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Research Article

Cornual Pregnancy: A Rare and High-Risk form of Ectopic Pregnancy

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Abstract

Background: Cornual pregnancy is a rare and potentially life-threatening type of ectopic pregnancy, accounting for approximately 2–3% of all ectopic cases. This condition is particularly challenging due to diagnostic and management complexities. It remains a significant cause of hemorrhagic shock during the first trimester, often with severe outcomes if untreated. The aim of this study was to analyze and assess the diagnostic methods and treatment strategies employed in managing cornual pregnancy. A retrospective analysis was conducted, covering 17 cases diagnosed. Results indicated that while surgical management, primarily through laparoscopy, was the most commonly used treatment method, medical alternatives such as methotrexate also showed promising results. The findings emphasize the importance of early diagnosis and individualized treatment approaches to optimize outcomes.

Keywords: Cornual pregnancy, Ectopic pregnancy, Pelvic pain, Laparoscopy, Methotrexate.

Introduction

Ectopic pregnancy (EP) is one of the most significant causes of maternal morbidity and mortality during the first trimester of pregnancy, accounting for about 10% of pregnancy-related deaths worldwide. This condition occurs when a fertilized ovum implants outside the uterine cavity, most commonly in the fallopian tube. Among the various forms of ectopic pregnancies, cornual pregnancy represents a rare but particularly dangerous subtype, occurring in the interstitial portion of the fallopian tube that penetrates the uterine wall. Cornual pregnancies are often grouped with interstitial pregnancies but are distinct in their anatomical location and clinical implications. They account for approximately 2–3% of all ectopic pregnancies, yet they are responsible for a disproportionately high rate of complications, including uterine rupture and catastrophic hemorrhage.

The unique anatomical location of cornual pregnancies poses significant diagnostic and management challenges. The thick myometrial tissue surrounding the interstitial portion can delay the presentation of symptoms and rupture compared to other ectopic pregnancies. This delay, combined with the high vascularity of the region, significantly increases the risk of severe hemorrhage upon rupture. Without timely intervention, cornual pregnancies can lead to life-threatening maternal outcomes.

Despite advancements in diagnostic modalities, the early identification of cornual pregnancies remains difficult. Ultrasound technology, particularly transvaginal sonography, has improved the ability to detect ectopic pregnancies; however, distinguishing cornual pregnancies from other ectopic types often requires expert interpretation. Misdiagnosis or delayed diagnosis can result in suboptimal management and severe complications.

Management of cornual pregnancy has evolved over the years, ranging from traditional surgical approaches, such as cornual resection or hysterectomy, to minimally invasive techniques like laparoscopic surgery and medical treatments using methotrexate. The choice of treatment depends on various factors, including the patient's clinical presentation, hemodynamic stability, and desire to preserve fertility. However, there is no consensus on the optimal management strategy due to the rarity of the condition and limited data from large-scale studies.

This study aims to contribute to the existing body of knowledge on cornual pregnancy by presenting a comprehensive analysis of 17 cases. Through a detailed examination of diagnostic methods, treatment approaches, and fertility outcomes, we hope to provide insights into improving the management of this rare and high-risk condition. By highlighting the challenges and successes encountered in these cases, this study underscores the importance of early diagnosis, individualized treatment planning, and the need for multidisciplinary care to optimize maternal and reproductive outcomes.

