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Ectopic Cornual Pregnancy: Case Report

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Abstract

This article showcases a clinical case of ectopic pregnancy lodged in the cornual. A pregnancy implanted in this location is a rarity, making it difficult to diagnose. By describing this case and screening of the literature, we explain the various diagnostic and therapeutic methods, both medical and surgical. Highlighting the importance of conservative treatment flush with the uterine horn, and conclude with some practical recommendations.

Keywords

Horn Pregnancy, Ultrasound Examination, Laparotomy

1. Introduction

Ectopic pregnancy (EP) is the ectopic implantation of an egg outside the uterine cavity, most often at the tubal level, more occasionally at the ovarian or abdominal level. Interstitial or ovarian EPs are rare and represent a distinct diagnostic entity. Their frequency represents 3.2% of EPs for ovarian pregnancies and 2.4% for interstitial pregnancies. Horn pregnancy is similar to interstitial pregnancy. It is an EP implanted in the rudimentary horn of a bicornuate uterus. By extension, this definition applies to pregnancies implanted in the horn of a septate uterus. Some also include under this definition the development of trophoblastic tissue on the remaining stump of a tube that has been treated by salpingectomy.

The appearance of horn pregnancies is marked by the presence of a myometrium around the gestational sac, enabling it to develop up to the 16th week of gestational age, with the risk of abrupt rupture and cataclysmic hemorrhage. Its prognosis is therefore more severe than that of classic tubal EP, requiring early and accurate diagnosis before the rupture stage. MRI is currently the most effective imaging tool for diagnosing tubal pregnancies. Therefore, the diagnosis of cornual pregnancy still relies on a synthesis of clinical findings, plasma βHCG

assay results and transvaginal ultrasound. We report a case of unruptured horn pregnancy discovered early on endo-vaginal ultrasonography, in a 32-year-old female patient.

2. Clinical Case

A 32-year-old female presents to the emergency department complaining of sudden onset of pain in the right iliac fossa and hypogastrium. This patient has a long obstetrical history, she had a normal spontaneous pregnancy with vaginal delivery. A year later, she had two miscarriages after that she developed a three years secondary infertility, with no obvious etiology.

Given the date of her last menstrual period, the patient was at 7 weeks' amenorrhea.

The blood test taken in the emergency room showed HCG at 2429.7 IU/l.

An intra vaginal ultrasound revealed an empty uterus with a regular cavitary line (Figure 1) deviated to the right with no intrauterine pregnancy, an ectopic gestational sac was found in the form of a sessile fundic mass measuring 22.6 mm in internal diameter, surrounded by a myometrium 5 mm thick. There was no intraperitoneal fluid effusion. The diagnosis of cornual pregnancy was made. the patient underwent successful laparotomy.

On exploration, we observed a peritoneal cavity not filled with blood, left adnexa was intact. On the right, we note that the uterine angle is imperforated, and the presence of a tissue mass resembling trophoblastic material (Figure 2(a), Figure 2(b)).

At this stage, we obtained confirmation that the pregnancy was implanted in the anterior right cornual.

Drainage was performed to evacuate the extra uterine pregnancy.

Before closing the uterine cavity with three X-stitches of 2-0 vicryl, we used bipolar forceps to coagulate the portion of cornual endometrium that had been evacuated, thus preventing another pregnancy from implanting in this area.

The post-operative course was marked by a transfusion of two units of blood,

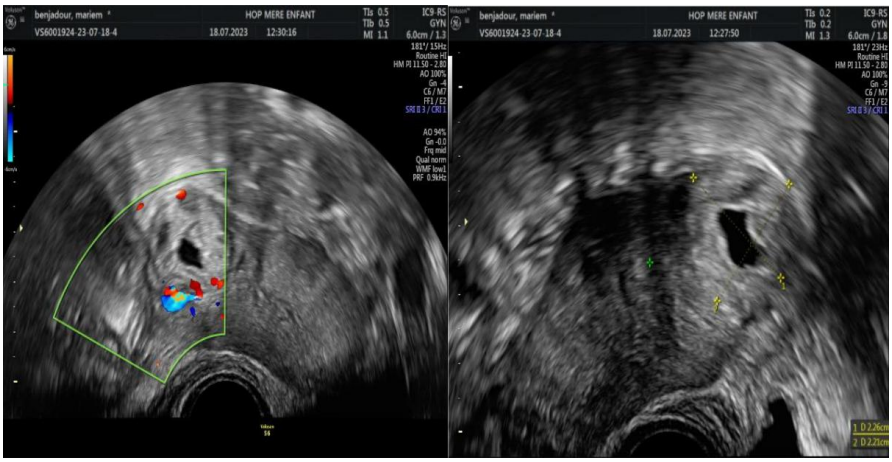
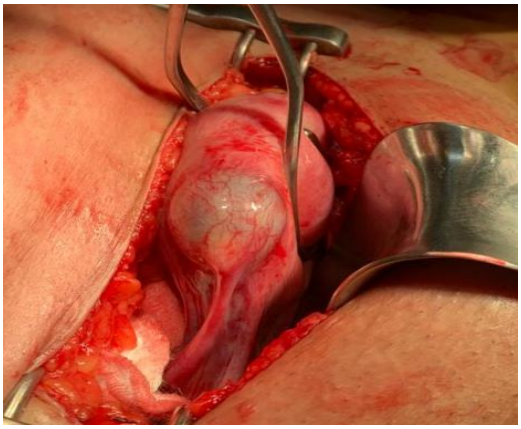
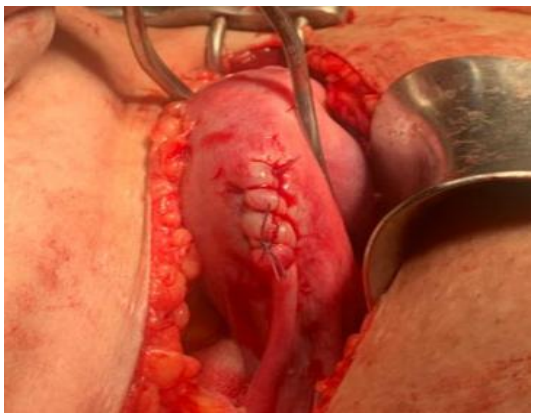


