

# Approach to Treatment of Cervical Pregnancy: A Case Report

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## ABSTRACT

**Case:**  
A 25yo G1 at 11wk4d dated by LMP and confirmed with a 10 week ultrasound presents with a possible cervical ectopic pregnancy. Past medical, surgical, and OBGYN histories are unremarkable. A cervical pregnancy was suspected on ultrasound due to low implantation of the gestational sac, and a significant posterior bulge with an hourglass shaped uterus. MRI suggested implantation of the placenta in the posterior uterine and cervical wall due to extreme thinning of these structures.

Our institution had previously created a protocol for multidisciplinary management of cesarean scar and cervical pregnancies. She desires fertility preservation, and so consented to combined local and systemic treatment with Methotrexate (MTX). Preprocedural Beta-hCG was 81,514.8 mU/mL. Ultrasound-guided transvaginal intra-gestational sac injection of MTX was performed without complication, though cardiac activity was still present at the conclusion of the procedure. The patient also received an IM injection of MTX before discharge. Serial Beta-hCG are still being followed, and are trending towards zero.

**Conclusion:**  
The optimal management for cervical pregnancies is not known, and decisions around type of management are informed by the patient's desire for fertility preservation. In this case, a protocol created by a multidisciplinary team was used to guide treatment. This protocol using MTX successfully treated the cervical pregnancy at 11wk4d and avoided a surgery that could complicate future fertility.

**Clinical Significance:**  
Due to the rare occurrence of cervical pregnancy, there is not a universally accepted treatment protocol. This case shows that medical management can be successful for cervical pregnancies. Clear guidelines must be established for cervical pregnancies to optimize outcomes, and decrease maternal morbidity and mortality and to preserve future fertility.

## BACKGROUND

### CERVICAL PREGNANCY

#### What is Cervical Pregnancy?

- An ectopic pregnancy where implantation occurs inferior to the internal os in the endocervical canal<sup>5</sup>
- cervical pregnancies constitute less than .1% of ectopic pregnancies,<sup>5</sup> occurring in about 1/9,000 pregnancies<sup>5</sup>
- No.1 cause of maternal, gestation-related death in the first trimester.<sup>5</sup>

#### Clinical Presentation<sup>2,5</sup>

- Positive pregnancy test without evident intrauterine gestational sac<sup>2</sup>
- Vaginal bleeding<sup>2</sup>
- Abdominal pain<sup>2</sup>
- Diagnosis confirmed with transvaginal ultrasound (TVUS)<sup>5</sup>
  - enlarged cervical canal
  - gestational sac apparent in cervix<sup>1</sup>
  - blood flow to the gestational sac or cardiac activity used to distinguish a cervical pregnancy from incomplete abortion<sup>2</sup>

#### Complications of Cervical Pregnancy

- Hemorrhage<sup>5</sup>
- Loss of fertility<sup>2</sup>
- Maternal death<sup>2</sup>

#### Treatment Options

- Local or systemic administration of MTX<sup>5</sup>
- Dilatation & Curettage<sup>5</sup>
- Uterine artery embolization<sup>5</sup>
- Hysterectomy<sup>5</sup>

## MTX TREATMENT PROTOCOL

The determination of methotrexate use is initiated by pre-treatment testing which includes obtaining a hCG, blood type and screen, transvaginal ultrasound, complete blood count, and liver function tests. After this is completed, the single-dose protocol, the two-dose protocol, or the multiple dose protocol is utilized.

#### Two-Dose Protocol

- If hCG levels > 3000 international units/L or adnexal mass > 2 cm
- Day 1: MTX 50 mg/m<sup>2</sup>
- Day 4: MTX 50 mg/m<sup>2</sup>
- Day 7
  - Check serum hCG levels
    - If hCG <15% from last measurement, treatment stops & start surveillance phase
    - If hCG is not <15%
      - 3rd dose of MTX
- Reassess hCG on day 11
  - 4th dose of MTX if hCG is not declining and then reassess on day 14
    - If hCG is not declining on day 14 →surgery
- Goal: hCG <15% for each measurement until undetectable

#### Multiple-Dose Protocol

- For cervical or interstitial pregnancies
- MTX on days 2, 4, 6, and 8: 1 mg/kg per day IM or intravenously
- hCG levels drawn on days 1, 3, 5, and 7
- If hCG decline is <15% from last measurement, then stop treatment and begin surveillance phase
- Surveillance phase = weekly hCG measurements
- If hCG decline is not <15% from last measurement
  - MTX 1mg/kg IM
  - Next day: IM leucovorin 0.1 mg/kg
- Need hCG level to be undetectable

