

Cornual Ectopic Pregnancy or Angular Pregnancy, Delayed Diagnosis and Treatment of a Pregnancy Complication: A Case Report

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Abstract: Cornual pregnancy is a rare type of ectopic pregnancy and defines an implantation in the upper and lateral uterine cavity. Two to four percent of ectopic pregnancies occur in the interstitial portion of the fallopian tube. An angular pregnancy term is a pregnancy that is located in the lateral angle of the uterine cavity. In the literature there is some confusion about the terms *cornual*, *interstitial* and *angular* pregnancies.

We reported a female patient presented to our hospital with an eleven-week history of amenorrhea with two ineffective D and Cs. We were unable to determine whether it was a cornual or angular pregnancy using sonographic examination. A definitive diagnosis of cornual pregnancy was made by laparoscopy and a cornual resection and repair was performed by laparotomy. Understanding the difference between cornual and angular pregnancy is clinically important due to their different management and outcome. Cornual pregnancy, which still remains the most significant cause of maternal mortality, should be considered, particularly in cases of missed abortions in the first trimester, which are eccentrically located in the uterus.

Keywords: Cornual, Ectopic pregnancy, Angular pregnancy, Laparotomy, Cornual resection.

INTRODUCTION

The term ectopic pregnancy refers to a pregnancy that forms outside the uterine cavity [1]. Ninety-eight percent of ectopic pregnancies occur in the fallopian tube, most rarely in the interstitial portion (2% - 4%) [2]. A cornual pregnancy describes a pregnancy in the interstitial segment of the fallopian tube and due to the high myometrial and vascular content value of this segment, a cornual pregnancy has a mortality of about 5%, which is six or seven times higher than that of ectopic pregnancies in general [3]. Despite the currently available diagnostic modalities for pregnancy, including transvaginal ultrasonography and beta-human chorionic gonadotropin assays, the early identification of a cornual ectopic pregnancy is still difficult and so these cases may rupture with massive bleeding, causing maternal mortality. Although the term angular pregnancy is unfamiliar to many gynecologists, it is defined as 'implantation within the endometrium of the lateral angle of the uterus, medial to the uterotubal junction [4].' Understanding the difference between cornual pregnancy and angular pregnancies is clinically important because of their different management.

CASE HISTORY

A 25 years old gravida 3, parity 2, abortus 1 female patient was admitted with a history of 11 weeks

amenorrhea with two inefficient D&C. About one month previously with a seven week empty pregnancy diagnosis she underwent curettage. Following the curettage an intrauterine copper device (IUCD) was applied. One month after the curettage when she was admitted hospital for IUCD control, curettage was performed again because of a persistent gestational sac. However this curettage was also inefficient and she was referred to our clinic.

During our examination of the patient her general physical examination was normal, and she had no abdominal pain or vaginal bleeding. There was no tenderness present in the abdominal and vaginal examination. Uterine bulkiness was higher than normal and there was no adnexal pathology at the pelvic bimanual examination. Serum β -HCG levels were 30.515 IU/ml. The transvaginal sonography revealed there was an eccentrically located gestational sac about 32x16 mm in the uterine cavity but there was no embryo or yolk sac in the gestational sac (Figure 1). In the Doppler sonography there was increased vascularity surrounding the gestational sac and a myometrial thinning of less than 5 mm around the gestational sac (Figure 2).

We could not determine whether it was a cornual or angular pregnancy using sonographic examination. Using transvaginal sonography, we saw that hysteroscopy and MR cannula could not reach the gestational sac. As a result we prepared the patient for diagnostic laparoscopy and curettage with general

