Ectopic pregnancy after bilateral salpingectomy

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ABSTRACT

Ectopic pregnancy is a life threatening condition and is a major event in a woman's reproductive life. We report herein an unusual case of repeated ectopic pregnancy even after the excision of both fallopian tubes with a deleterious consequences and a near miss. This case teaches us a lesson not to forget ectopic pregnancy. The lady in this report underwent in vitro fertilization treatment cycle due to absence of both fallopian tubes as consequence of previous ectopic pregnancy and a hydrosalpinx; she conceived successfully but unfortunately the pregnancy was another ectopic pregnancy.

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Ectopic pregnancy (EP) accounts for 4.9% on maternal deaths in developed countries.[1] Early recognition and intervention is paramount in avoiding deleterious consequences. Ectopic pregnancy is located frequently (95–98%) in the fallopian tube. Approximately, 2–2.5% of the ectopic pregnancies occur in the cornua of the uterus; the remainders are found in the ovary, cervix, or abdominal cavity. As none of these anatomic sites can accommodate placental attachment or a growing embryo, the potential for rupture and hemorrhage exists. Ectopic pregnancy occurs in approximately 2% of all pregnancies.[2] Modern advances in ultrasound technology and the determination of serum ß -subunit human chorionic gonadotropin (ß-hCG) levels have made it easier to diagnose ectopic pregnancy. Some ectopic pregnancies that are detected today, for instance, would have resolved spontaneously without detection or intervention in the past. Nonetheless, the diagnosis still remains a challenge. The symptoms of ectopic pregnancy may be accompanied by pregnancy discomforts for example: breast tenderness, frequent urination, nausea, and shoulder pain (from blood irritating the diaphragm), and in cases of rupture, light-headedness or shock. Blood in the *cul-de-sac* may cause an urge to defecate. Ectopic pregnancy should be suspected in any women of reproductive age with these symptoms, especially those who have risk factors for an extra-uterine pregnancy.[3] Over 50% of women are asymptomatic before tubal rupture and do not have an identifiable risk factor for ectopic pregnancy.[4] Risk factors most strongly associated with ectopic pregnancy include previous ectopic pregnancy, tubal surgery, and in utero diethylstilbestrol (DES) exposure. A history of genital infections or infertility and current smoking increase risk.[5,6] The objective of reporting this case is to remind the readers of the importance in keeping a high index of suspicion in diagnosing ectopic pregnancy.

Case Report. A 33-year-old lady, gravida 3 para-0, with a history of 2 ectopic pregnancy, was presented to the emergency department complaining of severe lower abdominal pain and syncope attacks, which started 1 day prior to her presentation. She is currently pregnant as a result of in-vitro fertilization (IVF) cycle. The patient had her first spontaneous pregnancy at the age of 23, and was an ectopic pregnancy at the left fallopian tube and was treated with salpingostomy. Four years later, she was pregnant and the pregnancy was an ectopic pregnancy in the right fallopian tube, which was treated with salpingectomy. She kept trying to get pregnant for another 6 years. A hysterosalpingogram showed a left hysdrosalpinx and a blocked left tube. The decision was made to treat her infertility via IVF after performing a left salpingectomy; this was carried out and an IVF cycle was started. Fifteen mature oocytes were collected and 12 were fertilized; 3 embryos were transferred on day 3. Intramuscular progesterone in oil 50 mg daily was prescribed as luteal support and a serum ß-Hcg level was examined 2 weeks after the transfer, which showed a positive result. She kept complaining from lower abdominal pain and per vaginal spotting 2 weeks after her embryo transfer. A transvaginal ultrasound was carried out

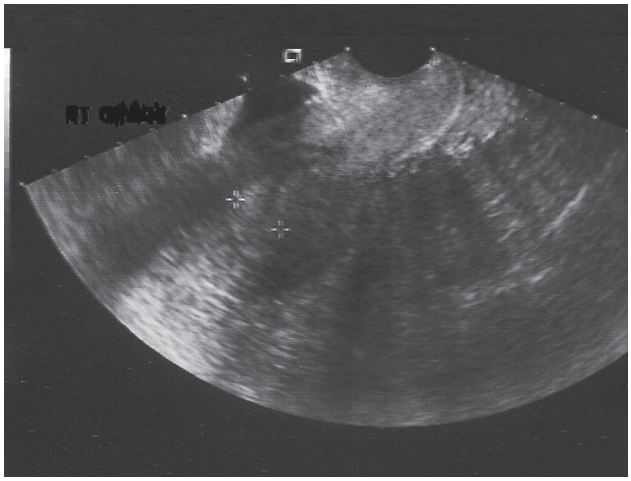

Figure 1 - Ultrasound picture of thick endometrium with no gestational sac.