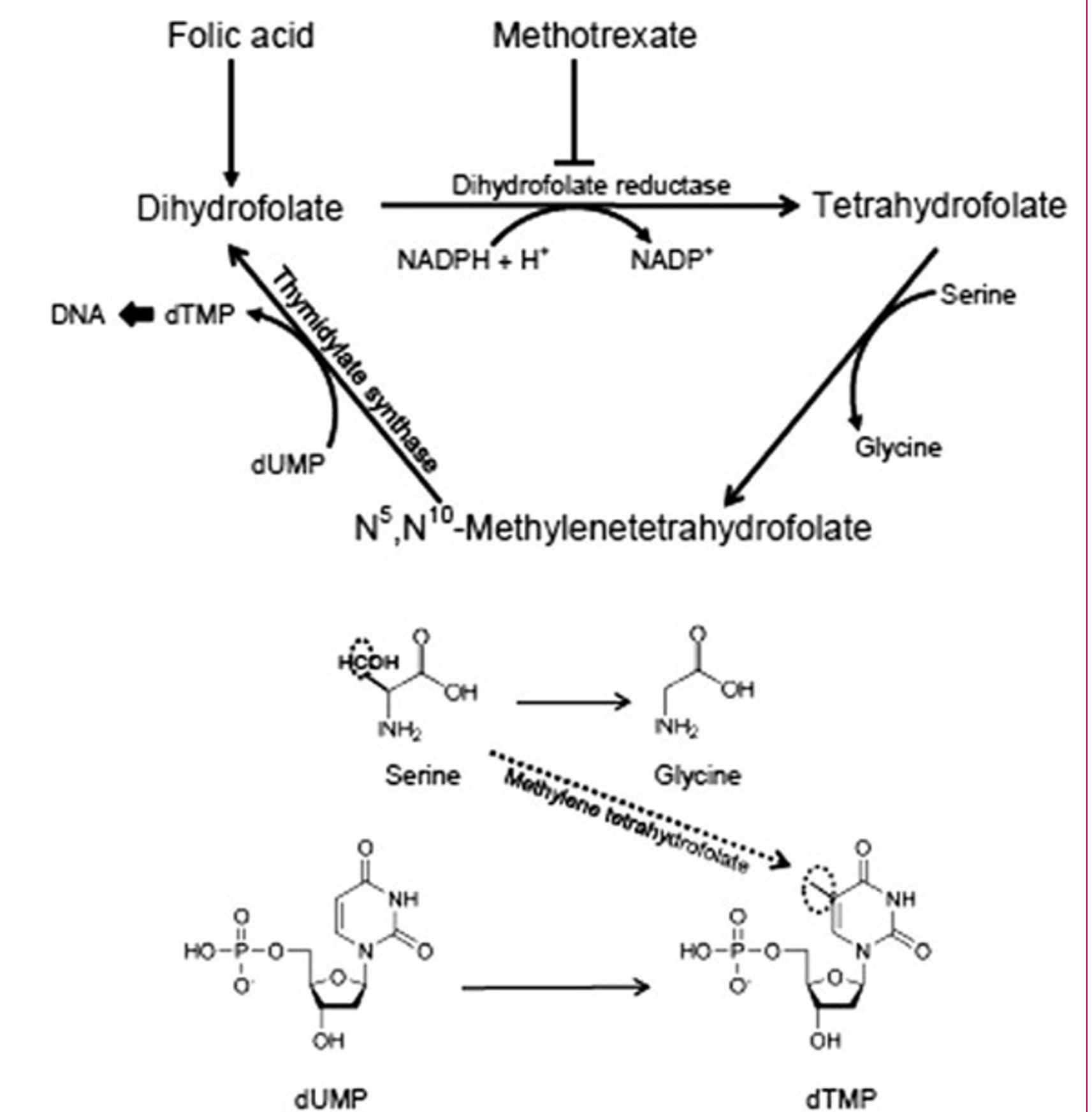


Figure 1. MTX Mechanism of Action in the synthesis of dTMP<sup>4</sup>

## DIAGNOSIS- FETAL MRI

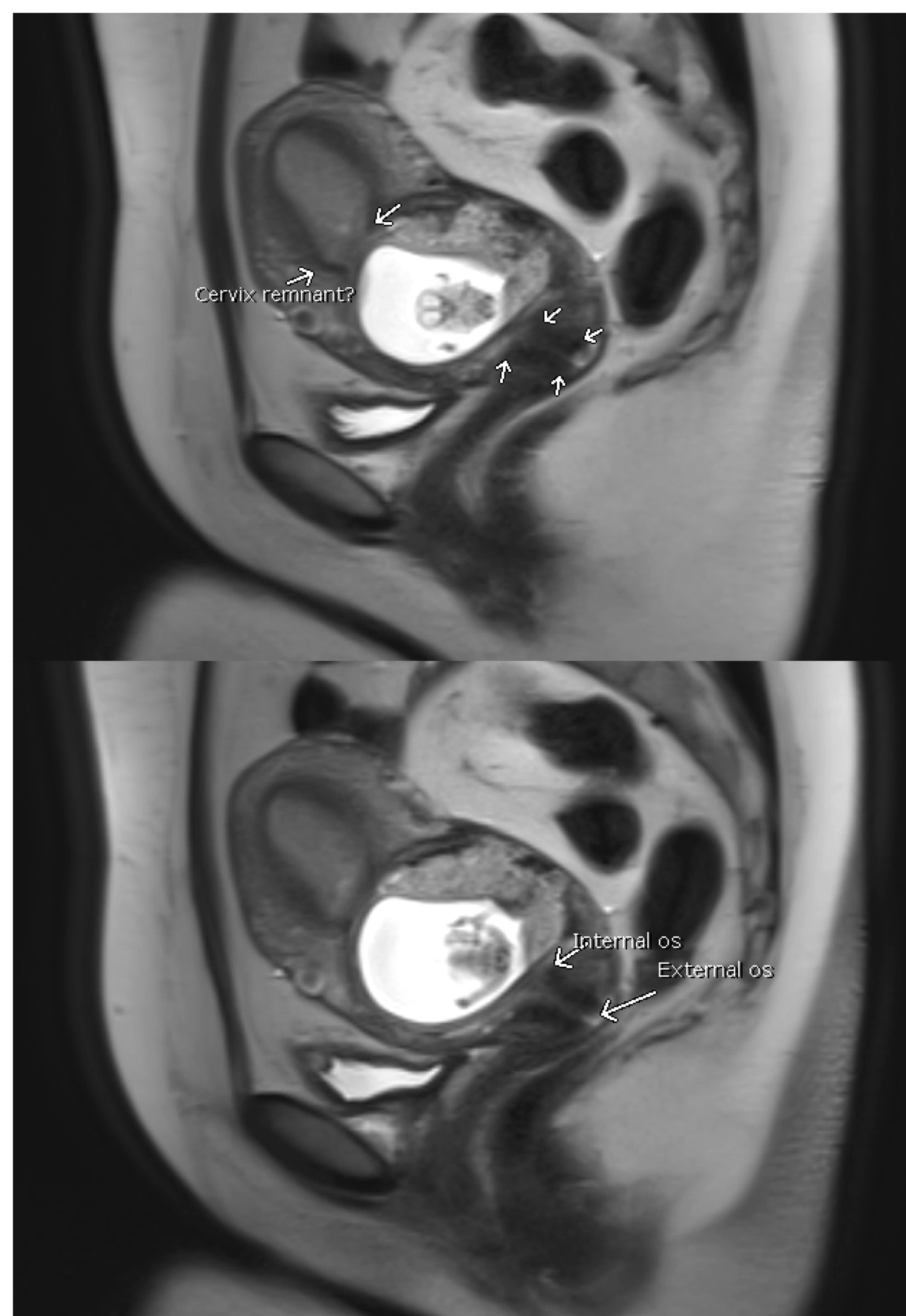


Figure 2: Fetal MRI was obtained and found the gestational age to be 11w4d. Placenta was found to be implanted on posterior cervix with evidence of hemorrhage along implantation site. There is marked thinning along the posterior cervix and inferior uterine wall. .

