# Management of multiple cornual pregnancy

Purvi Agrawal<sup>1</sup>, Ashwini Authreya<sup>1</sup>, and Adinarayana Makam<sup>2</sup>

<sup>1</sup>Adi fetal medicine, bangalore <sup>2</sup>Affiliation not available

May 6, 2020

# Management of multiple cornual pregnancy - Case report and review of literature .

## Authors:

Purvi Agrawal<sup>1</sup> Ashwini Janardhan Authreya<sup>1</sup> and Adinarayana Makam <sup>1\*</sup>

- 1. Fellow in fetal medicine, ADI fetal medicine centre.
- 2. Head of department, ADI fetal medicine centre.

# Affiliations

ADI's Advanced Centre for Fetal Care, Sparsh Hospital, Yeshwanthpur, Bangalore, India

# \*Corresponding Author:

Dr. Adinarayana Makam, MBBS, MD (OBG), FRCOG (LON) CCT (UK)

ADI's Advanced Centre for Fetal Care, Sparsh Hospital, Yeshwanthpur, Bangalore, India - 560022

Phone: 9945880437

Email: adimv2001@yahoo.com

Introduction: Cornual gestation is one of the most hazardous types of ectopic gestation. The diagnosis and treatment are challenging and frequently constitute a medical emergency. Cornual pregnancy accounts for 2-4% of ectopic pregnancies and is said to have a mortality rate in the range of 2.0-2.5%. (1)

The interstitial part of the fallopian tube is the proximal portion that lies within the muscular wall of the uterus. It is 0.7 mm wide and approximately 1-2 cm long, with a slightly tortuous course, extending obliquely upward and outward from the uterine cavity. Pregnancies implanted in this site are called interstitial (cornual) pregnancies. (2) Because of myometrial distensibility, they tend to present relatively late, at 7-12 weeks of gestation. Significant maternal haemorrhage leading to hypovolaemia and shock can rapidly result from cornual rupture. (1)

Risk factors are as for other types of ectopic pregnancy: contralateral salpingectomy, previous ectopic pregnancy and in vitro fertilization. (2)

The gestational sac is usually in the lateral portion of the uterus early in gestation but in advanced cornual pregnancy it can be located above the uterine fundus and can be confused with an eccentric intrauterine pregnancy. This is referred to as the 'interstitial line' sign. (4) A thin echogenic line extends directly up to the centre of the cornual gestational sac: this represents either the endometrial cavity or the interstitial portion of the fallopian tube, depending on the size of the cornual pregnancy.

Features that are helpful with the use of 3- dimensional TVS include a live embryo in a gestational sac, surrounded by myometrium below the cornu lying outside the endometrium.(5)

Case Report:

A 38 year old patient,  $G_2P_{0+1}$ , with a married life of 10 years, married in a non consanguineous marriage, came to us with a IVF conception at 6 weeks period of gestation.

She was a known case of Primary infertility and her previous pregnancy was an IUI Conception which ended in a spontaneous first trimester loss.

Her early pregnancy scan showed a tetra chorionic Tetra amniotic pregnancy with all four gestational sacs outside the uterine cavity in cornual region. Yolk sac and fetal pole were seen in three out of four sacs. Refer to figure 1, it shows a 3D image of the location of the sacs and the empty endometrical cavity with decidual reaction. Bilateral adenexa was normal.

On the day of presentation, we could see 4 sacs all of them in the cornual region with one sac containing live fetus of 6 weeks. Her beta HCG on the day of presentation was 82500 IU/ML.

Patient was counseled regarding the risks of continuation of pregnancy and need for termination. Detail counselling about medical and surgical management was given; As the patient wanted to conserve her uterus and was hemodynamically stable, with her liver and renal function normal, she was counseled about the risks and procedure of medical methods and after her consent we decided to go for the same.

Ultrasound guided cornual ectopic aspiration with local infiltration of 60 mg methotrexate and KCL to all the sacs under local anaesthesia. There were no post procedure complications, and the patient withstood it well.

A follow up sonogram was done after 2 weeks in which empty gestational sacs and reduced vascularity was noted.

Day 4; beta HCG being high (76500IU/ML); she was given an additional doses of 60 mg of methotrexate intramuscularly. Another dose of methotrexate was repeated after 20 days as beta HCG levels plateaued (63150 IU/ML). Serially the beta HCG follow up was done and there was a gradual fall from the initial level. After 10 days (day 30) the beta HCG was around 10765. A follow up scan done after one month showed a decreased vascularity but one empty gestation sac was still noted. Refer to table 1 to see the trend of beta HCG after each dose of methotrexate.

This case is peculiar as the patients beta Hcg was very high and still as the size of gestational sacs measured only 6 weeks it was medically managed. We gave two repeat doses of methotrexate as the value of beta hcg didn't have an expected fall. After the second dose the fall was consistent and was more than 15%.

======Table 1 about here ===========

Discussion:

TREATMENT- The Royal College of Obstetricians and Gynaecologists recommends that the women with tubal pregnancy who are most suitable for methotrexate therapy are those with a serum hCG level of <3000 IU/L and with more than 5000 IU/L required two doses.(6) Methotrexate has been given by intramuscular injection in most studies in the literature. However, the intravenous route has also been used successfully.(15)

e main advantages of local injection of methotrexate include smaller drug dosage, fewer systemic side effects and higher tissue concentration. Many types of unruptured live ectopic pregnancy can be successfully managed without surgical intervention through TVS guided local injection of potassium chloride or methotrexate. (8) d a TVS-guided route of local methotrexate injection by traversing the myometrium and approaching the gestational sac from the medial aspect, a technique that may enable the wider use of this treatment modality by lowering the complication rate caused by bleeding at the puncture site if the lateral approach is used. (14) Many studies (12) have reported the use of laparoscopy for local methotrexate injection into a cornual pregnancy. Onderoglu et al. (13) reported the successful management of a cornual pregnancy with a single high-dose laparoscopic methotrexate injection (100 mg).