Figure 1. Ultrasound image of horn pregnancy.



(a)



(b)

Figure 2. Per operative view of the ectopic pregnancy and the treatment. (a) Coronal seat of ectopic pregnancy; (b) Suture of the right uterine horn, hemostasis assured.

given the patient's clinical weakness and hemoglobin level (Hb 7 g/dl from 13.6 g/dl). The patient left hospital three days after the operation.

When we monitored the decrease in HCG levels, we observed a plateau at 15 days post-operatively. HCG levels stagnated at 500 IU/l, then 146 IU/l one week later.

3. Literature Review and Discussion

3.1. Used Methods for Literature Review

To delineate the methods used for a literature review on Ectopic Cornual Pregnancy, including search terms, databases accessed, and inclusion/exclusion criteria, one would typically follow a structured approach. Based on the provided sources, here is a concise summary of the methods we have used to review ectopic cornual pregnancies:

- Search Terms: The literature review on ectopic cornual pregnancies likely utilized specific search terms related to the topic, such as "ectopic pregnancy," "cornual pregnancy," "diagnosis," "management," and potentially other relevant terms to ensure a comprehensive search.

- Databases Accessed: The review may have accessed various databases like PubMed, NCBI, Google Scholar, and potentially other academic databases to gather relevant studies, case reports, and articles on ectopic pregnancies, including cornual pregnancies.
- Inclusion/Exclusion Criteria: The review would have established clear criteria for including and excluding studies. This could involve criteria related to the publication date, study design, language, relevance to cornual pregnancies, and the quality of the research.

By following a systematic approach that involves defining specific search terms, accessing appropriate databases, and setting clear inclusion/exclusion criteria, researchers can conduct a thorough literature review on Ectopic Cornual Pregnancy to gather relevant information and insights from existing studies and publications. At the light of which we are able to discuss this case, even though the results were poor due to the rareness of this case.

3.2. Findings

The interstitial portion of the Fallopian tube corresponds to the proximal segment incorporated into the uterine muscular wall (0.7 × 1.5 cm). A pregnancy implanted here is called an interstitial pregnancy [1] [2]. When implanted in a rudimentary horn of a bicornuate uterus, or in the remaining stump of a salpingectomized tube, it is called a horn pregnancy [3]-[20]. A review of the literature confirms that this is an extremely rare location for an ectopic pregnancy. Indeed, almost all (98%) ectopic pregnancies occur in the Fallopian tubes [1]. Interstitial pregnancies account for 2% - 3% of all ectopic pregnancies, with a mortality rate twice that of tubal pregnancies [2]-[20].

Interstitial, angular (developed at the level of the tubal ostium at the bottom of the uterine cavity) and cornual ectopic pregnancies are often grouped together and represent the same clinical and therapeutic entity [20].

The rupture of interstitial pregnancies is particularly hemorrhagic, due to rich cornual vascularization and greater myometrial distension caused by a more advanced pregnancy [5]-[18].

Interstitial pregnancies may be misdiagnosed as intrauterine due to their partial implantation in the endometrium. Contrary to popular belief, rupture of interstitial pregnancies occurs relatively early in pregnancy.

Risk factors are similar to those for other ectopic pregnancies (history of ectopic pregnancy, tubal pathology and surgery, intrauterine DES exposure, genital infections, smoking, IVF) except for ipsilateral salpingectomy, which is a risk factor specific to interstitial pregnancy [3].

Diagnosis is based on a synthesis of clinical findings, plasma HCG and transvaginal ultrasound [4]-[20].

The following ultrasound criteria were proposed by Timor-Tritsch in 1992 for this diagnosis: an empty uterine cavity, an eccentric gestational sac located > 1 cm from the lateral wall of the uterine cavity and a thin (<5 mm) layer of myo-

metrium around the sac [4]. 3D ultrasound and MRI also enable accurate early diagnosis if interstitial pregnancy is suspected on 2D ultrasound [5] [6].

