

## Case Report

# Management of a viable cervical ectopic with potassium chloride, methotrexate and subsequent dilation and curettage

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### Abstract

Cervical ectopic pregnancies are a rare but potentially life threatening complication of pregnancy. Several different treatment modalities for cervical ectopic pregnancies have been documented in the literature. In this case a 38-year-old gravid 1 para 0 presented with a cervical ectopic pregnancy diagnosed at an outside hospital. Medical management was undertaken with potassium chloride and methotrexate. The patient developed symptomatic vaginal bleeding requiring surgical management via dilation and curettage. Medical management can be attempted for cervical ectopic pregnancies, provided that a physician with the ability to perform surgical intervention is readily available. Additionally, in the case of viable cervical pregnancies, attempted medical management can result in decreased blood loss should surgical intervention be required.

### Key Words:

Cervical ectopic, methotrexate, potassium chloride

### Introduction

First described in 1817, cervical ectopic pregnancies are a rare complication of conception affecting approximately 0.15% of all ectopic pregnancies [1]. Stereotypically, these patients present with profuse, painless vaginal bleeding and a disproportionately enlarged cervix, or “hour-glass” uterus [2]. Historically, the rarity of this condition resulted in a delayed diagnosis which necessitated emergent surgical management, often with hysterectomy. The gradual improvement of ultrasonography over the past several decades has increased the early diagnosis of cervical ectopic pregnancies, and thereby, the opportunity to attempt conservative management [3]. Several different treatment modalities for cervical ecto-

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pic pregnancies have been documented in the literature [4–11]. Treatment protocols range from medical management to minimally invasive surgical management (Table 1). Unfortunately, these protocols are detailed almost entirely in case reports and case series. Due to the rare nature of cervical ectopic pregnancies, controlled trials are not feasible. As a result there is no consensus on what constitutes standard of care for these patients [12]. We report a case of a woman with a cervical ectopic pregnancy who received medical management, but ultimately required surgical intervention following symptomatic hemorrhage.

### Case Presentation

A 38-year-old woman, gravida 1 para 0, presented as a transfer from an outside hospital at 73/7 weeks estimated gestational age by ultrasound, with findings suggestive of cervical ectopic pregnancy. Prior to transfer, she reported to an outside emergency department with a chief complaint of abdominal cramping and heavy vaginal bleeding. Her ultra-

sound in the emergency department was concerning for possible ectopic pregnancy and the patient was transferred to a tertiary care center for further evaluation and management. Following transfer, a transvaginal ultrasound was performed, and it revealed a moderately thickened endometrium without evidence of a gestational sac within the uterus. A single gestational sac was visualized in the cervix extending to the lower uterine segment (Figure 1). The crown rump length was measured at 9.2mm and fetal heart tones were noted to be in the 140s. After extensive counseling with the patient regarding these findings, she stated a desire to maintain fertility. The decision was made to proceed with transcervical intrafetal injection of potassium chloride (KCl) to facilitate termination of the pregnancy. The protocol was for 1 to 3ml of KCl at a concentration of 2mEq/ mL to be injected directly into the embryo measuring 5 to 10 mm in length [13]. This was then to be followed by alternating days of systemic methotrexate dosed at 1mg/ kg on days 1, 3 and 5 with folinic acid rescue of 0.1mg/ kg on days 2, 4 and 6 [7]. Injection of the KCl into the fetus was undertaken without incident and cessation of fetal heart motion was observed. The patient received her initial dose of intramuscular methotrexate on the evening of post-operative day 0. On the morning of postoperative day 2 the patient was noted to be symptomatically anemic in the absence of vaginal bleeding. Her hematocrit was found to have dropped from 26.8 on admission to 23.0, and she was accordingly transfused two units of packed red blood cells. The patient initially did well, however, on the evening of post-operative day 2 she developed heavy vaginal bleeding with tachycardia and hypotension, which prompted the decision to proceed with surgical management. Due to the patient's desire to preserve fertility, a fertility sparing surgical approach via dilation and curettage was performed. Prior to dilation, cervical stay sutures were placed to ligate the cervicovaginal branches of the uterine artery at the 3 and 9 o'clock positions. Twenty ml of vasopressin (0.5 U/ ml) were injected circumferentially into the cervix at 2, 4, 8 and 10 o'clock. These steps were taken to assist in controlling the potentially large amount of expected blood loss from the case. During the surgery the patient received two additional units of packed red blood cells. She tolerated the procedure well, and her bleeding abated at the conclusion of the case. Total estimated blood loss immediately prior to the operating room and during the case totaled 1.5 L. Following her surgery the patient recovered appropri-

ately and was discharged home post-operative day 2 (hospital day 5). Her hematocrit at discharge was 27.6 and her hCG (human chorionic gonadotropin) had decreased appropriately. At the time of her outpatient follow up, she was asymptomatic and her hCG was negative.

