexectomy and preservation of a progressive pregnancy.

The patient is extubated after full awakening and warming up. The post-operative follow-up was simple. Multimodal analgesia based on paracetamol and nefopam is used to manage acute postoperative pain. The patient is followed in consultation for her pregnancy.

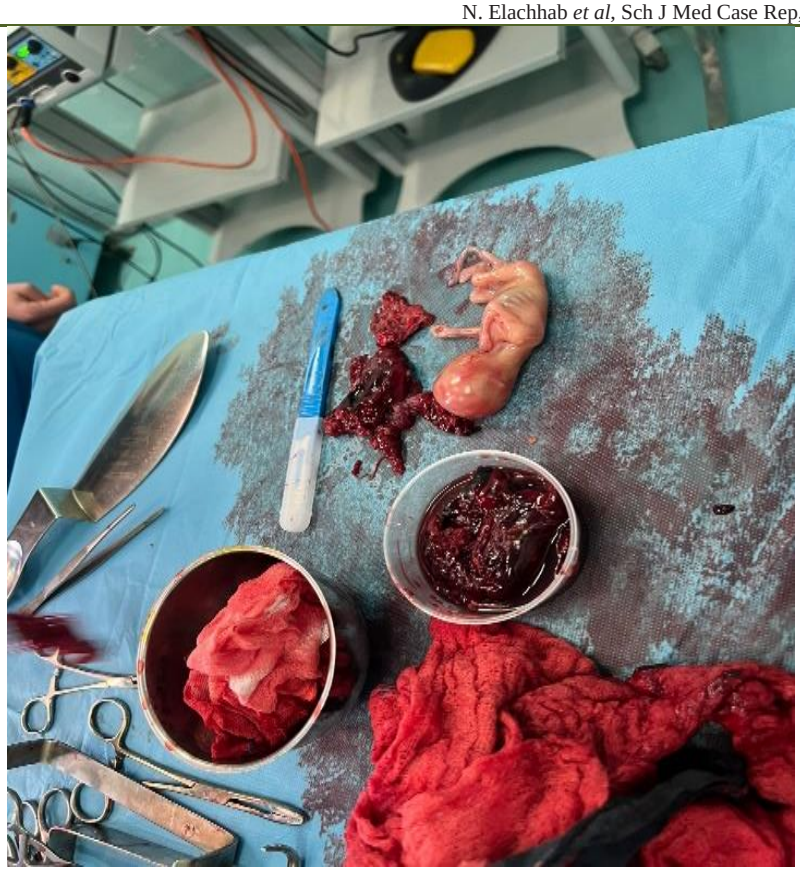

Figure 6: Ampullary extrauterine pregnancy which ruptred

DISCUSSION

Heterotopic pregnancy is the combination of an intrauterine pregnancy and an extrauterine pregnancy. It is a biovular twin pregnancy in which one of the nests is in the uterine cavity and the other is ectopic, usually in the fallopian tube [4, 5]. From a pathophysiological point of view, several theories have been put forward. Ectopic implantation of one of the eggs may be due to successive fertilizations of two eggs by two spermatozoa, or to a difference in the migration speed of two simultaneously fertilized eggs, or to delayed implantation due to delayed ovarian uptake or uptake by the contralateral tube. The consequences would be excess volume of the fertilized egg, preventing it from progressing through the tube [1, 4]. This arrest of progression may also be due to the inhibitory effect of progesterone secreted by the intrauterine implanted egg on tubal peristalsis. This would explain why most ectopias occur at this level [6]. The risk factors are identical to those for ectopic pregnancies, to which must be added all the risks associated with assisted reproduction techniques, such as the sequelae of pelvic infections and inflammations [7, 8]. The role of ovulation inducers is indisputable [8]. However, several cases of heterotopic pregnancy, such as the one in our observation, have been outside any background of ovarian hyperstimulation, in patients with no risk factors for ectopic gestation [9]. The clinical symptoms of a heterotopic pregnancy are dominated by the classical triad of extrauterine pregnancies: amenorrhea, metrorragia in 50% of cases, pelvic pain in 80 to 90% of cases. Collapse can also occur in 13 to 45% of patients [6, 10]. The ultrasound report will specify the gestational age, the quality of the intrauterine pregnancy, the location of the extrauterine pregnancy, and the presence of any possible fluid accumulation. Diagnosis is certain when an intrauterine gestational sac containing an embryo and another extrauterine sac containing embryonic echoes are found, especially when cardiac activity is positive. In most cases, the diagnosis of progressive intrauterine pregnancy is made first, with ectopic pregnancy being discovered at a later stage [11,12]. The ultrasound elements that confirm a heterotopic pregnancy are the [10]:

- The presence of an intrauterine gestational bag containing an embryo
- A heterogeneous, or completely anechogenic, lateral uterine mass surrounded by an echogenic trophoblastic halo, sometimes containing an associated embryo
- The presence or absence of fluid accumulation in the cul de sac of Douglas.

Plasma human chorionic gonadotropin levels can be used to suspect heterotopic pregnancy, but are insufficient to make the diagnosis. In the event of difficult ultrasound examination, diagnostic doubt or difficulty in locating an ectopic pregracy , pelvic magnetic resonance imaging is a very useful complementary examination [13].

The treatment of heterotopic pregnancy eliminates ectopic gestation by preserving the intrauterine gestation as much as possible, preserves later fertility and limits the risk of recurrence [4]. The reference treatment remains the coelioscopy which will allow confirmation of the diagnosis and treatment of the patient at the same time [4, 10]. Laparotomy remains indicated if the hemodynamic state is unstable, as was the case in our case. Surgical treatment, even by laparotomy, does not seem to interfere with the development of intrauterine pregnancy [10, 12], provided that uterine manipulation is minimal and short-term anesthesia, prophylactic tocolysis is not necessary. It was performed under general anesthesia with optimal conditions for the survival of the intrauterine pregnancy.

The risks associated with the inhalation of stomach content in pregnant women require systematic prophylaxis, in the context of rapid sequence induction [14]. Suxamethonium chloride is the recommended curare in rapid sequence induction [15]. It is important to recall the importance of pre oxygenation in the induction of anesthetic in pregnant women [16] which was carried out to avoid hypoxia and desaturation. On the ventilatory level, an carbon dioxide between 30 and 35 millimeters of mercury should beined to avoid any placental hypoperfusion. Maintenance of anesthesia is performed with propofol. The teratogenicity of propofol [17] and it does not alter the uteroplacental blood flow [18].

The awakening phase of a general anesthesia is a period of inhalation risk as significant as at the time of induction. The team's attention must beined until they are taken care of at the operating unit and transferred to the monitoring room. In our case, the patient is extubed without any incidents. Close controls were carried out, with the evaluation of the patient's clinical condition and an ultrasound, and the development was favourable.

CONCLUSION

In summary, successful treatment of ectopic pregnancy combined with intrauterine pregnancy and ruptured tubo omental ectopic pregnancy requires accurate diagnostic methods, careful perioperative management, and appropriate anesthesia to ensure the safety of the patient and fetus. This observation highlights the importance of multidisciplinary collaboration and ongoing monitoring to optimize outcomes in these complex situations.

Informed Consent: Clear consent was obtained from the patient before publication of this observation.

Ethical Approval: As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Declarations: Authors have declared that no competinginterests exist.

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