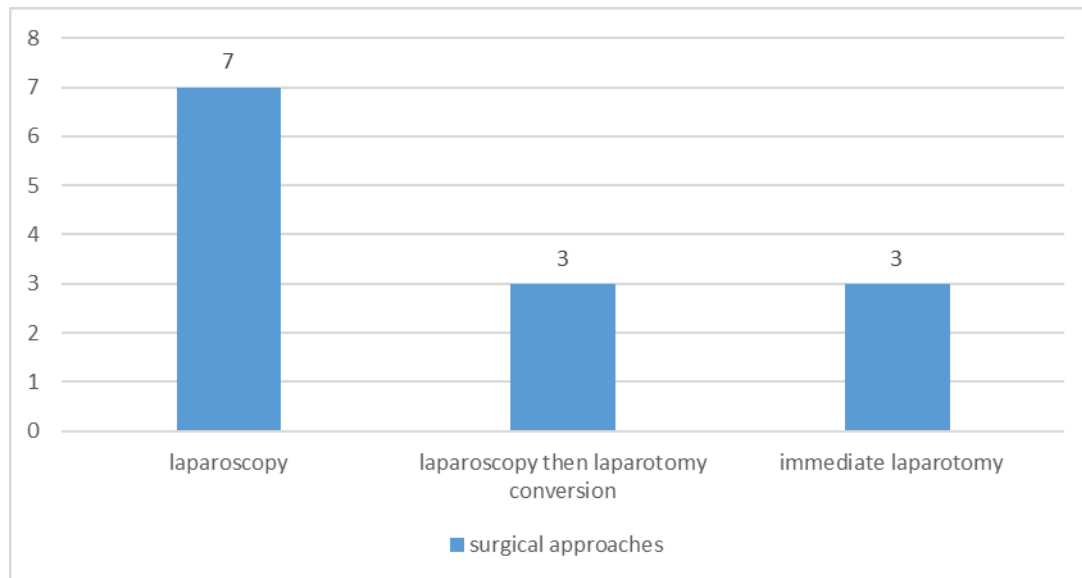
Materials and Methods

This study was a retrospective, descriptive analysis conducted at the "D" gynecology and obstetrics unit. Women diagnosed with cornual pregnancy through ultrasound or intraoperative findings were included, while incomplete medical records or lack of patient consent excluded others. Data collection focused on demographic characteristics, clinical presentation, diagnostic methods, treatment modalities, and fertility outcomes. Statistical analysis was performed using SPSS software, presenting results as frequencies and percentages.

Table I: Different treatment options for cornual pregnancies in our series

Therapeutic approach	Number of patients	Additional therapeutic procedures	Post-treatment evolution
Laparoscopic cornual resection combined with unilateral salpingectomy	7	2 patients require an intramuscular injection of methotrexate at a dose of 1 mg/kg	Two patients developed severe anemia requiring transfusion.
laparoscopic than laparotomy cornual resection combined with unilateral salpingectomy.	3	1 patient requires a second intramuscular injection of methotrexate at a dose of 1 mg/kg	Easy post-operative follow-up
laparotomy cornual resection combined with unilateral salpingectomy.	3	No additional therapy required	One patient had an acute functional bowel obstruction at D3 postoperatively and was managed medically.
ultrasound-guided injection of methotrexate in situ at a dose of 1mg/kg combined with an intramuscular injection at a dose of 1mg/kg	1	ultrasound-guided second injection of methotrexate in situ at a dose of 1mg/kg	Favorable progress
Laparoscopic assisted injection of methotrexate in situ at a dose of 1mg/kg combined with an intramuscular injection at a dose of 1mg/kg	3	1 patient requires a second intramuscular injection of methotrexate at a dose of 1 mg/kg.	Favorable progress

Figure 1: Surgical approaches to cornual pregnancy



Results

Seventeen cases of cornual pregnancy were reported over the study period, with patients' ages ranging from 24 to 41 years (mean: 36 years). The majority of cases involved women with a history of multiple pregnancies (mean parity: 2). Most patients presented with pelvic pain (29.41%) or pelvic pain accompanied by vaginal bleeding (58.82%), while amenorrhea was a consistent finding. Initial hemorrhagic shock occurred in 11.76% of cases. Ultrasound correctly identified ectopic pregnancies in all cases but confirmed cornual localization in only 35.2% of cases.

Surgical management was undertaken in 76.47% of cases, primarily via laparoscopy (76.92%). However, 30% of laparoscopic procedures required conversion to laparotomy due to hemorrhagic complications. Medical treatment with methotrexate was employed in 23.52% of cases, with a 100% success rate among those treated. The average time to reach serum BHCG negativity for patients receiving medical management was 36.4 days. Fertility outcomes revealed that 28.57% of women attempting pregnancy post-treatment achieved live births.

Discussion

Cornual pregnancies represent a rare but serious form of ectopic pregnancy, with an incidence comparable to other studies in the literature. Consistent with global findings, pelvic pain and vaginal bleeding were the most frequent presenting symptoms. The diagnostic accuracy of pelvic ultrasound in identifying cornual pregnancies was limited, underscoring the importance of operator expertise.

Management of cornual pregnancy remains complex, with no universally accepted guidelines due to its rarity. In our study, surgical treatment, particularly through laparoscopy, was the preferred approach for most cases. However, medical management using methotrexate emerged as an effective alternative for selected patients, demonstrating high success rates in appropriately chosen cases.

Fertility outcomes following cornual pregnancy treatment varied, with successful pregnancies reported in some patients. However, fertility preservation requires careful consideration of treatment options, particularly surgical techniques that minimize damage to the uterus.

