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Interstitial Ectopic Pregnancy with Catastrophic Uterine Rupture: Clinical Case

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Interstitial pregnancy; Ectopic pregnancy; Hemoperitoneum; Acute abdomen; Spontaneous rupture

1. Abstract

1.1. Background: Kelly Howard made the first description of angular gestation more than 100 years ago and this classification has not yet been standardized. The first description of cornual pregnancy is due to Jhonston and Moir in 1952 when describing an ectopic in a bicornuate uterus and, interstitial ectopic pregnancy was described by Ghaneie.

1.2. Clinical Case: A 34-year-old nulliparous patient with amenorrhea for twelve weeks was admitted to the emergency department in a state of shock with cardiorespiratory arrest. Vital signs are BP 60/38 mmHg, Heart Rate 113 rpm, Breaths 16 bpm with PaO2 88%. On physical examination: vaginal examination with a closed cervix without bleeding. Laboratory: Hb 4.7 g/dL, glucose 509 mg/dL, rest normal. Mater code is activated, an abdominal ultrasound scan is performed and it is decided to intervene on the patient with a diagnosis of acute abdomen, grade IV hypovolemic shock and ruptured ectopic pregnancy. In the exploratory laparotomy, a 5x5 cm uterine perforation was found in the left interstitial region with expulsion of the embryo and ovular membranes into the abdominal cavity with hemoperitoneum of 2000 cc, the perforation was repaired and she was transferred to the intensive care unit where she fell unemployed again. The Cardiorespiratory unresponsive to resuscitation maneuvers.

1.3. Discussion: Cornual and interstitial ectopic pregnancy occurs in 2-4% of all ectopic pregnancies and is difficult to diagnose. Clinically, it can present as a triad consisting of abdominal pain, amenorrhea, and transvaginal bleeding, so that the site of intrauterine implantation of the product is difficult to diagnose.

1.4. Conclusions: It is essential that the maternal mortality committees analyze and offer guidelines for action and improvement in the care of this type of patient.

2. Background

Kelly Howard made the first description of angular pregnancy more than 100 years ago and this classification has not yet been standardized [1]. The first description of cornual pregnancy was due to Johnston and Moir in 1952 when they described an ectopic in one horn of a bicornuate uterus [2] and interstitial ectopic pregnancy was described by Ghaneie et al [3]. An ectopic pregnancy occurs in up to 2% of all pregnancies but is responsible for 2.7% of pregnancy-related deaths and remains the leading cause of pregnancy-related hemorrhage.

In most cases, ultrasound during the first trimester of pregnancy is the method of choice to distinguish a uterine pregnancy from an extra uterine one. However, when the gestational sac is located eccentrically near the uterotubal junction it can be challenging. Multiple definitions have been proposed to indicate the implantation of the gestational sac in the uterotubal region as angular, cornual, and interstitial pregnancy, which has made its management difficult [4].

Cornual or interstitial pregnancy is a challenge for the obstetrician because patients usually do not develop symptoms until the end of the first trimester as a result of the union of the uterus with the interstitium [5]. The interstitial rupture caused by distension of the surrounding tissue in this type of gestation causes massive hemorrhage due to its high vascularity. The objective of the present case is the importance of recognizing this pathology on time since this

entity has a high maternal mortality, 20 times higher than that of traditional tubal ectopic pregnancies [6].

3. Clinical Case

A 34-year-old female with a gynecological and obstetric history, menarche 13 years, pregnancy 1, parity 0, family planning method, none with a pregnancy of 12 weeks of gestation (according to the date of the last menstrual period). She is taken to the emergency department 2 hours from the onset of the clinical picture in a state of shock with cardiorespiratory arrest, basic and advanced resuscitation maneuvers are performed on two occasions with orotracheal intubation, mechanical ventilation, and fluid replacement with crystalloid solutions, norepinephrine vasopressors, placement of a right central venous catheter with the Seldinger technique and it is corroborated with radiographic control, after eight minutes sinus rhythm is restored. A Foley catheter was placed with little urinary output. She remains with a blood pressure of 68/38 mmHg, heart rate of 114 beats per minute, respiratory rate 16 breaths per minute, and temperature 36.5oC, SpO2 88%. Shock index 1, 6. Complementary laboratory tests: arterial blood gas pH 6.8, PCO2 27.2, PO2 223, lactate 18.6 mmol/liter. Hb 4.7 g/dL, Hct. 15.2%. Positive qualitative pregnancy test. Glucose 509 mg/dL. On physical examination both lungs with fine rales disseminated, cardiovascular with vasopressor support, sinus tachycardia, globular abdomen under tension, vaginal examination with closed cervix without apparent bleeding. An hour later a globular package is transfused. Consultation with gynecology and obstetrics is requested. One hour after admission, the mater code was activated and an abdominal ultrasound was performed (Figure 1). A 12-week gestation pregnancy was found due to extra uterine cephalocaudal length. An hour later, she was taken to the operating room for surgery due to the severity of the patient with a diagnosis of acute abdomen, grade IV hypovolemic shock, and ruptured ectopic pregnancy. In the exploratory laparotomy, a 5x5 cm uterine rupture was found in the left interstitial region with the expulsion of the embryo and ovular membranes into the abdominal cavity with a 2000 cc hemoperitoneum (Figure 2 and 3). The perforation was repaired with separate stitches and her entry at the intensive care unit. Due to her hemodynamic instability, she presents again cardiorespiratory arrest without response to resuscitation maneuvers, five hours 24 min from her admission, she is declared death. No hysterectomy, biopsies, or necropsy were performed.

