

Role of ultrasound in the early detection of an ectopic pregnancy.

[Health & Medicine](#), [Pregnancy](#)



CASE STUDY: Role of Ultrasound in the early detection of an ectopic pregnancy. Introduction. Ectopic pregnancy is the fourth most common cause of maternal death in the United Kingdom, accounting for 80% of early pregnancy deaths (Lewis and Drife 2004). Furthermore, it is still the most common cause of maternal death in the 1st trimester of pregnancy (Condous G 2006) affecting 1: 100 pregnancies (Ectopic Pregnancy Trust 2007). For this case study I will discuss the essence of scanning women who present in EPU's with a positive pregnancy test and any symptoms of a possible ectopic pregnancy.

CASE REPORT This is the case of 32yrs old primigravida referred to an early pregnancy unit by her GP with a history of irregular menstrual cycle, heavy bleeding for a week and a positive pregnancy test which she did 10days earlier. Conception was spontaneous. Her Gestational age by her LMP was 4weeks and 4days. A transvaginal ultra-sound was performed which identified the absence of an intrauterine gestation sac. The endometrial thickness was 2. 0mm, midline echo intact and thin and homogenous. The right ovary was visible and normal; the left ovary was visible and normal with a corpus luteum.

An adnexal mass separate from the ovary was found adjacent to the left ovary (appendix 1). There was free fluid in the pouch of Douglas with was ground glass appearance which was consistent with haemoperitoneum and was tender to the left were the mass was situated (appendix 2). In view of the findings a left tubal ectopic was diagnosed. In keeping with the department protocol an urgent BHCG and progesterone was done whiles she

was referred to the emergency team for further management. Result came back as BHCG 72 iu/l and progesterone 3.00nmol/l.

She had a laparoscopic salpingectomy for a left tubal ectopic pregnancy. Histology of the product removed laparoscopically was positive of an ectopic, and a repeat BHCG was repeated after a week. The patient was started on antibiotics and recovered successfully. **DISCUSSION** An ectopic pregnancy is an extra uterine pregnancy. The most common site for implantation is the fallopian tube; however, the conceptus may implant in the ovaries, the cervix, or the abdomen (Drife J, Magowan B 2004). An ectopic pregnancy is a potentially life-threatening gynaecological emergency that requires urgent intervention. With the above case her LMP indicated a pregnancy of less than 5 weeks. She would have been considered outside the criteria of finding an ectopic pregnancy, and would have been considered a possible early miscarriage. With the patient's history of irregular bleeding a decision was made to scan. An irregular period can mean that ovulation does not match her last menstrual cycle. All sexually active women of reproductive age who present with lower abdominal pain, with or without vaginal bleeding; an ectopic pregnancy must be excluded.

When a woman presents in a clinic and has had a positive test either at home or at a GP practice it is an indication she is pregnant, and as mentioned by (Bisset, et al 2002) the role of ultrasound is to identify the site of the pregnancy, if an intrauterine pregnancy is not found then ectopic pregnancy should be considered. Likewise a study by (Haider et al 2006) found out that providing ultrasound as an initial assessment with suspected ectopic has

improved clinical management. She should be scan to identify the site of the pregnancy; this was why the decision to scan these women in the department even before an HCG test is carried out. but with her history of irregular period a decision should be made to scan. (The Early Pregnancy RCOG guidelines 2006) confirms a BHCG below 100 iu/l and progesterone below 60iu/l should be treated as an ectopic. When the scan was done and an endometrium of 2mm was seen. The endometrium thickness and appearance can be can be deceptive and these findings can be interpreted as a non pregnant uterus The urine dipstick test for beta-hCG (urinary pregnancy test) carried out is a quick, easy, and sensitive test.

It has a sensitivity of 99% at a urine beta-hCG level greater than 25 IU/L, If a woman has a negative urinary pregnancy test, this almost invariably means that she does not have an ectopic pregnancy. However a blood beta-HCG of 72 iu/l was a low level in keeping with guidelines and if this was done prior to the scan it would have been interpreted as a possible failing pregnancy. However, (Condous G, 2006) insists that if it is positive the woman should have a USS.

As the vast majority of ectopic pregnancies are tubal, there is ongoing debate in regard to the best method to investigate and diagnosing (tubal) ectopic pregnancy. In Condous report it was recommended that a urine test be done but most patients would have had a test prior to their visit in the clinic. An ectopic pregnancy should be suspected in any woman of reproductive age with any symptom the above patient presented with; however these can be associated with symptoms of miscarriages or other

non-pregnancy related etiology. Clinicians should be very suspicious of this symptom although patients can present with others.

A recently published review by (Sawyer and Jurkovic 2007) found that the most accurate way to diagnosing an ectopic pregnancy is the use of a combination of ultrasonography, serum beta-hCG, and histology, either following laparoscopy or dilatation and curettage (D&C). These were all carried out in the purpose of diagnosing, confirming and ensuring a resolution to the problem. However, unlike ultrasonography, neither biochemistry nor histology is available immediately, and when presented with a pregnant woman with pain and/or vaginal bleeding, clinicians must urgently exclude an ectopic pregnancy.

As such, the initial investigation should be ultrasonography. With the above patient the ultrasound identified fluid in the pouch of Douglas and haemoperitoneum which could have been a rupturing corpus luteal cyst could be the closest differential diagnosis; however the thick tubal ring and a solid corpus luteum seen in this case strongly favours ectopic gestation as the diagnosis (appendix 3). This case highlights an example of a situation in which an ectopic pregnancy was adequately diagnosed rather than of a complete miscarriage. Free fluid was noted, it was echogenic suggestive of haemoperitoneum.

Colour. Doppler study reveals a highly vascular 'ring of fire' appearance surrounding the tubal ring, confirming that the cystic adnexal mass is an ectopic gestational sac. This appearance is due to a high velocity, low

resistance, and trophoblastic flow through the feeding branch of the uterine artery on the affected tubal gestation site, which may aid in narrowing the differential, leading to early detection of the condition. It is usually seen as a variable sized mass, consisting of a hypoechoic centre and surrounded by a thick echogenic rim.

This tubal ring can be used to distinguish an ectopic from a ruptured corpus luteum cyst, which is its closest differential. Separate studies by (Ash et al 2007) and (Vaisky et al 2007) demonstrated the value of transvaginal colour flow Doppler in aiding the diagnosis of cornual ectopics. REFERENCES Ash, A, Smith, A, Maxwell, D (2007) Caesarian scar Pregnancy. British Journal of Obstetrics and Gynaecology. Volume 114: 3: 253-263 Bisset R. , Khan A, Thomas N (2002)-Differential Diagnosis on Obstetric and Gynaecological Ultrasound. Second Edition. Elsevier Science limited. London. Condous G. Ectopic pregnancy – risk factors and diagnosis.

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