AUCKLAND RADIOLOGY GROUP

SCAN
OFFICIAL NEWSLETTER

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Early Pregnancy Bleeding

Early pregnancy bleeding is a common problem, often accompanied by pain. Transvaginal ultrasound (TVUS) examination with quantitative beta human chorionic gonadotropin (bHCG) assays has a high diagnostic accuracy for all major causes of early pregnancy bleeding, and has largely replaced clinical pelvic examination. The aetiology of early pregnancy bleeding and its management is clarified by timely ultrasound examination. The availability of early TVUS allows better differentiation between viable and non-viable pregnancies, and is associated with reduced hospital admissions and improved outcomes for women.

Causes of early pregnancy bleeding	
Bleeding in viable pregnancy	50%
Miscarriage (non viable pregnancy)	30-50%
Ectopic pregnancy	7%
Trophoblastic disease, cervical & vaginal	<1%

Viable pregnancy and miscarriage

Threatened miscarriage is a common clinical presentation. Mechanisms for bleeding in a viable pregnancy include implantation, physiological and subchorionic bleeds. TVUS confirms viability from the confirmation of cardiac activity at between 5 and 6 weeks. When cardiac activity is seen this confers a 70-90% probability of delivering a live full term pregnancy. Viability can usually be assessed by TVUS with bHCG over 1000-2000mIU/ml. It is reported that 85% of such women have bHCG levels over 1000mIU/mL.

Ultrasound features of miscarriage depend on the developmental stage of the pregnancy. TVUS assesses the nature of retained products of conception, allowing triaging of expectant, medical and surgical management of incomplete miscarriage. Both the thickness and vascularity of the residual tissue are of significance.

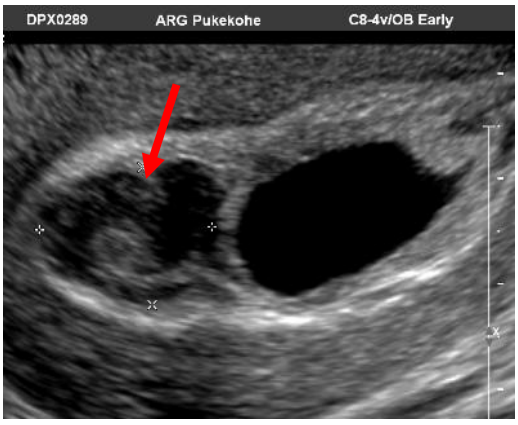

Fig 1. Threatened miscarriage at 6 weeks. Area of subchorionic haemorrhage (arrow), adjacent to the gestational sac.

Fig 2. Transvaginal ultrasound of an 8 week tubal ectopic pregnancy. Clinical details of bleeding, considered clinically to be a threatened miscarriage. A live fetus can be seen (arrow).

Transvaginal ultrasound is the gold standard for viability

- Fetal heart activity seen at 37 days gestation
- Pregnancy with sure dates can be confirmed as non viable at 46 days
- Performing US too early may be inconclusive with a pregnancy of unknown location or an intrauterine pregnancy of uncertain viability. Serial TVUS and bHCG will be needed.

Pregnancies of unknown location

Most women with pregnancies of unknown location present either too early to detect intrauterine pregnancy on TVUS, or in the aftermath of miscarriage with no residual trophoblast. They have no sign of intrauterine or extrauterine pregnancy on TVUS with positive urine HCG. The incidence of inconclusive scans in women attending for early scan is between 8-20%, with most confirmed as spontaneously resolving failed pregnancy and one third are early intrauterine pregnancies, but the prevalence of ectopic pregnancy may be up to 15%. Expectant management is advised, in the absence of worsening clinical symptoms, with serial bHCG and increasing use of colour Doppler on TVUS.

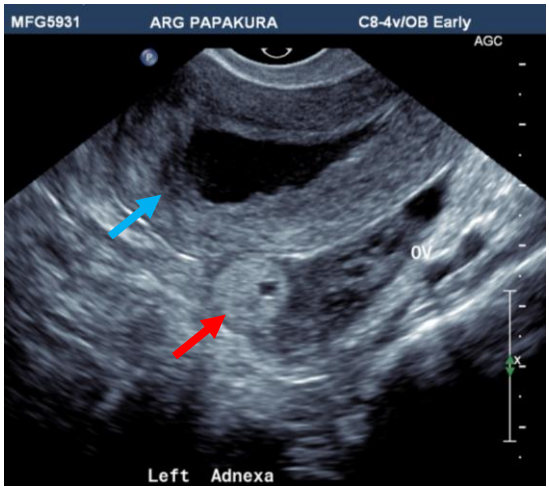

Fig 3. Transvaginal ultrasound of tubal pregnancy of 19mm diameter, adjacent to the left ovary (red arrow) with fluid and pseudodecidual changes in the uterus (blue arrow)

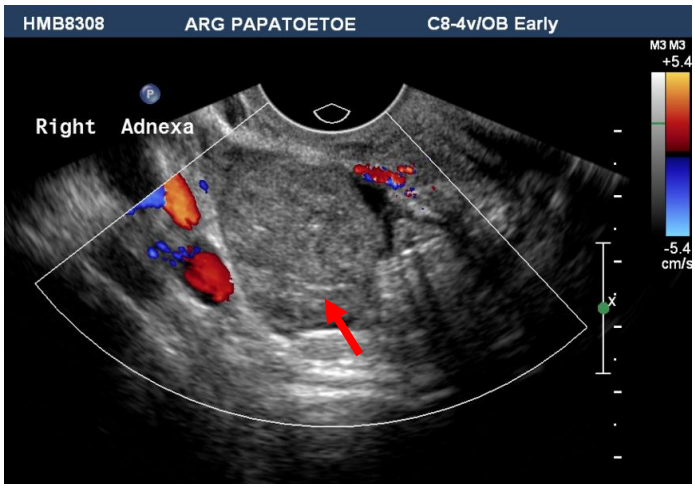

Fig 4. Transvaginal ultrasound with colour Doppler identifies an unruptured right tubal ectopic pregnancy (arrow). Clinical history of pain with slowly rising serum b-HCG levels.

Ectopic pregnancy

TVUS has some limitations, with an indeterminate scan found in about 15% of women with bleeding at the time of initial assessment. An ectopic pregnancy is subsequently found, by TVUS and serial bHCG, in 14% of these women. Ectopic pregnancy is a significant problem in the childbearing population and is associated with pain, infertility, haemorrhage and death.

Accurate differentiation between the various types of ectopic pregnancy and their location is achieved by TVUS and is important in allowing tailored treatment, by expectant management, medical treatment or surgical intervention. Whilst tubal ectopic pregnancy remains the most common (strongly associated with pelvic inflammatory disease), the increased Caesarean delivery rate has seen blastocysts implanted in uterine scars with an increased incidence of Caesarean scar ectopic pregnancies. Assisted reproduction techniques are accompanied by ectopic pregnancy of unusual site, such as interstitial and cervical location. Ovarian and abdominal ectopic pregnancies are rare. Future obstetric success is dependent on early and accurate TVUS to guide management. An accurate scan-based diagnosis allows the most up to date evidence-based strategy to guide management.

Rob Sim

DEXA bone mineral densitometry is available at our Remuera Rd, Henderson and Howick branches with an automatic specialist physician's report on all significant abnormalities.