Conclusion

Cornual pregnancy is a rare yet serious condition that requires prompt diagnosis and effective management to prevent life-threatening complications. While surgical intervention remains the mainstay of treatment, medical therapy with methotrexate offers a viable alternative in specific cases. Further studies are necessary to develop standardized management protocols and improve fertility outcomes. Patient-centered care, with detailed counseling on treatment options and associated risks, remains essential in optimizing outcomes for women with cornual pregnancies.

References

1. Lawani OL, Anozie OB, Ezeonu PO. Ectopic pregnancy: a life-threatening gynecological emergency. *Int J Womens Health*. 2013;5:515–521.
2. Onofriescu M, Nemescu D, Berescu A, Carp A. Non-tubal ectopic pregnancies. *Eur J Obstet Gynecol Reprod Biol*. 2016;206:e89.
3. Whynott RM, Mikhail E. Laparoscopic approach to cornual ectopic: a step-by-step demonstration. *Fertil Steril*. 2019;112(2):397–398.
4. Kim MJ, Jung YW, Cha J-H, Seok HH, Han JE, Seong SJ, et al. Successful management of heterotopic cornual pregnancy with laparoscopic cornual resection. *Eur J Obstet Gynecol Reprod Biol*. 2016;203:199–203.

5. Nikodijevic K, Bricou A, Benbara A, Moreaux G, Nguyen C, Carbillon L, et al. [Cornual pregnancy: Management and subsequent fertility]. *Gynecol Obstet Fertil*. 2016;44(1):11–16.
6. Masson E. Épidémiologie de la grossesse extra-utérine : incidence, facteurs de risque et conséquences. EM-Consulte. <https://www.em-consulte.com/article/114883/epidemiologie-de-la-grossesse-extra-uterine-incid>. Accessed 3 September 2023.
7. Ross R, Lindheim SR, Olive DL, Pritts EA. Cornual gestation: a systematic literature review and two case reports of a novel treatment regimen. *J Minim Invasive Gynecol*. 2006;13(1):74–78.
8. Wang S, Zhang Y, Zhao YY, Lu S. [Cornual pregnancy in 2 cases]. *Beijing Da Xue Xue Bao*. 2018;50(3):576–579.
9. Xu W, Lin X, Huang D, Zhang S. Laparoscopic treatment of cornual heterotopic pregnancy: A retrospective cohort study. *Int J Surg Lond Engl*. 2018;53:98–102.
10. Ramadani H. Unusual management of a non-communicating uterine horn. *Ann Saudi Med*. 2005;25(4):339–342.
11. Jafri SZ, Loginsky SJ, Bouffard JA, Selis JE. Sonographic detection of interstitial pregnancy. *J Clin Ultrasound JCU*. 1987;15(4):253–257.
12. Ackerman TE, Levi CS, Dashefsky SM, Holt SC, Lindsay DJ. Interstitial line: sonographic finding in interstitial (cornual) ectopic pregnancy. *Radiology*. 1993;189(1):83–87.
13. Lee E-S, Hahn H-S, Park B-J, Ro D-Y, Kim J-H, Kim Y-W. Single-port laparoscopic cornual resection for a spontaneous cornual ectopic pregnancy following ipsilateral salpingectomy. *Fertil Steril*. 2011;96(2):e106–e110.
14. Hung TH, Shau WY, Hsieh TT, Hsu JJ, Soong YK, Jeng CJ. Prognostic factors for an unsatisfactory primary methotrexate treatment of cervical pregnancy: a quantitative review. *Hum Reprod Oxf Engl*. 1998;13(9):2636–2642.
15. Ng S, Hamontri S, Chua I, Chern B, Siow A. Laparoscopic management of 53 cases of cornual ectopic pregnancy. *Fertil Steril*. 2009;92(2):448–452.

16. Watanabe T, Watanabe Z, Watanabe T, Fujimoto K, Sasaki E. Laparoscopic cornuotomy for interstitial pregnancy and postoperative course. *J Obstet Gynaecol Res.* 2014;40(8):1983–1988.

17. Douysset X, Verspyck E, Diguët A, Marpeau L, Chanavaz-Lacheray I, Rondeau S, et al. Grossesses interstitielles : traitement chirurgical, fertilité et devenir obstétrical. L’expérience rouennaise. *Gynécologie Obstétrique Fertil.* 2014;42(4):216–221.



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