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Pre-Operative Sonographic Diagnosis of Unilateral Live Twin Ectopic Tubal Pregnancy Post-Tubal Ligation

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Abstract

The incidence of ectopic pregnancy has increased in recent years. Unilateral twin ectopic pregnancy is a rare condition and only about 100 cases have been reported in the literature. There are less than 10 unilateral ectopic pregnancies reported with beating heart in both the embyos. We present a case of live twin tubal unruptured ectopic pregnancy in a 29 years old multigravida, with history of bilateral tubal ligation 5 years ago. Ultrasonography revealed two gestational sacs of 7.2 weeks with live embryo in extra-uterine location. Laporotomy was performed for right salpingooopherectomy. This case report discusses in brief the incidence, diagnosis, treatment of ectopic pregnancy and short review of literature.

Introduction

The incidence of ectopic pregnancy (EP) is around 1-2% of all pregnancies [1] and the incidence of spontaneous twin pregnancy is 1:90 [2]. However, live unilateral tubal twin EPis a very rare condition and occurs in about 1:125,000 of pregnancies [3]. Most cases (95%) of unilateral tubal twin EPs are monochorionic and monoamniotic [4, 5]. A history of pelvic pain along with amenorrhea and vaginal bleeding are found in 45% of EPs [6] and probability of EP in a patient with only abdominal pain and vaginal bleeding is 39%. The likelihood of EP rises to 54% if the patient has other risk factors including history of tubal surgery, previous EP or pelvic inflammatory disease [7].

Case Report

A 29 years old (gravida 3, para 2, liv 2) attended the antenatal clinic after having positive pregnancy test. The patient had last menstrual period eight weeks ago and her menstrual cycles were regular. Patient had last child birth 6 years ago and bilateral tubal ligation was done in 2013. She has no known history of sexually transmitted infections and was not under any fertility treatment.

On examination, the patient was afebrile with normal vital signs. The patient's blood pressure was 110/80 mm Hg and her pulse rate was 80 beats/minute. Abdominal examination was normal. Pelvic examination revealed no bleeding, no adnexal mass, normal size anteverted uterus and no cervical tenderness. Laboratory results showed a positive pregnancy test, a quantitative serum beta hCG of 8500 IU and a normal full blood count. Urinalysis was normal.

Real-time grey scale pelvic ultrasound revealed an anteverted uterus 8.5 cm x 3.5 cm with an endometrial thickness measuring 11 mm. No gestational sac was seen in the endometrial cavity. Two gestational sacs with live embryo were seen outside the uterus. Transvaginal sonography revealed two distinct gestational sac, each one containing an embryo (Fig. 1). The crown rump length of twin 1 was 11.7 mm with heart rate of160 beats/min (Fig 2). The CRL of twin 2 being 11.7 mm with a heart rate of 149 beats/min.

The gestational age corresponded to 7.2 weeks. Right ovary showed a cyst of 17.2 x 13.8 mm. The left ovary was not visualized. There was no free fluid in the pelvis at the time of the scan. Colour Doppler ultrasound confirmed the presence of cardiac activity in both the embryos (Fig.3). The ultrasound findings suggested unruptured twin ectopic gestation (dichorionic) with live embryo in the both the sac.