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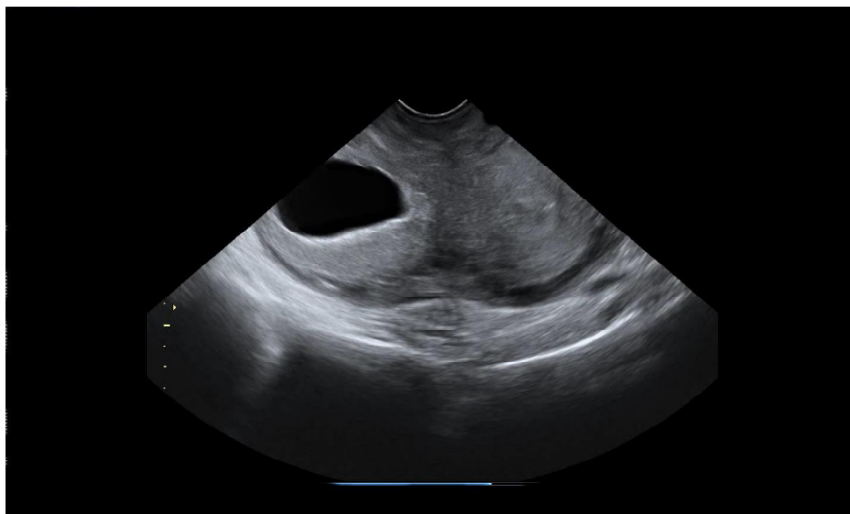


Figure 1: 32x16 mm eccentrically located gestational sac in the uterine cavity.

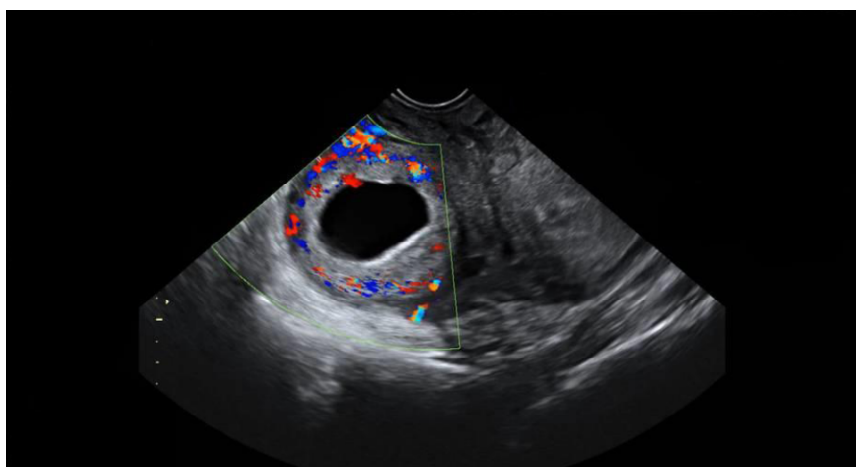


Figure 2: Increased vascularity surrounding the gestational SAC.

anesthesia. Diagnostic laparoscopy revealed an expanded right cornu of about 6x5 cm. This uterine cornual enlargement was lateral to the round ligament and there was no displacement of the round ligament (Figures 3 and 4). A definitive diagnosis of cornual pregnancy was made, and a cornual resection and repair with one layer of 0 polyglactin 910 (Vicryl, Ethicon) was performed by laparotomy. The postoperative period was uneventful and she did not have any complaints. β HCG value was 3.8 Miu/ml one month following the operation. She was using the barrier method for contraception.

DISCUSSION

In the literature, there is confusion regarding the terms *cornual*, *interstitial* and *angular* pregnancies. Both interstitial and cornual pregnancy are largely used

synonymously [1]. It is a rare and dangerous type of ectopic pregnancy that describes an implantation in the upper and lateral uterine cavity. It accounts for 2% - 4% of all ectopic pregnancies and it has a higher mortality rate than other ectopic pregnancies, which is about 2% - 2.5%. Cornual pregnancy can also be a component of heterotopic pregnancy whose incidence have a tendency to increase due to extensive use of parenteral gonadotropin therapy in assisted reproduction techniques [5]. As both the ovarian and the uterine arteries supply the interstitial part of the fallopian tube, cornual pregnancies can result in massive hemorrhages [6]. Angular pregnancy, which is located in the lateral angle of the uterine cavity, where the tubes connects, just medial to the uterotubal junction, may be confused with cornual pregnancy. Even though a high miscarriage rate has been reported, angular pregnancies are mostly viable [7].