In this case despite beta HCG being high and the peculiar multiple pregnancy implantation in cornual region, the case was successfully managed with medical management. Follow up of the patient after one month gave a positive result with complete resolution of the gestation sacs and reduced vascularity. Does this opens a new window for management of cornual pregnancy? Is the possibility of multiple cornual pregnancy increased after ART? Do we need to apply for medical management that surgical for management of ectopic pregnancy to increase the chances of future pregnancy? Future studies are needed for framing recommendations.

FUTURE PREGNANCY- Wittich(11) reported an association of recurrent ectopic pregnancy with uterine fibroids. Tubal pathology is often the primary factor blamed for recurrence. Tubal pathology, together with assisted conception and non-invasive management of cornual pregnancy, have been shown to contribute to a higher risk of recurrence of cornual pregnancy. (7)

## Declaration of competing interest

The authors have no financial, religious or competing interests to declare.

#### Contribution to authorship:

The study was conducted in Adi fetal medicine centre run By Dr Adinarayan in Sparsh hospital < Bangalore, India. Dr. Purvi Agrawal carried out the reporting, drafting and alignment of the manuscript. Dr Ashwini Carried out the patient information and consent obtaining. She also carried out the designing of the study. Dr. Adinarayan Makam Carried out the ultrasound in diagnosis of the case. He also performed the procedure for medical management.

Patients consent: the consent of the patient was obtained in written format for the manuscript publication.

Funding: As this was only a single case report and no research work was done, the study required no funding.

#### REFERENCES

- 1. Review Management of cornual (interstitial) pregnancy Authors Radwan Faraj / Martin Steel. The Obstetrician & Gynaecologist. 10.1576/toag.9.4.249.27355
- Tulandi T, Al-Jaroudi D. Interstitial pregnancy: results generated from the Society of Reproductive Surgeons Registry. Obstet Gynecol 2004;103:47–50
- 3. Timor-Tritsch IE, Monteagudo A, Matera C, Veit CR. Sonographic evolution of cornual pregnancies treated without surgery. Obstet Gynecol 1992;79:1044–9. [PubMed 1579304]
- 4. Johnson PT, Shah C. Ectopic pregnancy role of ultrasound. [www.sonoworld.com/Article/ShowArticleDetails.aspx?aid=28]
- Lee GS, HurSY, Kown I, Shin JC, Kim SP, Kim SJ. Diagnosis of early intramural ectopic pregnancy. J Clin Ultrasound 2005;33:190–2. doi:10.1002/jcu.20107
- 6. Royal College of Obstetricians and Gynaecologists. The Management of Tubal Pregnancy. Green Top Guideline No. 21. London: RCOG; May 2004 [www.rcog.org.uk/index.asp?PageID=537]
- 7. van derWeiden RM, Karsdorp VH. Recurrent cornual pregnancy after heterotopic cornual pregnancy successfully treated with systemic methotrexate. Arch Gynecol Obstet 2005;273:180–1
- Monteagudo A, MiniorVK, Stephenson C, Monda S, Timor-Tritsch IE. Nonsurgical management of live ectopic pregnancy with ultrasound-guided local injection: a case series. Ultrasound Obstet Gynecol 2005;25:282–8. doi:10.1002/uog.1822
- 9. Reich H, Johns DA, DeCaprio J, et al. Laparoscopic treatment of one hundred and nine consecutive ectopic pregnancies. J Reprod Med 1988;33:885–90.
- 10. Kok-Min S, Bin-Chwen Hsieh YL-A, Tsai L-W, Huang L-W, Hwang J-L. Expectant management of a cornual pregnancy followed up by serial transvaginal color power Doppler angiography and serum beta human chorionic gonadotropin levels. Acta Obstet Gynecol Scand.

- 11. Wittich AC. Recurrent cornual ectopic pregnancy in a patient with leiomyomata uteri. J Am Osteopath Assoc 1998;98:332–3.
- Benifla JL, Fernandez H, Sebban E, Darai E, Frydman R, Madelenat P. Alternative to surgery of treatment of unruptured interstitial pregnancy: 15 cases of medical treatment. EurJ Obstet Gynecol Reprod Biol 1996;70:151–6.
- Onderoglu LS, Salman MC, Ozyuncu O, Bozdag G. Successful management of a cornual pregnancy with a single high-dose laparoscopic methotrexate injection. Gynecol Surg 2006; 3:31–3. doi:10.1007/s10397-005-0159-8
- Timor-Tritsch IE. Monteagudo A, Lerner JP. A 'potentially safer' route for puncture and injection of cornual ectopic pregnancies. Ultrasound Obstet Gynecol 1997; 7:353–5. doi:10.1046/j.1469-0705.1996.07050353.
- 15. Al-Khan A, Jones R, Fricchione D, Apuzzio J. Intravenous methotrexate for treatment of interstitial pregnancy: a case report. J Reprod Med 2004;49:121–2. [PubMed 15018441]

#### Hosted file

title.docx available at https://authorea.com/users/316999/articles/447088-management-of-multiple-cornual-pregnancy

## Hosted file

TABLE 1.docx available at https://authorea.com/users/316999/articles/447088-management-of-multiple-cornual-pregnancy

## Hosted file

New Rich Text Document.rtf available at https://authorea.com/users/316999/articles/447088management-of-multiple-cornual-pregnancy