**Figure 1.**



*Transvaginal ultrasound demonstrating a gestational sac and fetal pole in the cervical canal*

## Discussion

Cervical ectopic pregnancies present with certain ultrasonographic findings. In the setting of painless first trimester bleeding, a cervical ectopic pregnancy can be diagnosed by an empty upper endometrial cavity and an expanded endocervical canal filled with an amniotic sac. This is distinguished from cervical abortions as the latter will present with blood or potentially products of conception in the endometrial cavity [14]. Cesarean scar pregnancies will often present with an empty uterine cavity and endocervical canal, but with a triangular gestational sac (at less than 8 weeks gestation) in the location of the cesarean scar [15]. Upon diagnosis of a cervical ectopic pregnancy a variety of treatment modalities may be considered. Several different treatment modalities for cervical ectopic pregnancies have been documented in the literature. Variables including hCG levels, fetal heart tones, vaginal bleeding and patient desires regarding potential fertility preservation should all factor into the clinician's deci-

**Table 1.** Published treatment protocols for the management of cervical ectopic pregnancies

Medical	Method	Success Rate	Surgical Intervention	Notes
Goldberg et al. 2000	IM MTX	1/1		
Gomez Garcia et al. 2012	IM MTX+MFP	2/4	D&C x2	UAE+ D&C x2
Yazici et al. 2003	Intraamniotic MTX	1/1	none	
Kirk et al. 2005	IM MTX+FA	3/4	none	TV KCl x1
Doubilet et al. 2004	TV KCl	18/18	none	
<b>Surgical</b>				
Mashiach et al. 2001	Cerclage	4/4	Shirodkar	2 placed s/p MTX
Hirakawa et al. 2009	UAE+MTX	5/7	D&C x2	repeat UAE x2
Fylstra, D. 2014	D&C	13/13		Foley postop

D&C=dilation and curettage IM=intramuscular KCl=potassium chloride MFP=mifepristone  
 MTX=methotrexate FA=folinic acid TV=transvaginal UAE=uterine artery embolization

sion making process when choosing a treatment protocol. Conservative treatment options have increased in correlation with the improved ability to diagnose cervical ectopic pregnancies prior to hemorrhage. Hemorrhage is the most common complication of cervical ectopic pregnancy, and providers must be alert for its occurrence and prepared to intervene. Patients who develop vaginal bleeding during conservative treatment can be managed several ways. In stable patients with vaginal bleeding, uterine artery embolization (UAE) is an option. UAE completely occludes the uterine arteries, however, the extensive collateral circulation can necessitate multiple treatments [10]. Should bleeding arise during medical management it is often due to separation of the gestational sac from the implantation site on the cervix. Several case reports document successful tamponade of the implantation site. This can be achieved with a Foley balloon and vaginal packing although use of a Bakri balloon has also been documented [16, 17]. Dilation and curettage, as used in this report, is a third option for addressing hemorrhage. The use of stay sutures and vasopressin are optional methods for assisting in control of hemorrhage during this procedure [18]. Mechanical dilation is not always necessary, as the cervix may be dilated

enough from the presence of the ectopic to allow for passage of a suction cannula to the location of the pregnancy [19]. This report is an example of medical management of a cervical ectopic pregnancy. The onset of hemorrhage in the setting of medical therapy can occur rapidly and patients can quickly develop hemodynamic instability. This necessitates inpatient management during the initial stages of medical treatment. In the situation of hemorrhage with hemodynamic instability, immediate surgical intervention is necessary, but fertility sparing options can be attempted prior to proceeding with hysterectomy. Management of cervical ectopic pregnancies has evolved with improved diagnostic capabilities. As additional cases enter the literature it is expected that standardized treatment approaches will gradually develop.

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#### Declaration of Interest

None

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