Obstetrical Emergencies

The good, the bad, and the ugly

Roadmap

- Labor and delivery
- Badness during and after the delivery
- Reasons to get the baby out sooner
- Trauma
- Early pregnancy complications
- Bread and butter EM during pregnancy

What am I going to do with this?

- 32wk G1P0 shows up in the ED
- Had rupture of membranes at home
- Contractions Q5minutes, strong
- Exam reveals 4cm dilation (unknown prior)
- “I’m not ready for this!”

Preterm Labor: M&M

- Prior to 37weeks

Gestational Age, wk	Survival	Respiratory Distress Syndrome	Intraventricular Hemorrhage	Sepsis	Necrotizing Enterocolitis	Intact
24	40%	70%	25%	25%	8%	5%
25	70%	90%	30%	29%	17%	50%
26	75%	93%	30%	30%	11%	60%
27	80%	84%	16%	36%	10%	70%
28	90%	66%	4%	25%	25%	80%
29	92%	53%	3%	25%	14%	85%
30	93%	55%	2%	11%	15%	90%
31	94%	37%	2%	14%	8%	93%
32	96%	28%	1%	3%	6%	95%
33	96%	34%	0%	5%	2%	96%
34	97%	14%	0%	4%	3%	97%

Tocolytic agents

- Usually used between 24-34 weeks
- Never been shown to decrease morbidity, mortality, or be effective in preventing labor
- Have been shown to be successful for delaying labor 48h
- Betamethasone 12mg IM Q24° x 2

Tocolytics

- Magnesium 4g IV over 30min
- Terbutaline 2.5mg PO or 0.25mg SQ
- Nifedipine 20mg PO

Why am I on this airplane?

- En route to Jamaica for a much needed vacation
- Pregnant lady in the back starts hooting and hollering
- She's G6P5 with hx of precipitous labor

- "Is there a doctor on board?"

Imminent delivery

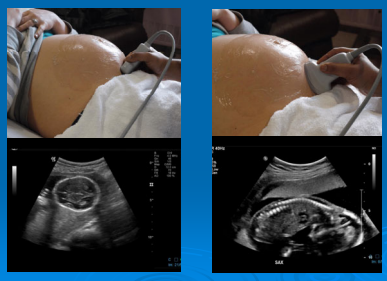
- She's contracting Q2, hair visible at introitus

- "Doc, what do you need?"






Fetal Presentation: POCUS



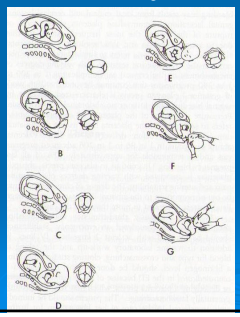
https://www.bcpocus.ca/organscans/fetal-presentation/

Cord Prolapse

- Elevate presenting part
- Fill bladder with 500ml if not eminent delivery
- Transfer if possible for C-section

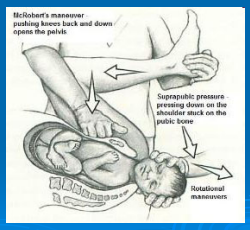
Nuchal Cord/Prolapsed Cord – 1in 5 deliveries

Garden-variety delivery



Shoulder Dystocia

- McRoberts maneuver
- Suprapubic pressure
- Single-arm delivery



Details, details

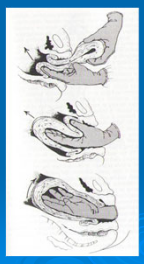
- EMS arrives with 27y G2P2 who delivered 45min prior while en route to your hospital
- Baby was initially blue, but began to cry with rubbing
- Suctioned and put on oxygen, warmed
- Now vigorously crying and pink
- Mild substernal retractions, vernix over face
- VS 96.7°F 140 75/42 36 98% RA

What else?

- Mother without IV access
- VS 96.7°F 140 75/42 36 98% RA
- Pale and diaphoretic
- Umbilical cord in introitus with large vaginal oozing

- What now?
- What happens if you can't stop the bleeding?
- What happens if you pull too hard?

Uterine inversion



Uterine Bleeding

- Oxytocin (Pitocin)
  - 40 units in 1L NS, run at 20ml/min or 600/hr. Can give 10 Units IM if no IV access. Beware of cramping, nausea, hypertension.
- Methylergonovine (Methergine)
  - 0.2mg IM. Can cause serious hypertension. Beware of nausea and cramping.
- Carboprost tromethamine (Hemabate)
  - 0.25mg IM q15 min
- Cytotec (misoprostol)
  - 600mcg PO/PR once. Not first line agent.

