Spontaneous live unilateral twin ectopic pregnancy – A case presentation

Suman Vohra¹, Shazia Mahsood¹, Hannah Shelton², Khaled Zaedi¹ and DL Economides¹

¹Department of Obstetrics and Gynaecology, Royal Free Hospital, Hampstead Heath, London, UK

²Department of Radiology, Royal Free Hospital, Hampstead Heath, London, UK

Corresponding author: Suman Vohra. Email: suman.vohra@nhs.net

Abstract

The incidence of ectopic pregnancy has increased in recent years and now is around one in 100 pregnancies. However, the incidence of live twin ectopic pregnancy in a spontaneous conception is still quite rare. A 34-year-old gravida 3, para 0 presented in the Early Pregnancy Unit with a positive pregnancy test, lower abdominal pain and vaginal spotting. Her quantitative serum Beta hCG was high, and the transvaginal scan revealed an empty uterine cavity with a twin ectopic pregnancy in the left adnexa with cardiac activity in both embryos. The patient was taken for laparoscopic surgery and a left ampullary twin pregnancy was confirmed. She underwent a left salpingectomy and is well on a one-year follow-up. This case report discusses the incidence, diagnoses and treatment of ectopic pregnancies in general.

Keywords: Twin ectopic pregnancy, transvaginal ultrasound, early pregnancy

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Introduction

An ectopic pregnancy occurs when a blastocyst gets implanted in a location other than the endometrial lining of the uterine cavity. This is true for both singleton and multi-gestational ectopic pregnancies. The incidence of ectopic pregnancy has increased since the introduction of assisted reproductive techniques (ART) and tuboplasty. As many as one in 100 pregnancies is an ectopic pregnancy. If mismanaged, this is a potentially life-threatening problem.¹ The commonest site for ectopic pregnancy is the fallopian tube (approximately 95%), with 3% being ovarian in location and the rest (<1%) abdominal or cervical or in the cornua. Although quite rare, the incidence of twin ectopic pregnancies is estimated to occur in 1/125,000 pregnancies, and twin tubal ectopic 1/200 of ectopic pregnancies.

We present a rare case of unilateral twin ectopic pregnancy in a spontaneous conception with cardiac activity demonstrated in both embryonic poles. This case presented in the Early Pregnancy Unit and was diagnosed by transvaginal ultrasound with colour Doppler and M mode.

Case report

A 34-year-old (gravida 3, para 0+2) presented to the Emergency Gynaecology Unit with a positive pregnancy test, a one-day history of lower abdominal pain, which increased on exertion and some vaginal spotting. The patient's last menstrual period was six weeks prior to presentation and her menstrual cycles were regular. She had a

history of one complete miscarriage and one right-sided ectopic pregnancy. She was a smoker, smoking up to 5–6 cigarettes per day, but did not consume alcohol. The patient's cervical smear tests were normal. She had a history of adhesiolysis for adhesions secondary to pelvic inflammatory disease but screened negative for sexually transmitted infections.

On examination, the patient was afebrile with normal vital signs. Abdominal bimanual palpation revealed a normal-sized uterus and normal right adnexa; however, left adnexal tenderness was elicited. On pelvic examination, the cervix appeared closed with no blood in the vaginal vault.

The patient's blood pressure was 84/57 mmHg and her heart rate was 67 beats/min. Laboratory results showed a positive pregnancy test, a quantitative serum Beta hCG (β -hCG) of 6927 IU and a normal full blood count.

A transvaginal ultrasound scan (TVUS) was performed using a GE Healthcare (Milwaukee, WI, USA) scanner, equipped with a 5–9 MHz endo-cavity transducer. Real-time grey scale examination revealed an anteverted uterus, which was slightly bulky but had no obvious focal lesion. The endometrium was echogenic with an endometrial thickness measuring 12.4 mm. No gestational sac was seen within the endometrial cavity. The right ovary appeared normal in size and echo pattern. It measured $2.7 \times 0.8 \times 1.9$ cm (volume 4.1 cc). The left ovary appeared normal; however, in the left adnexa, adjacent to the ovary,

a thick-walled cystic mass measuring 2.0×2.5 cm was identified. On further exploration, there was evidence of two yolk sacs and two embryonic poles (Figure 1), both demonstrating cardiac activity seen within a single gestation sac. No inter-twin membrane separating the two embryos was delineated. Colour Doppler (Figure 2) and M mode ultrasound (Figure 3) confirmed the presence of cardiac activity in both embryonic poles.

The CRL (crown rump length) of twin 1 was 1.5 mm with a heart rate of 108 beats/min, with the CRL of twin 2 being 1.6 mm with a heart rate of 102 beats/min, corresponding to a gestational age of approximately six weeks. There was no free fluid seen in the pelvis at the time of the scan.

The ultrasound findings suggested a live monochorionic, monoamniotic twin ectopic pregnancy.

In view of the ultrasound findings, the patient underwent laparoscopic surgery. Intra-operatively, a normal right tube and right ovary were seen. A hemoperitoneum of approximately 100 mL was noted in the Pouch of Douglas. An ampullary left ectopic pregnancy was noted. A left-sided salpingectomy was performed. The pathology specimen demonstrated a fallopian tube, which on dissection revealed two haemorrhagic nodules with trophoblastic tissue surrounding them, probably representing the two embryonic poles. Peripheral adhesions of parietal peritoneum to the liver were also seen (Fitz Hugh-Curtis

Figure 1 The transvaginal ultrasound illustrating evidence of a gestational sac in the left adnexa adjacent to the left ovary. Careful exploration reveals two embryonic poles measuring 1.5 and 1.6 mm, respectively

Figure 2 Colour Doppler shows peritrophoblastic flow around the ectopic

syndrome). Post-operative recovery was unremarkable. The patient was well on one-year follow-up.