Initial surgical treatment of interstitial pregnancy consisted of salpingectomy and horn resection by laparotomy, probably as a result of delayed diagnosis [7]-[20]. In addition to this radical treatment, several cases of conservative treatment have been reported [20].

In current practice, interstitial pregnancy is typically diagnosed at an early gestational age and before rupture, leaving the opportunity for conservative medical or surgical treatment [9].

According to Soriano and his team, the best practice is to remove the interstitial pregnancy via cornostomy with resection of the interstitial portion of the tube if necessary and suturing of the hysterotomy [9]-[20]. With the advent of laparoscopy, trained teams now perform conservative laparoscopic surgery on hemodynamically stable patients [20].

Hysteroscopic removal of interstitial pregnancy has also been successfully described [10].

For all conservative treatments, HCG decay must be monitored until complete negativation [20].

Drug treatment of interstitial pregnancy consists of multidose methotrexate injections (MTX 1 mg/kg IV/IM on days 1, 3, 5 and 7 with Leucovorin 0.1 mg/kg oral on days 2, 4, 6 and 8, with the option of re-administering the therapy 7 days after the last dose) [11], combined with surgical treatment in the event of clinical deterioration [12]. The reported success rate is 66% [13]. While a single injection of MTX has become the standard treatment for classic tubal ectopic pregnancies, it seems that repeated doses are more appropriate for interstitial pregnancies [20]. To date, there is no consensus on the protocol to be followed for the multidose regimen.

In situ medical treatment with methotrexate injections under ultrasound, laparoscopic or hysteroscopic control has been reported successfully by some teams. This is the only indication for laparoscopic medical treatment [14].

In the absence of rupture, patients may be offered medical treatment. There is no consensus on the threshold HCG level or the presence of cardiac activity. Local treatment appears to be more effective than systemic MTX. In the event of sac growth under MTX, surgical treatment is essential [20].

The mean duration of undetectable HCG in serum is 43 ± 64 days [12].

A residual interstitial mass or heterogeneous area with persistent vascularization on ultrasound has been reported [16]. Subject to complete HCG negativation, they do not constitute therapeutic failure [18]. Close follow-up of medically-treated patients is recommended.

After medical treatment of an interstitial pregnancy, the risk of uterine rupture remains unknown for a future pregnancy [19]. This concern exists for both surgically and medically treated interstitial pregnancies [8].

During salpingectomy, it is important to perform a tubal section flush with

the uterus. Indeed, recurrence of ectopic pregnancy has been described in cases of residual tubal stump after salpingectomy [20].

3.3. Highlight of Our Case Report

In this case, the patient is suffering from a recurrence of horn pregnancy after medical treatment. For this particular location, we advise against treatment with methotrexate, and encourage practitioners to opt for surgery. As the therapeutic procedure is more complicated than the treatment of a conventional ectopic pregnancy, gynecologists should not perform a laparotomy (too invasive a procedure), but rather learn the laparoscopic technique in order to offer their patients optimal management in view of the clinical picture.

This report of a rare case of cornual ectopic pregnancy contributes significantly to the medical knowledge base due to its specificity and novelty beyond being a rare occurrence. Cornual pregnancy, although uncommon, presents unique challenges and risks compared to other types of ectopic pregnancies. The specificity of this report lies in detailing the diagnosis, management, and outcomes of cornual ectopic pregnancies, shedding light on the complexities and potential life-threatening nature of this condition. This case report enhances the understanding of cornual ectopic pregnancies by emphasizing the importance of early diagnosis and appropriate management to reduce maternal morbidity and mortality. It highlights the diagnostic criteria, treatment options, and challenges associated with cornual pregnancies, providing valuable insights for healthcare professionals facing similar cases. Additionally, the report underscores the need for a high index of suspicion, specialized diagnostic techniques like ultrasound, and tailored treatment strategies to address this rare but dangerous condition effectively. Moreover, the novelty of this report extends to the specific case details, such as the patient's clinical presentation, diagnostic methods employed (e.g., ultrasound, laparoscopy), and the chosen treatment approach (e.g., cornual resection, salpingectomy). By documenting a successful management strategy for cornual ectopic pregnancy, this report adds to the existing literature on this topic, offering guidance for future cases and contributing to the overall knowledge base on rare and challenging obstetric conditions.

4. Conclusion

The diagnosis of corneal pregnancy is often missed on trans parietal ultrasound. It is discovered late, at the stage of life-threatening rupture. In the meantime, with the availability of MRI in emergency departments, endo-vaginal ultrasonography coupled with plasma BHCG assay enables early diagnosis.

5. Practical Recommendations

- Interstitial pregnancy is a rare localization (2.4%) of ectopic pregnancy.
- It should be considered when the intrauterine localization is eccentric and more than one centimeter from the lateral wall of the cavity, with a thin

myometrial rim.

- The reference treatment is laparoscopic surgery (in the absence of hemodynamic disorders).
- Medical treatment may also be used in selected cases (although there is no consensus on eligibility criteria).
- It is important to follow the decrease in HCG until it becomes negative.

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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