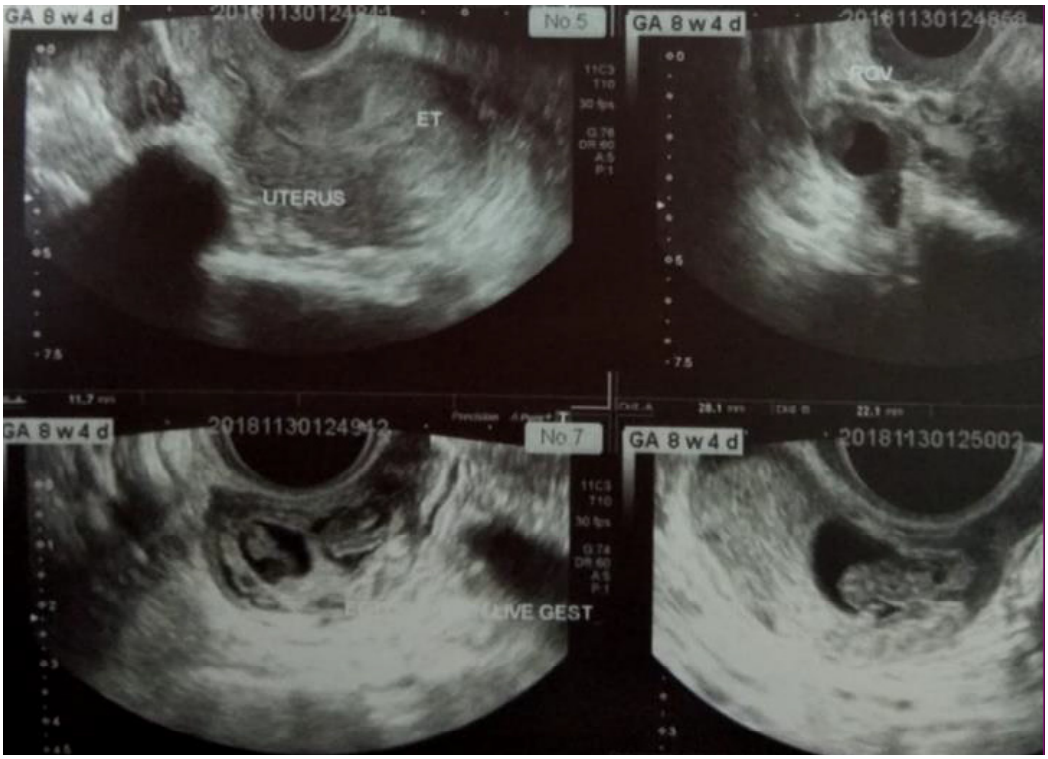

Fig 1. *Empty uterus with thickening of endometrium , cyst in right ovary and two distinct gestational sac (dichorionic) outside the uterus each containing an embryo*

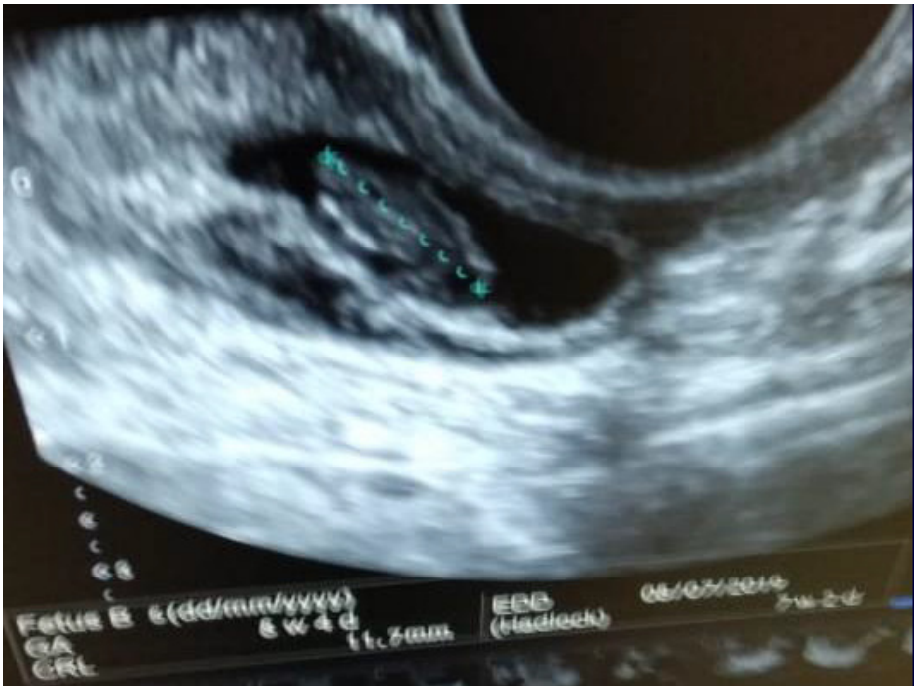

Fig 2. *The crown rump length measured 11.3 mm corresponding to 7.2 weeks gestation*