Discussion

Ectopic pregnancies account for 1% of all pregnancies, represent a major health risk for women of childbearing capacity and can result in life-threatening complications if not treated properly.^{1,2} The classic clinical triad of ectopic pregnancy is pain, amenorrhea and vaginal bleeding.³ The incidence of ectopic pregnancies has been increasing since the 1970s. Multiple risk factors which contribute to the incidence of ectopic pregnancy are: pelvic inflammatory disease, previous ectopic pregnancy, history of tubal surgery and conception after tubal ligation, and use of fertility drugs or assisted reproductive technology. Other risk factors include use of an intrauterine contraceptive device, increasing age, smoking and congenital uterine anomalies.^{2,4}

Live twin ectopics gestations are extremely rare. The first case of live twin ectopics pregnancy was described in 1994.³ Currently, there are approximately 100 published cases in the literature diagnosed pre-operatively and only eight diagnosed cases with documented foetal cardiac activity in a live twin gestation.^{1,2,5-7} A unilateral twin ectopic pregnancy is a rare occurrence which was first described in 1891 by De Ott. Furthermore, a bilateral tubal pregnancy is the rarest form of double-ovum twin pregnancy.² Some studies suggest that there is a delay in ovum transport and consequently implantation, which increases the risk of occurrence of monozygotic twin pregnancies. Monochorionic, monoamniotic twin pregnancies will be unilateral. However, if it is dichorionic, diamniotic it may be unilateral but may rarely present as a bilateral ectopic.⁸

Transvaginal ultrasonography has revolutionised the diagnosis of early pregnancy and gynaecological conditions and has become the method of choice for evaluating early pregnancy complications due to its superior resolution.

TVUS has changed the approach to the diagnosis of ectopic pregnancy, from being based on the inability to visualise an intrauterine pregnancy to one where a positive diagnosis can be made. TVUS allows visualisation of an ectopic mass with or without an embryo within it and detailed evaluation of the adnexa of patients suspected of having ectopic pregnancies.^{5,9}

The key to diagnosis of an ectopic pregnancy is determining the presence or absence of an intrauterine gestational sac with co-relation of serum β -hCG levels. An ectopic pregnancy should be suspected when TVUS does not show an intrauterine gestation with a serum β -hCG level of 1500 IU/L or higher. Women with ectopic pregnancies tend to have lower β -hCG levels than those with normal intrauterine pregnancies; however, twin ectopic pregnancies have high levels of β -hCG similar to normal intrauterine pregnancies. In our case, the β -hCG level was high (6927 IU/L) at the time of ultrasound examination.

The presence of other indirect signs, such as fluid in the Pouch of Douglas, free fluid in the pelvis or a pseudo sac in the endometrial cavity are helpful indicators in establishing the diagnosis. Other presentations could be an in-homogeneous adnexal mass or an empty extra uterine sac with an empty endometrial cavity. Other rarer locations for an ectopic pregnancy could be in the cervical region or along the lower anterior segment of the uterine wall with myometrial dehiscence in a caesarian section scar.¹⁰

Colour and Pulse Doppler can also help to differentiate a non-specific adnexal mass. The colour flow pattern associated with an ectopic is variable, with a sensitivity of 73–69% and a specificity of 87–100%.^{11,12} The colour flow pattern appears as randomly dispersed multiple small vessels showing high velocity and low impedance flow signals (resistive index (RI) of 0.38–0.45), the classical ring of fire sign. However, women with tubal abortion demonstrate significantly higher impedance (RI of up to 0.60) and less prominent colour flow in the trophoblastic tissue.

Figure 3 Demonstration of cardiac activity in both embryonic poles on M mode ultrasound, suggesting live twin ectopic gestation

Therefore, this sign is more likely to be seen in a corpus luteum cyst as this is more common than an ectopic pregnancy. Colour Doppler imaging is most helpful when an ectopic pregnancy is not seen but is highly suspected. In such cases, colour Doppler imaging can be used to help find a mass surrounded by bowel loops.¹¹ In our case, colour Doppler and M mode ultrasound further helped to confirm and document cardiac activity and peritrophoblastic flow.

More recently, it has been reported that 3D ultrasound may aid in the management of ectopic pregnancy and it has proven useful in both initial diagnosis and in the follow-up of ectopic pregnancies, especially in assisted reproduction treatment and embryo transfer.^{7,9,12,13}

Treatment of an ectopic pregnancy depends on its clinical presentation, size and β -hCG levels. It may entail conservative, medical or surgical intervention. Ectopic pregnancies can resolve spontaneously through regression or tubal abortion. Surgical management is reserved for patients who refuse methotrexate or have contraindications to medical treatment and those in whom medical treatment has failed or patients who are haemodynamically unstable. Laparoscopic treatment of ectopic pregnancy is associated with lower cost, less operating time, shorter hospital stays and faster recovery.^{4,5} Salpingectomy is the recommended treatment; however, salpingostomy can be considered for women with one tube who are wishing to preserve their fertility.⁴

With the advancement of ultrasound technology and expertise, and the use of serum β -hCG levels, earlier detection and management of ectopic pregnancy is achieved resulting in an increase in fertility in subsequent pregnancies.

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Guarantor: SV.

Contributorship: HS and SV scanned the patient. SM wrote the first draft of the case report. SV researched literature and rewrote the second and third drafts of the manuscript. DE edited the final draft and SV submitted the case report. KZ operated on the patient and provided the operation and the follow-up details. DE is the departmental clinical lead.

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