

Medical Treatment of Interstitial (Cornual) Ectopic Pregnancy with Methotrexate: A Case Report

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Abstract

Ectopic pregnancy (EP) is a pregnancy outside of uterus and accounts for 1-4% of all pregnancies. The most common risk factors for EP include the use of assisted reproductive techniques and tubular and uterine abnormalities (history of surgery or previous ectopic pregnancy, leiomyoma, endometriosis, history of pelvic infection, etc.). One type of tubal ectopic pregnancy is the interstitial (cornual) type, which is responsible for 1-6% of ectopic pregnancies and 20 % of all deaths caused by them.

Although the main treatment for ectopic pregnancy is still surgery, due to advances in rapid diagnosis, many women today are taking medical treatment with Methotrexate (MTX) as treatment for ectopic pregnancy. Due to the high risk of bleeding, many physicians prefer to use surgical methods (hysterectomy or cornual wedge resection) for the treatment of interstitial ectopic pregnancy. In this article we discuss a woman with an interstitial ectopic pregnancy who responded to methotrexate treatment and was discharged from the hospital in a stable general condition.

Keywords: Ectopic pregnancy, Interstitial ectopic pregnancy, Cornual ectopic pregnancy, Medical management, Methotrexate

interstitial EP (2.0-2.5%) is higher than other forms of EP due to delayed diagnosis and high vascularity of the myometrium[6, 8].

Due to the high risk of bleeding, many physicians prefer to use surgical methods (hysterectomy or cornual wedge resection) for the treatment of interstitial EP despite its high morbidity and impact on future fertility[9, 10].

Although the main treatment for EP is still surgery, due to advances in rapid diagnosis, many women today are taking medical treatment with MTX as treatment for EP [4, 11, 12] although MTX treatment is more effective in cases where early diagnosis is made[9].

Today, with the advancement of technology, it is possible to radiologically and biochemically diagnose EP at an earlier stage, and this can help the use of non-invasive medical treatment in EP.

Since 1982, when MTX was first used to treat EP [13], no consensus has been reached on interstitial EP treatment method.

In this article we talk about a 30-year-old pregnant woman (G4, P3) with interstitial EP, gestational age of 5 weeks and 3 days and β HCG level of 9187 mIU/mL at first day of admission, who was successfully treated with 4 doses of systemic MTX each 1 mg/kg.

Introduction

EP is a pregnancy outside of uterus that accounts for 1-4% of all pregnancies[1]. EP occurs mainly in the fallopian tube (84%) [2, 3]. The most common risk factors for EP include the use of assisted reproductive techniques and tubular and uterine abnormalities (history of surgery or previous EP, leiomyoma, endometriosis, history of pelvic infection, etc.) [4].

Interstitial EP is a rare type of EP in which implantation occurs in the earliest part of the fallopian tube that passes through the myometrium. The interstitial type is responsible for 1-6% of all EPs but 20 % of all deaths caused by EPs[5, 6] and its incidence has been increasing in the last two decades due to the use of assisted reproductive techniques[7]. Maternal mortality rate of

Case Report

A 30-year-old opium addicted woman weighing 40 kg, with her fourth pregnancy and three healthy children born by natural vaginal delivery (G4, P3), referred to our center with complaint of vaginal bleeding.

The patient was diagnosed with interstitial EP in ultrasound as shown in Figure 1.

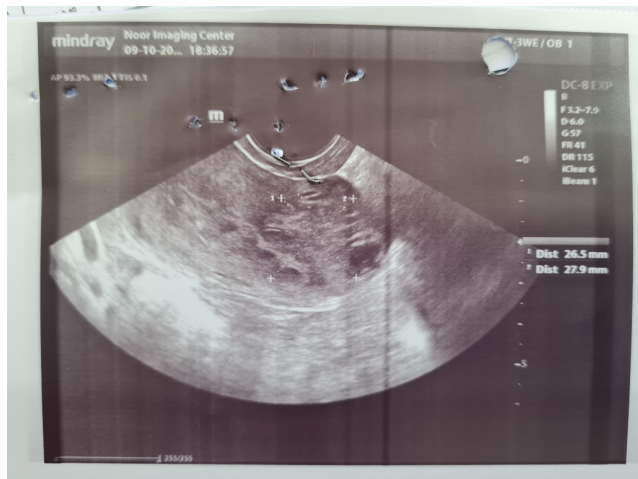


Figure 1: Ultrasound image of interstitial EP of the patient.