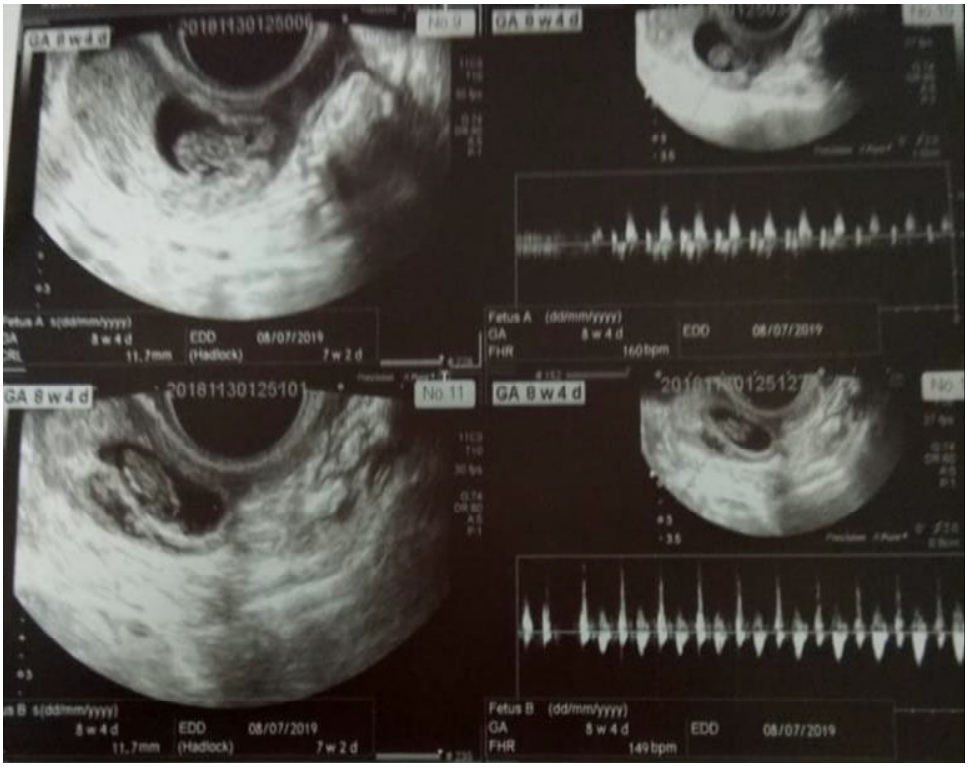

Fig 3. *Cardiac activity is demonstrated in both the embryos*

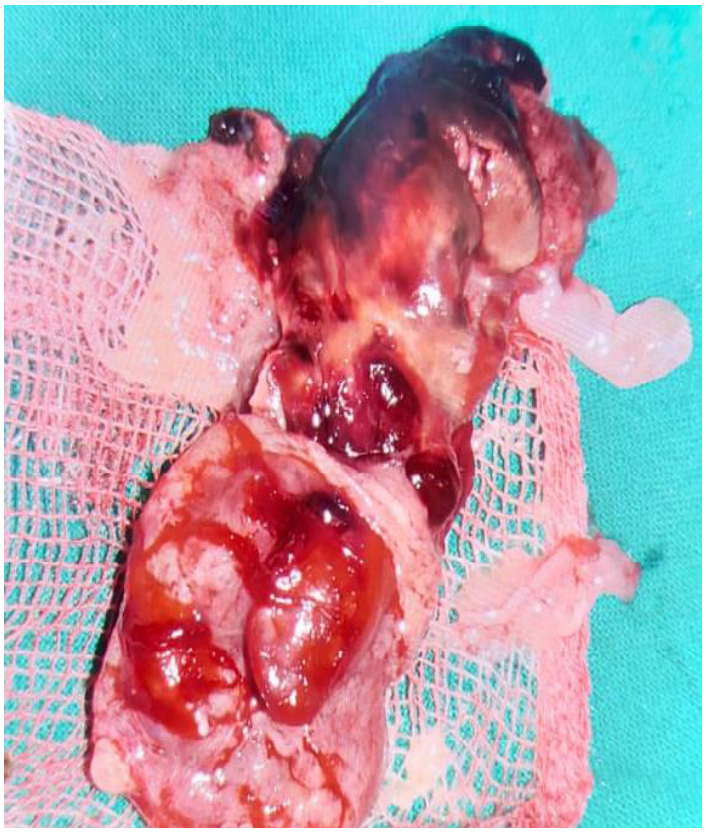

Fig 4. *Pathology specimen showing two tubal masses representing two gestational sac in the fimbria of right Fallopian tube (arrow)*

Laporotomy was performed with right sided salpingo-opherectomy. Intra-operatively two tubal masses of lemon size were observed in the ampullary region of right Fallopian tube. Left tube was tied. The pathology specimen (Fig. 4) demonstrated a fallopian tube with two nodules representing the two gestational sac. H & E stain revealed chorionic villi lined by cytotrophoblastic and syncytiotrophoblast cells, and right ovary showing simple serous cyst.