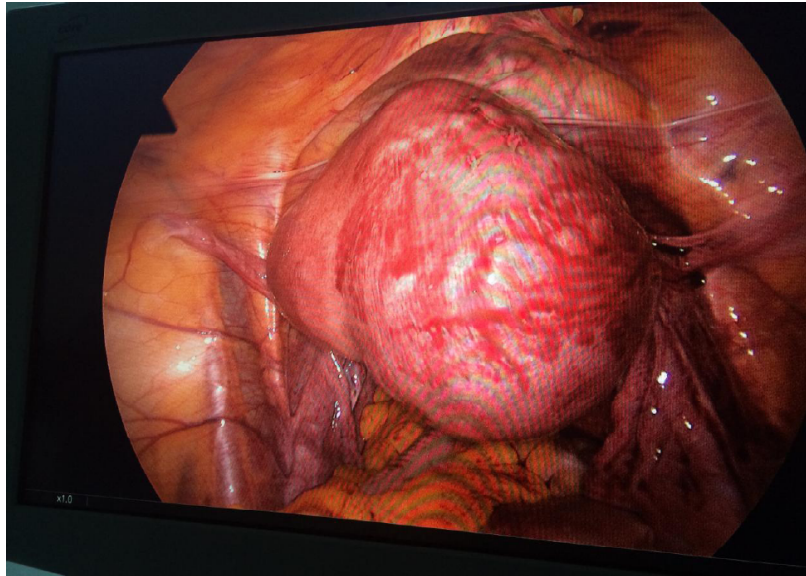


Figure 3: Lateral uterine cornual enlargement to the round ligament and no displacement of the round ligament.



Figure 4: Lateral uterine cornual enlargement to the round ligament and no displacement of the round ligament.

USG criteria for diagnosing a cornual pregnancy with a specificity of 88-93% and sensitivity of 40%:

1. An empty uterine cavity
2. A gestational sac which is separate from the uterine cavity (>1cm)
3. A thin (<5 mm) myometrial layer surrounding the chorionic sac [8].

During the transvaginal ultrasound of our patient, an empty uterine cavity was noted and a thin (<5mm)

myometrial around the chorionic sac but the gestational sac was close to the uterine cavity (<1cm). The transvaginal ultrasonographic findings were poor in differentiating whether this patient had a cornual or angular pregnancy.

In the literature, there is some anatomic criteria for distinguishing cornual or angular pregnancies. The lateral enlargement of a cornual pregnancy does not displace the round ligament reflected upward and outward. The gestational swelling is lateral to the round ligament but angular pregnancy displaces the round

ligament and the gestational enlargement of the uterus is medial to the round ligament [9]. We established that the gestational swelling of our patient was medial to the round ligament and the round ligament had not been displaced upward and outward laparoscopically and we made the certain diagnosis of this cornual pregnancy.

Understanding the difference between cornual and angular pregnancy is clinically important due to their different management and outcomes. A cornual pregnancy does not normally result in a live birth, so is considered to be a nonviable pregnancy [10]. However, an angular pregnancy can result a live born baby because of its intrauterine and intraabdominal location [11]. It is reported in the literature that 38.5% of angular pregnancies result in a missed or spontaneous abortion and 13.6% of them can cause uterine rupture. Due to the potentially risk of uterine rupture with an angular pregnancy, therapeutic abortion may be preferred, or expectant management may be chosen [9].

Usually, cornual pregnancies result in uterine rupture and can cause maternal mortality if the pregnancy continues. In our patient there was a gestational sac 32x16 mm with no yolk sac or embryo and she had undergone two unsuccessful curettages. In this nonviable pregnancy we decided that, despite the delayed diagnosis, this cornual pregnancy had not resulted in uterine rupture [12].

The treatment of cornual pregnancy can be a single or multi dose methotrexate therapy, cornual resection by laparotomy or laparoscopy [13-15]. Laparoscopy can be first preference for surgical treatment even in heterotopic pregnancies [16]. In our patient, once we had made a certain diagnosis of cornual pregnancy by transvaginal sonography and laparoscopy we elected for cornual resection by laparotomy.

CONCLUSIONS

There is some confusion about the terms *angular* and *cornual* pregnancy in the literature. It is very important for gynecologists to differentiate between these cases because of their different management and outcome. Cornual pregnancy, which is still remains the most significant cause of the maternal mortality, must be considered, particularly in the first trimester, and in cases of missed abortion that are located eccentrically in the uterus. Our case was 11 weeks cornual pregnancy with delayed diagnosis and it could result in rupture, excessive intraperitoneal hemorrhage

and mortality because of its thin surrounding myometrial layer.

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