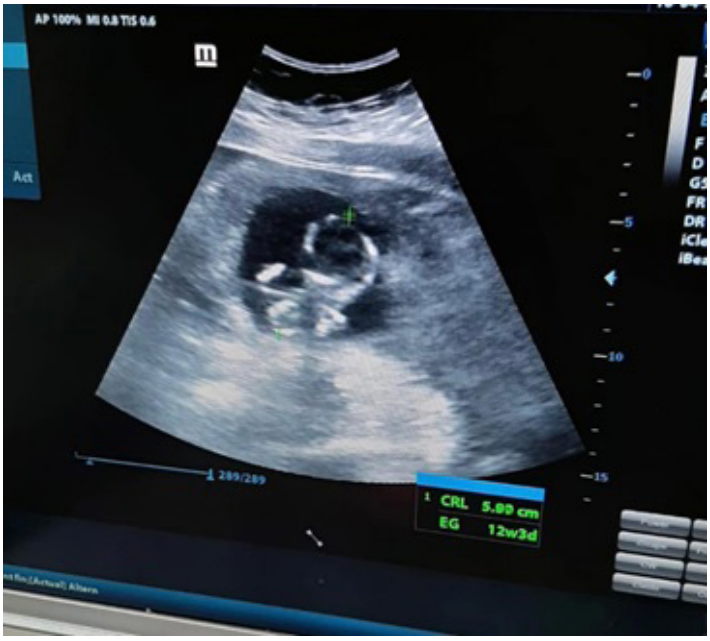

Figure 1: In abdominal ultrasound, a product of 12.3 weeks of gestation by crown-rump length (5.90 cm), no fetal heart rate was detected.

