

Recurrent viable ectopic pregnancy in the salpingectomy stump

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Abstract Ipsilateral ectopic pregnancy after total salpingectomy is a rare occurrence and in theory should not happen. We report a case where a spontaneous ectopic pregnancy was found in the stump of the previously removed tube. This case highlights the need for further consideration of the diagnosis of an ectopic pregnancy in the setting of a previous ipsilateral salpingectomy.

Introduction

Ectopic pregnancy is defined as pregnancy that implants outside the uterine cavity. Ectopic pregnancy affects approximately one in 80 pregnancies¹.

NSW Health published a *Maternity – Early Pregnancy Complications* policy in September 2009 to provide relevant information and attempt to streamline the diagnosis and clinical management of women with early pregnancy complications including ectopic pregnancy¹.

The advent of high resolution transvaginal sonography and biochemical sensitivity of serum β HCG level estimations has led to a trend of earlier diagnosis of ectopic pregnancies in the natural history timeline. This heightened recognition contributes to the rising incidence¹ as does increased tubal damage due to sexually transmitted disease (mainly Chlamydia) and the use of assisted reproductive technology programs.

The condition rated as the eighth most common cause of maternal death in the latest Confidential Enquiry into Maternal Deaths (CEMD) in the United Kingdom 2003–2005 which reported 10 lethal ectopic pregnancies out of 14 (71%) early pregnancy deaths².

The Australian CEMD 1997–1999 reported only one direct maternal death secondary to ectopic pregnancy³. The associated mortality is decreasing because of the improvements in the diagnosis and treatment of ectopic pregnancies¹.

More than 90% of ectopic pregnancies occur in one of the fallopian tubes. Other sites include the cervix, ovary, caesarean section scar defect and the abdominal cavity.

The fallopian tubes extend from the uterine cornus and measure about 8 to 10 cm in length. The five anatomical segments are:

- Fimbrial end (adjacent to the ovary)
- Infundibular segment (next to the fimbria)
- Ampulla is the wide central segment
- Isthmus is the narrow part of the tube near the uterus
- Interstitial part passes through the uterine muscle into uterine cavity.

The sites of tubal implantation in descending order of frequency are; ampulla (73.3%), isthmus (12.5%), fimbrial (11.6%), and interstitial (2.6%)⁴.

We report a case in which a 35-year-old woman presented to our hospital with a classic triad of pelvic pain, uterine bleeding and a right adnexal mass but with a history

of laparoscopic right total salpingectomy for a viable ectopic pregnancy six months previously.

Ipsilateral ectopic pregnancy after total salpingectomy is rare with only a handful of cases described in the literature in the last decade^{3,4,15–22}.

Case presentation

A 35-year-old woman in her sixth pregnancy presented to our maternity service with amenorrhea of 6 weeks duration. She had self diagnosed her pregnancy at home with a urinary pregnancy kit.

She had a few days history of vaginal spotting and mild abdominal cramping. Her reproductive background consisted of two normal vaginal births at term, two first trimester terminations and one spontaneous early miscarriage.

At this stage she had no history of contraceptive use, pelvic inflammatory disease, operative trauma or endometriosis.

Her serum β HCG level was 18,566 IU/L and a pelvic transvaginal ultrasound (TVUS) showed a gestational sac in the right adnexal region with a viable embryo – crown rump length of 5 mm (Figs. 1a, b, c). The patient was hemodynamically stable.

A laparoscopy was performed and the ectopic pregnancy visualised within the right fallopian tube. Right salpingectomy and removal of ectopic was performed using bipolar diathermy and an endloop vicryl suture placement. The procedure was supervised by a consultant.

The patient was discharged home next day. She recovered well and was advised to follow up early in the next pregnancy. She was counselled regarding safe sexual practices and the use of contraception. The possibility of repeat ectopic pregnancy was discussed and documented.

Six months later the patient was referred by her general practitioner with a similar clinical presentation of 6 weeks since her last menstrual period. The TVUS (Figs. 2a, b, c) performed that day showed gestational sac containing a viable embryo with a CRL of 5.9 mm in the right adnexal region.

The serum β HCG level at this time was also quite high (37 013 IU/L). The patient was triaged for operative management and a laparoscopy was performed which showed an ectopic pregnancy in the stump of the right fallopian tube. The remnant of the tube and ectopic were removed and sent for histopathology (confirmatory results). She recovered well and β HCG levels were undetectable three weeks post operatively.