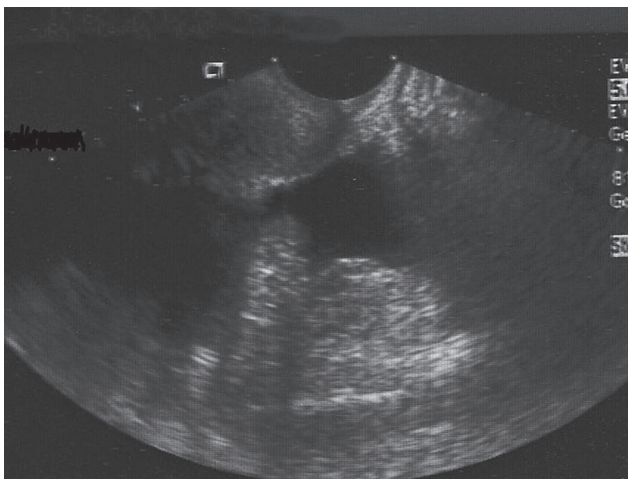

Figure 2 - Free fluid seen in the pouch of Douglas.

and revealed enlarged ovaries and minimal free fluid seen in the pelvis, there was no intrauterine pregnancy visualized. Her serum ß-Hcg was 1400 IU/L. Few days later, she came back to the clinic complaining of the same pain and vaginal bleeding. The vaginal ultrasound was not conclusive (**Figure 1 & 2**) and the serum ß-Hcg was 3000 IU/L. At a gestational age of 7 weeks, she presented to the emergency department complaining of severe abdominal pain, syncope attacks for 10 seconds duration, and generalized weakness. On physical examination, the patient was pale, cold extremities, pulse of 120 beats/ minute, blood pressure of 120/60, and a respiratory rate of 20 per minute. Her chest examination was normal and the abdomen was diffusely tender with rebound tenderness. Vaginal examination revealed a positive cervical excitation test. An emergency ultrasound scan revealed a large amount of free fluid within the abdominal cavity. The patient's hemoglobin was 80 g/dl [normal range (NR) 10-14 g/dl], hematocrit of 23% (NR 40 ± 4), and ß-Hcg of 23000 IU/L. The patient was then taken to operating room and an emergency laparotomy was performed and revealed a hemo-peritoneum of 1500 CC, absent fallopian tubes, and a left ruptured cornual ectopic pregnancy. The ectopic pregnancy was excised and the ruptured part of the cornua was sutured. The patient received 4 units of packed red blood cells. She recovered well after surgery and was discharged home 4 days post operative and her ß-Hcg was negative 2 weeks after of the surgery.

Discussion. Ectopic pregnancy is a life threatening condition, which still plays a role in maternal mortality. The case presented, is a near miss and the early diagnosis was missed due to the fact that the patient had bilateral salpingectomy and the pregnancy was a result of an IVF cycle. The free fluid, which was seen on transvaginal ultrasound scan (TVS) earlier was erroneously interpreted as a result of egg collection or a result of hyperstimulation, which made the diagnosis of ectopic pregnancy trickier. The incidence of ectopic pregnancy is higher in the infertility population, although this could reflect the increased incidence of tubal abnormality in this group of women. Several reports have also suggested an association between fertility drugs and ectopic pregnancy, which may be related to altered tubal function secondary to hormonal fluctuation.[6] Clinical manifestations of an ectopic pregnancy typically appear 6 to 8 weeks after the last normal menstrual period, but can occur later, especially if the pregnancy is interstitial (cornual).[7] The symptoms of ectopic pregnancy can be difficult to distinguish from other complications of early pregnancy, such as spontaneous abortion either a ruptured or bleeding corpus luteum cyst. Transvaginal ultrasound is the first diagnostic tool to be used in pregnant women with first trimester vaginal bleeding or pelvic pain. If the imaging study is non-conclusive, transvaginal ultrasound findings in conjunction with serial serum ß-Hcg concentrations facilitate a diagnosis of ectopic pregnancy early in pregnancy.[8,9] Visualization of an extrauterine gestational sac containing a yolk sac or embryo is diagnostic of ectopic pregnancy, but will be detected in less than 50% of cases.[10] Therefore, a negative pelvic ultrasound, namely, no intrauterine or extrauterine gestation, does not exclude the diagnosis of ectopic pregnancy. The occurrence of an intrauterine and concomitant extrauterine gestation (heterotopic pregnancy), is a very rare condition; therefore, the identification of an intrauterine pregnancy effectively excludes the possibility of an ectopic in almost all cases of spontaneous conception. However, pregnancies

