Novel treatment (new drug/intervention; established drug/procedure in new situation)

Cervical ectopics: less can be more

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Summary

A 27-year-old woman with a positive urinary-pregnancy test, complaining of slight vaginal bleeding and some diffuse lower abdominal pain, presented to the emergency gynaecology unit at the Royal Free Hospital. Her initial ultrasound scan was inconclusive, and so serial serum beta human chorionic gonadotropin (hCG) blood tests were carried out. These demonstrated a suboptimal increase. A second transvaginal ultrasound (TVUS) was therefore performed, which showed a live cervical ectopic pregnancy. The patient, who remained haemodynamically stable, was admitted. She was treated with intramuscular methotrexate. She was given a second dose of methotrexate after 1 week, since her beta hCG levels did not demonstrate a satisfactory fall. A rapid decrease in serum hCG was then observed and the patient was then discharged. An outpatient TVUS was normal. The patient remained well throughout her treatment, never suffered any profuse vaginal bleeding, and thus surgical intervention was avoided.

BACKGROUND

This case is important and engaging for several reasons: First, cervical ectopics are uncommon, but they can be extremely dangerous. Traditionally, because of the risk of profuse and life-threatening bleeding, gynaecologists have had early recourse to surgical techniques to terminate the pregnancy. This case shows that even with live ectopic and relatively high levels of serum beta human chorionic gonadotropin (hCG) it is possible to manage these women, in the right setting, conservatively.

Second, it shows that even in the absence of obvious risk factors for a cervical ectopic, such as previous cervical surgery or dilatation and curettage, this diagnosis still ought to be considered.

Third, the case highlights the benefits of centres having access to uterine artery embolisation facilities and expertise should profuse bleeding occur following conservative management with chemotherapy, or if hCG levels continue to rise despite cytotoxics.

CASE PRESENTATION

A primiparous 27-year-old primary-school teacher presented to our emergency gynaecology unit, having experienced 2 days of light vaginal bleeding, and some abdominal pain, which she described as mild but occasionally crampy. She was haemodynamically stable.

Her last menstrual period was on 5 November 2011 and a urinary pregnancy test was positive on 15 December 2011. The patient's medical history included Crohn's disease that was diagnosed at the age of 18. This was reasonably well controlled with a once-daily dose of azathioprine, 150 mg. She had an open appendectomy in her early teens.

This was her second pregnancy: her first went to term and was not complicated by bleeding in early pregnancy. She had a caesarean-section delivery of a healthy infant, following failure to progress in labour, and afterwards had an uneventful recovery. This pregnancy was planned, she

was a non-smoker in a stable relationship, and she had not been using any contraception.

A transvaginal ultrasound (TVUS) scan on the day of her first attendance at our unit, when by dates she was 6 weeks and 5 days pregnant, proved inconclusive. The report suggested that what could be a gestation sac was visualised, measuring 14×10×13 mm, corresponding to a 5-weeks-and-2-days-old gestation. There was no clear evidence of a fetal pole, and the findings were noted as being 'suggestive of an early pregnancy failure'. An ectopic pregnancy could not be excluded with this scan.

The patient's first beta hCG level, taken on the day of her initial scan, was 4186 IU/l. Given her history and scan findings, this was repeated 48 h later. The patient remained well, and the bleeding had settled. Her second beta hCG showed a suboptimal rise of 47% to 6145 IU/l. A third beta hCG showed another suboptimal but smaller increase of 14% to 7006 IU/l.

A second TVUS was performed: this showed a live cervical ectopic, the fetal heartbeat was visualised and the fetus had a crown-rump length of 5.5 mm. Blood flow was demonstrated to this area. The previously-seen suspected gestation sac was no longer apparent.

The patient was admitted and counselled about the likelihood of having a cervical ectopic. On speculum examination, the os was closed and the cervix looked normal. There was no bleeding. She was neither tachycardic or hypotensive.

The patient was given intramuscular (IM) methotrexate, at 50 mg/m², the day after her scan. At the time of the methotrexate injection her beta hCG was measured as 9149.