## BETA-HCG TREND (mU/mL)

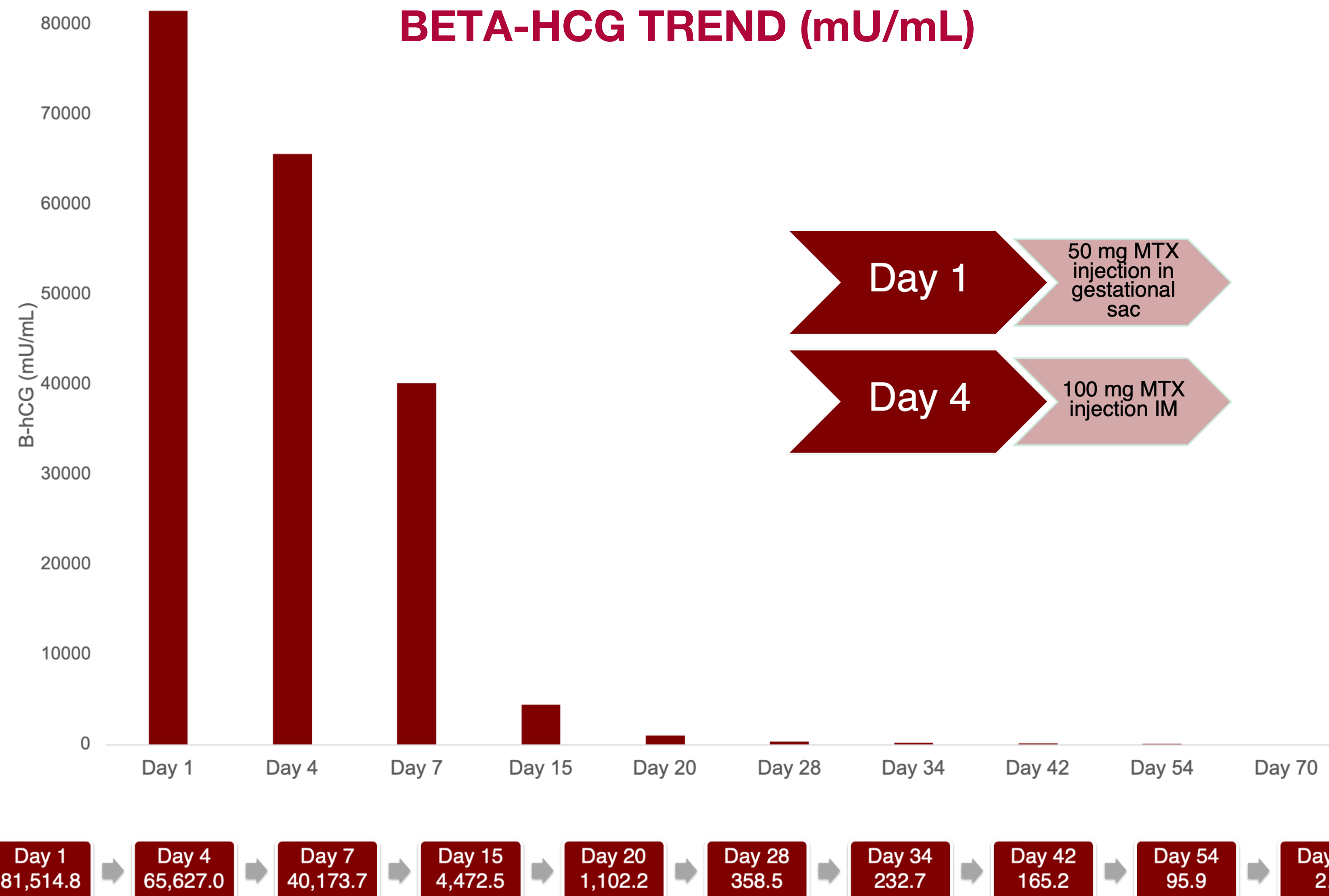


Figure 3: Depicts serial Beta-hCG measurements (mU/mL) starting from the local MTX injection which signifies day 1, until day 70 when the pregnancy is fully resolved.

## CLINICAL IMPACT/CONCLUSIONS

- The current two-dose methotrexate protocol should be adjusted because the two-dose protocol is used if hCG levels are above 3000 international units/L or if the adnexal mass is greater than 2 cm
- Current use of MTX is limited to the 7th week of gestation in ectopic pregnancy with no standardized protocol
  - Surgical interventions used following 7th week of gestation
  - Surgeries risk patients future fertility and ability to carry to term
- Our study indicates success of MTX at later gestational age
- Study provides evidence for alternative treatment in late gestational ectopic pregnancies reducing the need for surgical intervention and preventing surgical complications
- For optimal outcomes, care must be standardized due to a possible loss of fertility or death
- Clear guidelines must be established for mothers experiencing ectopic pregnancies who are in an advanced gestational age to improve outcomes.

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