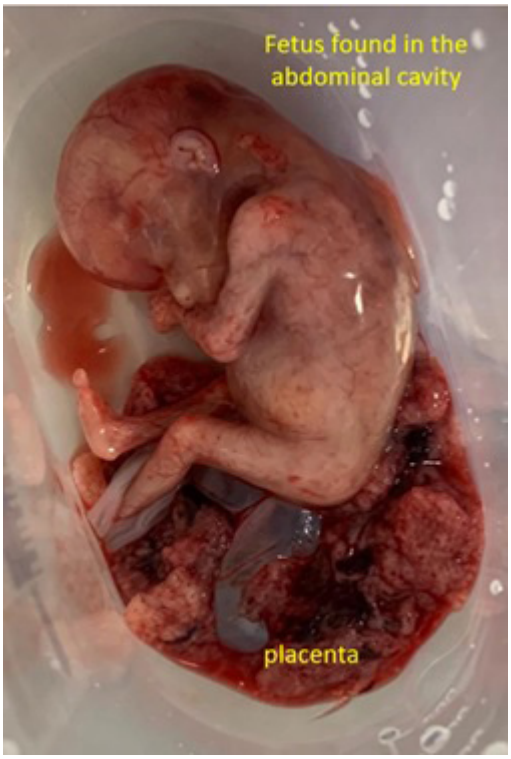

Figure 2: Fetus at 12.3 weeks of gestation free in the abdominal cavity

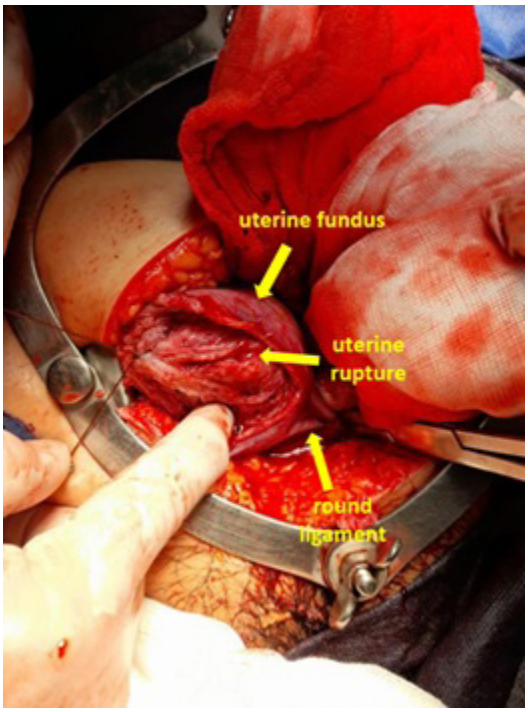

Figure 3: Uterine rupture in the left interstitium, involving the myometrium up to the uterine cavity.

4. Discussion

Cornual and interstitial ectopic pregnancy occurs in only 2-4% of all ectopic pregnancies and remains the most difficult to diagnose due to the low sensitivity and specificity of symptoms and imaging studies, this triad only occurs in 40% of cases. Clinically, it can present as a triad consisting of abdominal pain (99%), amenorrhea (75%), and transvaginal bleeding (56%), so the site of intrauterine implantation of the product is difficult to diagnose by ultrasound. In our case, there was no transvaginal bleeding and the Ultrasonographic scan could not show the implantation site of product [7].

Cornual pregnancy occurs between 1.1 and 6.3% of all ectopic pregnancies and corresponds to 2.2% of tubal ectopic pregnancies. Its incidence is 1:250 to 5,000 live births. In cornual pregnancy, the trophoblastic invades the myometrium, destroying the muscle by infiltrating the area of least resistance, leaving the gestational sac composed of the serosa and a thin layer of underlying uterine muscle from the posterior superior part of the affected uterine horn. These characteristics make it easier for the rupture in this type of pregnancy to be late, often in the second trimester, and fatal, due to the proximity of the uterine arteries in its ascending branch. Cornual or interstitial pregnancy has a mortality that can reach 2.5%, 2 to 3 times higher than tubal pregnancy.

Cornual pregnancy has rarely been described in the literature of an emergency area because this entity can go unnoticed for weeks and delay diagnosis, which can cause a sudden uterine rupture with massive hemorrhage as in our patient due to the absence of prenatal control and admission. Late to the emergency room [8].

A case similar to ours is reported. This is a 34-year-old woman, pregnancy 3 for 2, who was pregnant at 14 weeks of gestation. On admission, she presented hemodynamic instability, and pelvic ultrasound was performed with data of free fluid in the abdominal cavity. However, it was initially identified as intrauterine pregnancy. In the surgical event, uterine rupture is confirmed. In this case, the mother survived [9].

Some authors recommend transvaginal ultrasound as an adequate diagnostic tool. Depending on the degree of involvement, the symptoms manifested by these patients are intense pain in the hypogastrium or iliac fossa that can radiate to the epigastrium and shoulder, mucocutaneous pallor, hypotension, tachycardia, fainting, and hypovolemic shock in the event of severe bleeding. Likewise, cornual ectopic pregnancy has a high mortality due to the significant hemoperitoneum, so it is crucial not to delay diagnosis or treatment. How was our case [10].

Ectopic pregnancies classified as interstitial, cornual, and angular are usually interchangeable terms, probably because they are anatomically very proximal. However, everyone has their definition. Cornual pregnancy is defined as one located in the uterine horn associated with müllerian anomalies; angular pregnancies are those that occur in the uterine cavity medial to the uterotubal junction, and interstitial pregnancies occur in the proximal portion of the fallopian tube embedded in the myometrium [11-14].

Due to this confusion in the terms, Finlinson et al, 4 proposed the term eccentric pregnancy to differentiate it from interstitial ectopic pregnancy because its treatment differs in terms of the good results of the former compared to the potentially dangerous ones of the latter. Suspicion and timely diagnosis together with correct management are essential in the survival of patients with ectopic pregnancies; the clinical case demonstrates the importance of hospital protocols and the importance of multidisciplinary management. The clinical picture continues to be a challenge for the obstetrician because it is nonspecific; the use of bedside ultrasound requires experienced personnel to establish the diagnosis. Conclusion. The maternal mortality committees must analyze and offer guidelines for action and improvement in care for this type of patient.

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