Seizures

- 27y F brought in for headache and nausea
- Triage VS 97.8 85 140/90 20 98%
- While being triaged promptly begins to have seizure activity, brought back immediately
- Notably gravid without prenatal care

Eclampsia

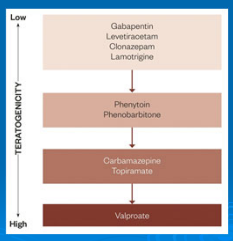
- Eclampsia = Preeclampsia + seizures
- Preeclampsia:
  - Proteinuria
    - >300mg protein in 24hr collection (>1+ on dip)
  - Hypertension
    - 140/90 for the first time in a woman with previously normal BP
  - Can involve headaches, peripheral edema, oliguria, pulmonary edema
  - Responsible for 15% of premature delivery and 18% of maternal deaths

Eclampsia

- Mg, Mg, Mg
- Magnesium 6g IV over 15min, then 2g/hr
- Titrate to loss of deep tendon reflexes
  - Calcium if needed to reverse
- Protect the airway if necessary
- Treat the seizures, hypertension (labetolol)
- Deliver the baby!

Seizures in Pregnancy

- Benzodiazepines, levetiracetam perfectly fine acutely
- Treat as you would regular seizure
- Versed 2mg, 4mg, 8mg, then Keppra 1.5g, then phenobarb



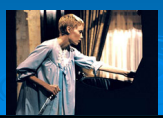
Eady (2016) *Clinical Pharmacist*, Jan, Vol 8(1) online

HELLP

- Hemolysis, elevated LFTs (>2x), plts < 100k
- RUQ pain, schistocytes, possible hepatic hematoma
- High risk of maternal bleeding, DIC, abruption
- Immediate delivery for >34wks
- 48 hour management for <34 to give steroids

Third Trimester Vaginal Bleeding

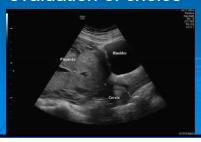
- 34y F G5P4 at 34 weeks with copious vaginal bleeding
- VS – 97.0 85 110/74 18 98% RA
- Unremarkable pregnancy, unremarkable prenatal care
- Now bleeding through 3 pads in the last hour



Abruption vs. Placenta Previa

- Painful w/ contractions
- Frequently associated w/ shock
- Precipitated by trauma, hypertension, smoking, cocaine use
- Ultrasound is insensitive

- Painless
- Usually without contractions
- No clear precipitant
- Ultrasound is evaluation of choice



First Trimester Bleeding

- 21y G1P0 with + home pregnancy test last week
- Irregular periods, last was 10 weeks ago
- Now with vaginal spotting and suprapubic cramping
- VS 97.7°F 85 95/60 20 97% RA
- 25% of women have bleeding at some point during pregnancy

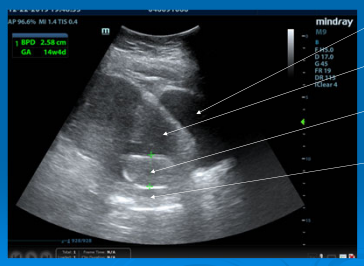
Vaginal Bleeding: Workup

- Pelvic exam
- Urine pregnancy test
- Serum β-HCG
- CBC (Hgb/HCT)
- Type & Screen (RhoGAM)

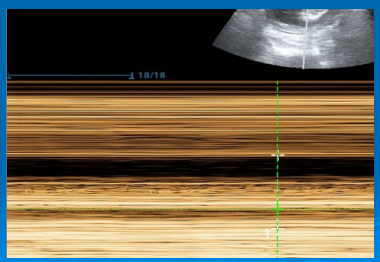
Ectopic vs. Threatened Abortion

- 2% of pregnancies
- U/S is confirmatory
- May be as high as 30% of pregnancies miscarry
- 80% within the first trimester
- U/S to determine viability
- Need to know:
  - Os closed/open
  - Products passed

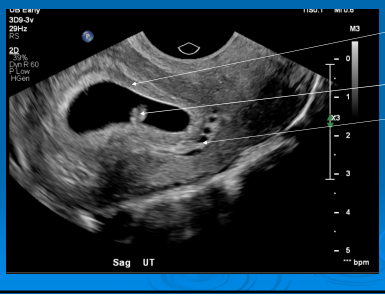
Normal IUP



Normal Fetal HR – Risk of 3-6%



Transvaginal Ultrasound 6wks

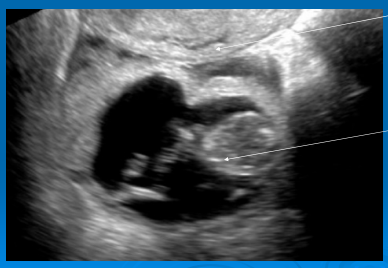


Thickened uterus

Fetus

Asymptomatic subchorionic bleeding

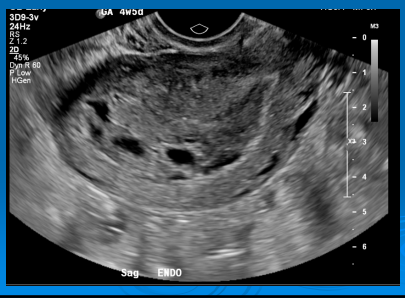
Ectopic Pregnancy



Uterus

Fetus

Molar pregnancy (hCG=67k)