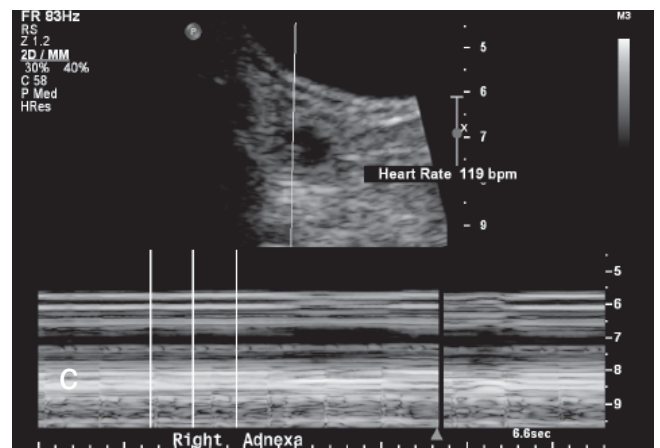
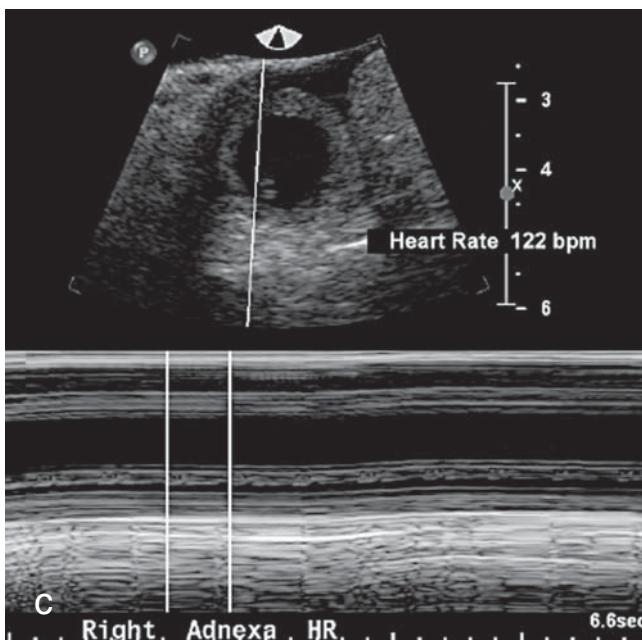
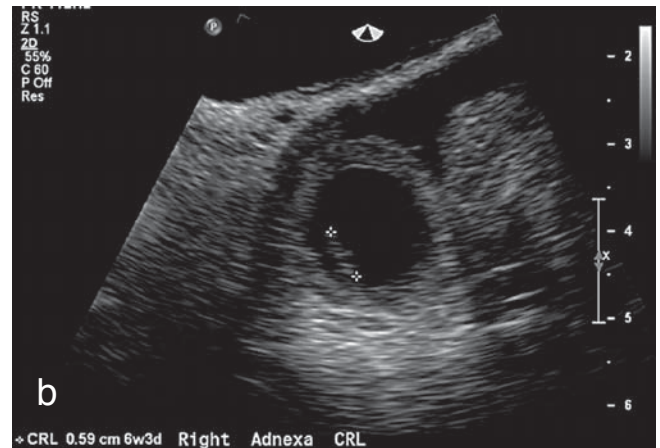
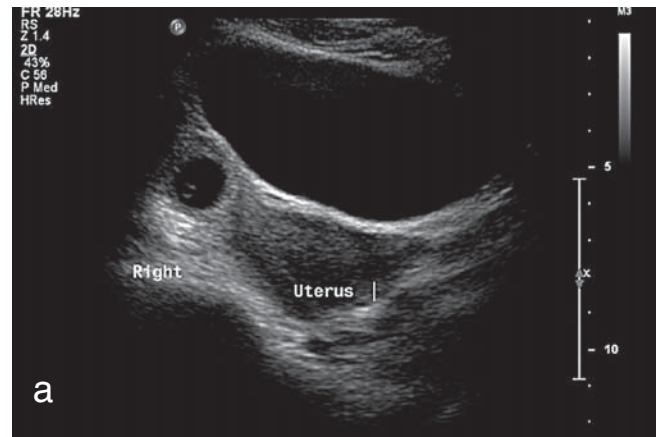
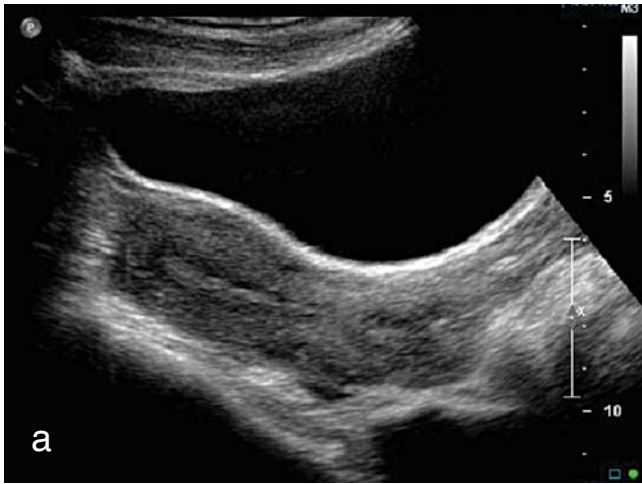


Fig. 1a, b, c: Pelvic (transabdominal and transvaginal) ultrasound images initial presentation: Empty uterus, right adnexal viable ectopic pregnancy. Picture courtesy of Pittwater Radiology NSW.

