

Ultrasound in First Trimester Bleeding

by Dr. David Lee, March 31, 2011



Question of the Month

Which Western hemisphere country has more species of venomous snakes than any other country?

Question from last month: *During World War 2, "POISON" was the military code name for what ocean body of water?*

Indian Ocean²

- Top 3 concerns: miscarriage, ectopic, gestational trophoblastic disease (GTD)
- Fallopian tubes cannot be visualized if they are normal
- Transabdominal view (global view) and endovaginal view (limited view but focused) are best in combination
- At 5 weeks, gestational sac (GS) diameter is ~ 5 mm
- Yolk sac should be seen when GS is 10 mm
- In a normal pregnancy, yolk sac should be round (not large, not crenulated, not calcified, not angulated)
- Cardiac activity should be visualized when embryo measures > 5 mm -- if not present, pregnancy has failed
- HR 100-115 between 5-6 weeks (can be confused with mother's HR) -- increases to 140 bpm by 9 weeks. HR < 80 before 6.3 weeks and HR < 100 at 6.3-7 weeks have rates of loss approaching 100%.
- Use OB mode and M mode to get your answers -- this limits the amount of energy directed at the baby (avoid doppler early in pregnancy).
- Uterine anomalies need referral to gyn even if not pregnant in order to discuss safety of pregnancy. Some anomalies don't have enough myometrium to support the pregnancy and can result in intra-peritoneal rupture and death
- Gestational sac without embryo (>10 mm) - double decidual sign - most likely failed pregnancy but still needs serial HCG's and close gyn followup because ectopic not ruled out. If not present, much more concerned about ectopic
- Up to 20% of women with threatened abortion have subchorionic hematoma, secondary to abruption of edge of pre-placental complex. Size matters — rate of spontaneous abortion doubles when large but it does not guarantee a failed pregnancy.
- Cornual pregnancy is a surgical emergency -- high risk of rupture with exsanguination
- GTD — complete or partial (will see some "normal" parts of pregnancy)
 - Hyperemesis, HTN, markedly elevated HCG
 - Usually can be detected in 8th week on US
 - Immediate evacuation
 - 20-30% of complete and 10% of partial can have persistent tumor; can go on to become invasive; can recur
 - Bedside EM US can miss unusual findings such as heterotopic or cornuate pregnancy -- at a minimum should see normal appearing IUP surrounded by myometrium

Excited Delirium¹

By Dr. Timothy Sullivan, March 31, 2011

- Usually drug related (cocaine, meth, PCP)
- Not necessarily higher than average drug levels
- Research suggests genetic susceptibility, drug induced dopamine transport abnormalities, and elevated heat shock proteins all play a role in pathophysiology.
- Usually male, hyperaggressive, impervious to pain, bizarre behavior, hyperthermic, tachycardic, superhuman strength
- Death felt to be related to acidosis
- Exercising to exhaustion can cause lactate levels in the high 20's
- Prolonged physical struggle leads to high acidosis levels
- Get meds on board quickly (benzos, anti-psychotics, ketamine), especially if physically restraining patient.
- If tachypneic prior to intubation, start with compensatory RR on ventilator.

1. DeBard, M. et al. White Paper Report on Excited Delirium Syndrome: ACEP Excited Delirium Task Force, Sept. 10, 2009. <http://ccpicd.com/Documents/Excited%20Delirium%20Task%20Force.pdf>

2. From The Poison Quiz Book, 1st Edition by John Trestrail III, McGraw-Hill, 2001, p. 100.