

## Case Report:

# Embolization of uterine artery as an emergency treatment for vaginal bleeding due to ectopic cervical pregnancy

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## ABSTRACT

A 25-year-old, primigravida presented with a history of vaginal bleeding since 3 days. Two months ago she had conceived spontaneously. Pelvic ultrasonography revealed cervical pregnancy of 8 weeks duration. Parenteral methotrexate failed to terminate pregnancy and serum beta-human chorionic gonadotropin levels continued to rise. In order to achieve haemostasis, catheter angiography and bilateral uterine artery embolization were done followed by curettage of cervical canal. The patient recovered completely and was discharged after 2 days. The present case brings into light the utility of bilateral uterine artery embolization as an emergency treatment for vaginal bleeding due to ectopic cervical pregnancy

**Key words:** *Pregnancies, Extrauterine, Uterine artery embolization*

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## INTRODUCTION

Cervical pregnancy is a rare form of ectopic pregnancy in which the fertilized ovum implants in the cervical canal. As it grows there is distension of the cervical canal. The pregnancy results in massive bleeding per vaginum, when it gets disrupted spontaneously or during curettage as cervix is non-retractile.<sup>1</sup> The diagnosis of cervical pregnancy depends on accurate pelvic ultrasonography.

Management includes parenteral methotrexate, cervical amputation, tamponade, and circlage. To arrest severe bleeding emergency hysterectomy may be required and these measures impair future fertility. We report the case of a patient in whom bilateral uterine artery embolization, followed by curettage of cervical canal were required in a patient with cervical pregnancy who continued to have bleeding per vaginum even after administration of 2 doses of methotrexate. Timely institution of angiographic bilateral uterine artery emboli-

zation by an experienced interventional radiologist plays a major role in conserving the uterus.

## CASE REPORT

A 25-year-old primigravida presented with complaint of bleeding per vaginum since 3 days. Two months ago she had conceived spontaneously after 14 months of married life. Her general condition was good except mild pallor. Abdomen examination was unremarkable. On speculum examination, bleeding was evident through the cervical os. Cervix was hypertrophied and uterus felt bulky on bimanual pelvic examination. A diagnosis of inevitable abortion was made. Emergency ultrasonography revealed gestational sac of 8 weeks with cardiac activity in the cervical canal below the closed internal os and an empty uterus with thickened endometrium (Figure 1). Laboratory testing revealed haemoglobin 9 g/dL serum beta-human chorionic gonadotrophin ( $\beta$  - HCG) levels were 32,000 mIU/mL.

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**Figure 1:** Transvaginal ultrasonography showing gestational sac with foetal echoes suggestive of cervical pregnancy

She was counselled regarding the modalities of treatment and their risks, and high risk consent was taken. Two doses of intravenous methotrexate were administered (1 mg/kg body weight) along with oral folic acid supplementation as 0.1 mg/kg body weight. She continued to have vaginal bleeding for 2 days after the second dose. Her  $\beta$ -HCG levels after the second dose of methotrexate rose to 30,000 mIU/mL. One unit of compatible whole blood transfusion was administered. Emergency angiographic bilateral uterine artery embolization was carried out by interventional radiologist using sterile fibrin with collagen sponge of bovine origin, suspended in a non-

ionic contrast medium through the femoral artery (Figure 2). The needle-to-embolization time for the entire procedure was under 10 minutes. Curettage of cervical canal was done after 4 hours. There was complete absence of bleeding after the curettage. Patient underwent repeat ultrasonography which revealed the cervical canal to be empty. The patient was discharged after 2 days, and was followed-up monthly for 3 months. She was advised to follow barrier contraception for 3 months. The patient resumed her menstruation after 3 months. Eight months later she conceived spontaneously and had normal term delivery in our Institution.

### DISCUSSION

Cervical pregnancy is rare, but is increasingly being seen with the advent of *in-vitro* fertilization.<sup>1</sup> It is usually associated with painless vaginal bleeding. Rarely cervical pregnancy can present massive vaginal bleeding requiring emergency hysterectomy which not only impedes further reproductive function but is also associated with increased morbidity.<sup>1</sup> Bleeding in cervical pregnancy is commonly mistaken for inevitable or incomplete abortion, cervical fibroids and cervical malignancy.<sup>1</sup>



**Figure 2:** Right uterine artery before (A) and after (B) embolization

Wide use of first trimester transvaginal ultrasonography detects the cervical pregnancy as early as 5 weeks gestation.<sup>2</sup> Systemic and local methotrexate is the mainstay of treatment.<sup>3,4</sup> But it is not effective when initial serum  $\beta$  hCG is greater than 10,000 mIU/mL.<sup>3,4</sup>

The alternative methods of management include cervical curettage after ligation of descending cervical artery, cervical amputation and cervical canal tamponade with Foley's catheter.<sup>5</sup> Massive bleeding occurs with cervical pregnancy after spontaneous separation of placental tissue or during an attempt to empty the contents since cervix is incapable of retraction unlike myometrium. In order to achieve perfect haemostasis bilateral uterine artery embolization can be done which completely eliminates the risk of performing hysterectomy.<sup>6,7</sup> In our patient, timely bilateral uterine artery embolization resulted in a favorable clinical outcome. After active management, cervical pregnancy sometimes presents with acute haemorrhage after 2-3 months.<sup>5</sup> Hence, follow-up is essential for a period of at least 3-6 months, as was done in our patient.

Women treated with uterine artery embolization will resume normal menstrual cycles. This is due to good collateral circulation of the uterus. They may also have successful subsequent natural pregnancies.<sup>3</sup> The couples must be advised temporary contraception for 4-6 months as prior usage of methotrexate has a deleterious effect in subsequent pregnancy. The patient resumed normal menstrual cycles after 4 months. She conceived spontaneously after one year and had a normal delivery.

In some cases of cervical pregnancy with profuse bleeding, where facilities for angiographic embolization are not available, intra-cervical balloon tamponade is practiced as an active treatment.<sup>7</sup> Other modalities of treatment, such as, cervical encirclage before curettage of cervical pregnancy and balloon tamponade, are practiced in centres with

minimal facilities to arrest bleeding from cervical ectopic gestation.<sup>8</sup> Bilateral uterine artery embolization is emerging as ideal method to conserve the uterus before spontaneous rupture of cervical ectopic pregnancy or before an active intervention directed at the cervix.<sup>6</sup> Early and accurate diagnosis and timely intervention with bilateral uterine artery embolization saved our patient.

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