Discussion

Ectopic pregnancy is diagnosed in 6–16% of women who present to emergency department, with vaginal bleeding, abdomino-pelvic pain or both⁸. The incidence of recurrent ectopic pregnancy is approximately 10–15% and this likeli-

Fig. 2a, b, c: Second presentation: pelvic ultrasound showing an empty uterus and an extrauterine gestational sac containing a yolk sac and viable fetus. Picture courtesy of Pittwater Radiology NSW.

hood increases to 30% following two ectopic pregnancies⁵.

A review of medical and surgical management of ectopic pregnancy described the recurrent ectopic rates after single dose methotrexate salpingectomy, and linear salpingostomy as 8%, 9.8%, and 15.4% respectively, among patients who tried to fall pregnant⁹.

There are multiple theories postulated about the basis of recurrent ipsilateral ectopic pregnancies^{6,7,15–23}. One theory suggests that despite surgical excision, the lumina remain intact or recanalise in the interstitial portion and remnant of the fallopian tube. This permits communication between the endometrial and peritoneal cavities and hence passage of the fertilised ovum or sperm from the uterine cavity to the remnant of fallopian tube. Another possibility

suggests that spermatozoa pass through the contralateral patent tube into the Pouch of Douglas, then journey to fertilise the ovum and implant on the side of the previous ectopic, within the tubal stump. The third assumption is based on transperitoneal migration whereby the fertilised ovum on the side of the normal tube migrates and gets implanted on the tubal stump^{6,7}.

A complex adnexal mass, an empty uterus plus a positive pregnancy test is mostly indicative of an extrauterine gestation and is the most common ultrasonographic presentation. A large prospective study reported the sensitivity of the initial TVUS in the diagnosis of ectopic pregnancy as 73.9% (95% confidence interval: 65.1–81.6), with a specificity of 99.9% (95% confidence interval: 99.8–100), a positive predictive value of 96.7% (95% confidence interval: 90.7–99.3), and a negative predictive value of 99.4% (95% confidence interval: 99.2–99.6).¹⁰ Viable ectopic pregnancies containing embryos that demonstrate cardiac activity are found in approximately one-quarter of tubal pregnancies on transvaginal scanning (as in this patient's first presentation)¹¹.

Management of ectopic pregnancy can be expectant or medical in selected compliant and willing patients. Methotrexate is the drug of choice. Our patient was unsuitable for this option on both occasions because the pregnancies were viable and associated with high serum β HCG levels.

Laparoscopic treatment of ectopic pregnancy is associated with shorter hospital stay, less operative time, reduced blood loss, less analgesic requirement, faster recovery and less cost^{12,13,14}.

The decision for salpingotomy or salpingectomy in ectopic pregnancy treatment is still debated²⁴.

The RCOG Greentop Guideline recommends that "Laparoscopic salpingotomy should be considered as the primary treatment when managing tubal pregnancy in the presence of contralateral tubal disease and the desire for future fertility"²⁴. Operative morbidity is comparable for both procedures. There is an increased risk of persistent or recurrent ectopic pregnancy in the longer term when the primary surgical procedure is a salpingotomy. Such cases and others that leave a tubal residue may well need to be considered as akin to salpingostomy in terms of the recurrence risk.

Although a salpingectomy does not necessarily eradicate all ipsilateral ectopics, it certainly minimises a tubal recurrence on the same side. On the other hand, our case illustrates that it is erroneous to believe that total salpingectomy is always as complete as the word implies. Such cases and others that leave a tubal residue may well need to be considered as akin to salpingostomy in terms of the recurrence risk.

The total laparoscopic salpingectomy was performed (in the first instance) by lifting the fallopian tube through a pre-tied surgical loop using a grasping forceps and three laparoscopy ports. The knot was tightened and the tube then cut off with the scissors and subsequently removed.

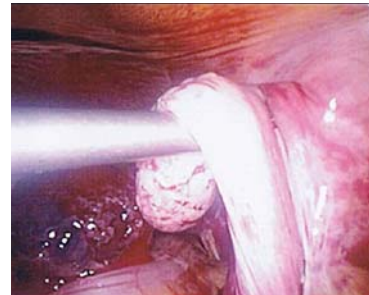
Diathermy electrosurgery/harmonic energy can also be used to fulgurate vessels in the mesosalpinx followed by resection of the affected tube with scissors. The cornual/remnant portion of the tube was desiccated close to the uterus as evidenced by the intra-operative pictures.

Conclusion

Ectopic pregnancy is a common problem with potential for

Laparoscopic operative images

The recurrent ectopic pregnancy in the right tubal stump.



Left tube and ovary had a normal external appearance, were free and mobile in response to the laparoscopic grasper.



The haemoperitoneum was suctioned out. Haemostasis achieved after the right tubal remnant was excised.

maternal morbidity and death. The localisation of pregnancy in suspected ectopic gestation should include detailed ultrasound scanning of both adnexa, irrespective of the nature of any previous surgery. This case highlights the post salpingectomy potential for ipsilateral recurrence of ectopic pregnancy in the fallopian tube stump, as the surgical repair is never flush with the uterine cornu. Hence the need for clinician awareness and vigilance. Furthermore ectopic gestation may occur in non tubal areas including ovaries and bowel.

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