Two days after the methotrexate, she had a third TVUS: this showed an irregular gestation sac with a 5.8-mm fetal pole at the posterior cervical wall, at the level of the internal os. On this occasion, no fetal heartbeat was seen. The patient experienced some slight abdominal bleeding, but remained stable. She was

Figure 1 Appearances of a possible gestational sac 14×10×13 mm, approximating to 5 weeks, 2 days gestation. A simple 30 mm cyst at left ovary. There is no clear evidence of fetal pole.

Figure 2 Appearances are consistent with a live cervical ectopic pregnancy, with positive blood flow to the area. CRL 5.5 mm.

Figure 4 Normal pelvic scan with the presence of a small calcified area within the lower segment, likely fibroid.

Figure 3 Irregular gestation sac with a 5.8-mm fetal pole at posterior cervical wall, at the level of the internal os. No fetal heartbeat is seen.

discussed with the consultant in interventional radiology and plans were made for early uterine artery embolisation should the bleeding become heavy.

Her day-7 postmethotrexate beta hCG levels were 12 279, 34% higher than the day 0 levels. Given this increase in serum hCG levels, she was given a second dose of methotrexate. Following this, her hCG levels fell dramatically and she was discharged from hospital 2 days after her second dose. Levels of beta hCG were monitored after discharge, and these continued to decline to normal levels. A TVUS 1 month after discharge showed the complete resolution of the cervical ectopic.

DISCUSSION

The incidence of cervical pregnancies is estimated to be less than 1% of all ectopic pregnancies.¹ Risk factors for this type of ectopic pregnancy include previous instrumentation of the cervix, curettage, the presence of an

intrauterine device, in vitro fertilization (IVF) or diethylstilbestrol exposure.^{2 3}

These pregnancies, although still rare, are becoming more common worldwide owing to the increasing use of IVF techniques, and cervical instrumentation and surgery. Diagnoses have also increased owing to the wider use of ultrasound scanning. Traditionally, hysterectomy had been the mainstay of treatment. Recently, however, various less invasive techniques have been described for treating these extra-uterine pregnancies. These have included tamponade with a Foley catheter,⁴ curettage, chemotherapy⁵ and uterine arterial embolisation.

A series published in 2009⁶ examined the management of 25 cervical pregnancies at a centre in Miami. Twenty-four opted for conservative or minimally invasive treatment. One patient opted for hysterectomy. Of the 24 who opted for conservative management, 15 had fetal cardiac activity and all of these women received ultrasound-guided fetal intracardiac injection of potassium chloride. This was given in addition to systemic methotrexate in all but two of these patients, who had heterotopic pregnancies. The remainder were either given systemic methotrexate alone or had beta hCG levels that demonstrated a significant spontaneous drop such that further treatment was unnecessary. Only two cases developed an acute haemorrhage, and both underwent uterine artery embolisation, in one case this was carried out successfully, in another the bleeding could not be controlled by this approach and so the cervical branch of the uterine arteries were ligated via a transvaginal approach. A study by Leeman and Wendland⁷ also suggested using intra-amniotic cytotoxics in the presence of a cervical ectopic with a beating heart (figures 1–4).

Clearly, this differs from the management of our patient: she received two IM methotrexate injections, did not have any acute haemorrhage, demonstrated a sharply declining serum beta hCG level after her second dose and on follow-up scans showed complete resolution of the ectopic. This shows that IM methotrexate can be considered in cervical-ectopic cases with high levels of beta hCG, even in the presence of a fetal heartbeat on ultrasound imaging. This can obviate the need for the technically challenging intra-amniotic injection of potassium chloride. This course of treatment needs to be done in an inpatient setting, given the risk of haemorrhage. It is also extremely important to have available recourse to uterine

artery embolisation facilities. These need to be available in the event of haemorrhage, and clearly the patient ought to be counselled fully about the risk of haemorrhage, and the possible requirement both for uterine artery embolisation and for potential surgical intervention with a hysterectomy if the bleeding is intractable and life threatening.

Learning points

- Cervical ectopic pregnancies can occur in the absence of risk factors.
- Even in the presence of cardiac activity on ultrasound, consideration should be given to treating cervical ectopics with intramuscular methotrexate alone.
- This type of conservative management ought to be considered when facilities are available on site for uterine artery embolisation and surgical escalation.
- The patient needs to be counselled fully about the possible need for major surgery, including a hysterectomy, should the bleeding become life-threatening and refractory to other less radical steps to control it.

Competing interest None.

Patient consent Obtained.

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