Post-operative recovery was unremarkable and the patient was discharged on 7th day from the hospital. The patient was well on follow up after 15 days.

Discussion

Ectopic pregnancy represents a major health risk for women of childbearing capacity and can result in life threatening complications if not treated properly[8]. The incidence of EP is increasing over the past years due to multiple factors such as history of tubal surgery, conception after tubal ligation, using fertility drugs and assisted reproductive technology [4].

The incidence of ectopic pregnancy has risen to fourfolds compared to the rates in 1970 in the United States (from 0.5% of all pregnancies in 1970 to 2% in 1992) [9]. However, unilateral tubal twin EPs are still rare and until now about 100 cases have been reported in the literature[10]. Moreover, fetal cardiac activity has been reported in about <10 cases[11].

The reported incidence of unilateral twin tubal pregnancy is 1:200 ectopic pregnancies [12].

It is reported that the incidence of tubal rupture is about 32% and the risk of rupture rises about 2.5% for every 24 hours period when untreated [13].

The commonest site for ectopic gestation is the fallopian tube (approximately 95%), with 3% being ovarian in location and the rest (<1%) abdominal or cervical or in the cornua [14].

The classic clinical triad of ectopic pregnancy is pain, amenorrhea and vaginal bleeding [15].

Studies demonstrated that a B-hCG value of above 1500 mIU/ml corresponds to an approximately 91.5% detection of gestational sacs [16].

Live twin ectopic gestations are extremely rare. The first case of live twin ectopic pregnancy was described in 1994 [17]. Currently, there are approximately 100 published cases in the literature diagnosed pre-operatively [18] and only eight diagnosed cases with documented foetal cardiac activity in a live twin gestation [19]. A unilateral twin ectopic pregnancy is a rare occurrence which was first described in 1891 by De Ott [20].

Transvaginal sonography has revolutionized the diagnosis of early pregnancy and gynecological conditions due to its superior resolution enabling detailed evaluation of the adnexa in patients suspected of having ectopic pregnancies. [21]. The key features to diagnosis of an ectopic pregnancy are the presence or absence of an intrauterine gestational sac with co-relation of serum beta-hCG levels. 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 in establishing the diagnosis.

Other presentation could be an in-homogenous 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 caesarean section scar [22].

Colour and Pulse Doppler can also help to differentiate a non-specific adnexal mass. The colour flow pattern is seen as the classical ring of fire sign. Doppler imaging can be used to help find a mass surrounded by bowel loops [23]. Several risk factors for tubal EP were identified including active/passive cigarette/tobacco smoking, tubal damage as a result of surgery or infection(particularly Chlamydia trachomatis), and in vitro fertilization [1]. Some authors indicated that the number of prior deliveries, EPs and spontaneous or induced abortions were strongly associated with the occurrence of EP [24, 25].

The surgical treatment is the most reported option in literature to treat unilateral tubal twin pregnancies [26]. Arikan et al [27] suggested that the non-surgical treatment may be favored in tubal twin EP in case of

stable maternal vital signs and negative fetal cardiac activities.

Salpingostomy can be considered for women with one tube who are wishing to preserve their fertility [28]. In the past, there have been a few cases of twin tubal pregnancies diagnosed preoperatively [6, 10]. Over the years, the treatment of ectopic pregnancy has progressed from salpingectomy by laparotomy to conservative surgery by laparoscopy and more recently, by medical therapy [4].

In the developing countries, 10% of women diagnosed with ectopic pregnancy in hospitals ultimately die [29]

Conclusion

The tubal EP is a major health risk for a woman of childbearing age which may lead to life-threatening complications if not treated properly. Therefore, the clinical triad of symptoms and ultrasonographic findings of suspected adnexal mass and free liquid in the Douglas pouch alongwith an increased B-hCG levels should be considered especially in high risk pregnancy.

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