conceived with assisted reproductive technology are an exception, since the incidence of heterotopic pregnancy may be as high as 1/100 to 1/3000 pregnancies.[11] The sonographic findings with an interstitial pregnancy are different. A gestational sac or hyperechoic mass can be seen in the cornua (sensitivity 80%, specificity 99%), with myometrial thinning.[12,13] However, an interstitial (cornual) pregnancy can be difficult to distinguish from an intrauterine pregnancy that is eccentrically positioned. Ultrasound examination may also demonstrate free fluid within the peritoneal cavity, suggesting intra-abdominal bleeding. As little as 50 mL of fluid can be detected in the pouch of Douglas by ultrasound. Serial evaluation of serum ß-hCG levels is helpful in diagnosing ectopic pregnancy as ß-hCG levels double in average of every 2 (1.4-2.1) days in early pregnancy.[14] The ß-hCG concentration rises at a much slower rate in most ectopic and non-viable intrauterine pregnancies. In fact, a minority of ectopic pregnancies are associated with hCG levels that follow a normal doubling time.[15] The gestational sac may be observed by TVS in patients with ß-hCG concentrations as low as 800 IU/L and is usually identified at concentrations above 1500 to 2000 IU/L.[16] The absence of an intrauterine gestational sac at ß-hCG concentrations above 2000 IU/L strongly suggests an ectopic pregnancy. Serum progesterone concentrations are higher in intrauterine than ectopic pregnancies. A concentration of greater than 25 ng/mL is usually (98-99%) associated with a viable intrauterine pregnancy, with lower concentrations in ectopic and intrauterine pregnancies that are destined to abort. A concentration less than 5 ng/mL almost always (99.8%) means the pregnancy is non-viable.[17] Trophoblastic tissue obtained by uterine curettage will distinguish between an intrauterine pregnancy and an ectopic pregnancy. However, the use of curettage as a diagnostic tool is limited by the potential for disruption of a viable pregnancy. Moreover, false negatives can occur: chorionic villi are not detected by histopathology in 20% of curettage specimens from elective termination of pregnancy. Laparoscopy is rarely required for diagnostic purposes only; transvaginal ultrasound examination and hCG measurements are usually sufficient for diagnosis. However, an ectopic pregnancy detected at laparoscopy should be treated immediately by surgery. Management of ectopic pregnancy has dramatically changed from a primarily surgical approach to the medical therapies that currently predominate. Indications for surgical therapy includes ruptured ectopic pregnancy, especially in a hemodynamically unstable woman, inability or unwillingness to comply with contra-indications to medical therapy, lack of timely access to a medical institution for management of tubal rupture, which can occur during medical therapy, and failed medical therapy. Salpingostomy is the preferred treatment of ectopic pregnancy in women who are hemodynamically stable and who wish to preserve their fertility while some ectopic pregnancies are best treated by salpingectomy, instead of salpingostomy. These conditions includes uncontrolled bleeding from the implantation site, recurrent ectopic pregnancy in the same tube, severely damaged tube, large tubal pregnancy (such as greater than 5 cm), and in women who have completed childbearing. Laparoscopic surgery is the surgical approach of choice. In conclusion, ectopic pregnancy should be excluded in any patient who presents with early pregnancy complication such as bleeding or abdominal pain especially in cases who underwent assisted reproductive technology or with history of ectopic pregnancy even though the fallopian tubes are taken out as they are the major site of ectopic pregnancy but not the only one.

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