According to the last menstrual period (LMP), the patient's gestational age at the day of first visit was 5 weeks and 3 days. In the performed transvaginal sonography (TVS), interstitial EP was mentioned as a probable cause of vaginal bleeding. According to this finding, level of β HCG was measured to rule out interstitial EP, which was 9187 mIU/ml. Requested tests included complete blood count (CBC), blood group, haemoglobin, Blood urea nitrogen (BUN), Creatinine (Cr), total and direct bilirubin. On the first day of hospitalization, the hemoglobin level was 10 gr/dl and other tests were in normal range. The results of the laboratory tests performed during the patient's hospital stay are shown in Table 1.

	Day 1	Day 3	Day 5	Day 7
WBC	8000	4700	5400	6000
RBC	4.36	4.16	4.74	4.78
Hemoglobin	10	9.4	11.1	11.6
Hematocrit	30.7	29.2	33.5	33.6
MCV	70.4	70.2	70.7	70.3
MCH	22.9	22.6	23.4	24.3
MCHC	32.6	32.2	33.1	34.5
Platelets	204	158	198	192
Urea	27.2	22.1	18	23
Creatinine	1.07	0.79	0.81	0.85
S.G.O.T (AST)	22	21	22	26
S.G.P.T (ALT)	18	15	18	26
Bilirubin Total	0.23	0.42	0.4	0.35
Bilirubin Direct	0.09	0.15	0.12	0.14
LDH		236		253

Table 1: laboratory data during hospital stay.

The patient was admitted with β HCG= 9187 mIU/ml and due to the patient's stable general condition, MTX with dose of 1mg/kg was started for her. One day after each dose of MTX, also 4 mg of folic acid (leucovorin) was administered to the patient.

On the first, third, fifth and seventh days of hospitalization, the patient was prescribed with MTX at a dose of 1 mg/kg. The β HCG titer measured on the first, third, fifth, seventh, ninth and eleventh days was 9187, 7320, 6817, 5685, 4810 and 923.9 mIU/ml, respectively. After receiving the fourth dose of MTX, we measured the patient's β HCG level every 48 hours. In consecutive measurements, β HCG level was declining and finally the patient was discharged from the hospital with β HCG titer of 923.9 mIU/ml. During the hospital stay, the patient's laboratory tests were normal.

During treatment, we checked the patient for vital signs, abdominal pain, and MTX complications such as stomatitis, diarrhea, and bone marrow suppression, which ultimately, we didn't notice any complications. After discharge, we checked the patient's β HCG level weekly. In the first measurement after discharge, the β HCG titer was 281 mIU/ml and in second one was 41 mIU/ml. The related data about MTX and folic acid dose administered and β HCG titer are shown in Table 2 and Figure 2.

Day	MTX dose	folic acid dose	β HCG titer in mIU/ml
1	40 mg		9187
2		4 mg	
3	40 mg		7320
4		4 mg	
5	40 mg		6817
6		4 mg	
7	40 mg		5685
8		4 mg	
9			4810
11			923.9
18			281
25			41

Table 2: MTX and folic acid dose administered and β HCG titer.

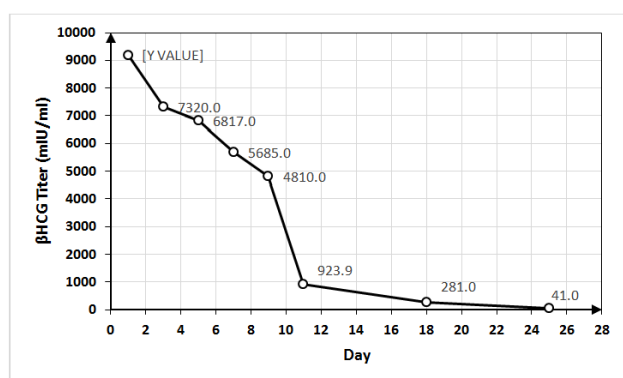


Figure 2: βHCG titer during hospital stay and after discharge.

Discussion

Interstitial EP is a rare form of EP and is responsible for only 1-6% of them [6] and therefore not much information is available about its different treatment options. At present, surgical treatment is the main method of treatment, but with advances in diagnostic methods and diagnosis being made in earlier stages, as shown in our case and several other cases such as Galani, A et al. [14], medical therapy with MTX can be considered in patients with stable general condition and hemodynamics as a reasonable treatment option. In medical treatment with MTX, the patient should be monitored for βHCG level and side effects of the drug, as rupture of the uterus or fallopian tube and MTX side effects can lead to maternal morbidity and even mortality.

Further studies are needed to answer a variety of questions, including which patients can receive MTX medication and which will require surgery.

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