Stages of Abortion

- Threatened – Vaginal bleeding w/ IUP
- Inevitable – Open os
- Partial – Open os with passing of products
- Complete – Os closed with products passed (usually confirmed on u/s)
- Missed – Closed os with non-viable embryo (or blighted ovum)

Air Care II Respond…

- 37-year old female with a history of clotting disorder 35 weeks pregnant
- Found in the bathroom complaining of pain
- Short of breath, constant pain
- Says she's on enoxaparin shots for a clotting disorder with multiple prior miscarriages

Fly faster

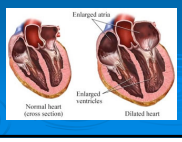
- Exam:
  - VS – HR 110, BP 76/44, RR 38, 100% on mask
  - Soft, distended belly with no palpable contractions
  - Cool, pale extremities
  - GCS 14 confused and perseverating

Ahhh, crap

- This is a lady who is in shock
- She probably needs either blood or TPA for a PE
- She needs volume and an operating room, but she's gonna crash soon
- DDx: Abruption, PE, amniotic fluid embolus, DIC, acute MI

Postpartum Cardiomyopathy

- 1:2000 pregnancies
- Orthopnea, dyspnea on exertion, florid pulmonary edema
- Bedside ultrasound is useful, but need to have a heightened index of suspicion



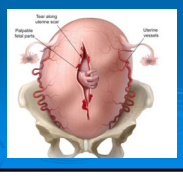
Peripartum MI

- Mortality is higher (5-7%)
- Up to 25% have normal coronaries
- Troponin still works (just as sensitive)

- Do the usual (ASA, anti-platelets)
- PCI is still therapy of choice (w/ fetal shielding)
- Thrombolytics should be discussed if close to term

Uterine Rupture

- Symptoms can mimic abruption
- FAST exam may reveal free fluid or fetus parts outside of the uterus
- Go to the nearest OR, do not pass Go

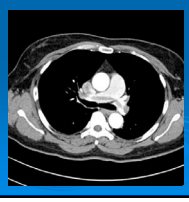


Peripartum DIC

- Correct underlying coagulopathy
  - Blood, platelets, cryo for fibrinogen
- Limited evidence for factor VII

PE in Pregnancy

- Treat the mother as you normally would
- CT with contrast generally accepted to be the best diagnostic modality
- Warfarin teratogenic
- LMWH is therapy of choice



Abruption

- 70% with vaginal bleeding
- Pain is common, but not alwaus
- Precipitated by minor trauma in 3rd trimester
- Ultrasound not the test of choice (insensitive)
- Requires fetal monitoring for minimum of 4hrs

Fly faster

- Patient kept on oxygen
- Placed in left-lateral decubitus position
- Fluids opened wide and squeezed in 2L over 10 minute transport
- Receiving hospital arranged for direct transport to OR

Fly faster

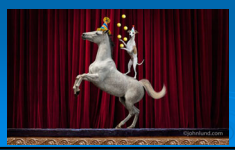
- OR prepared; next 4 minutes:
  - Induced, intubated
  - Additional IVs placed
  - O negative blood begun through Level I
  - Incision made in belly
  - Fetus found floating in abdomen via ruptured uterus

Fly faster

- Neonatal resuscitation team began with infant
- Mother agressively resuscitated by anesthesia while OB and trauma surgery repaired the uterus and inspected the abdomen

Another dog & pony show

- Medic 31 inbound with a G3P1 involved in MVC with abdominal pain, tachycardia, open ankle fx
- VS: HR 125 BP 90/50 RR 24 96%
- Who do you call, where do you go?

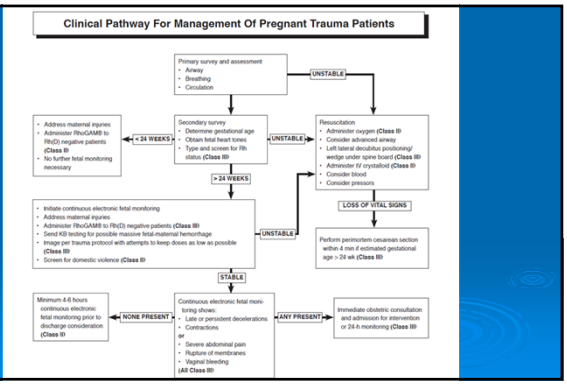


Trauma Summary

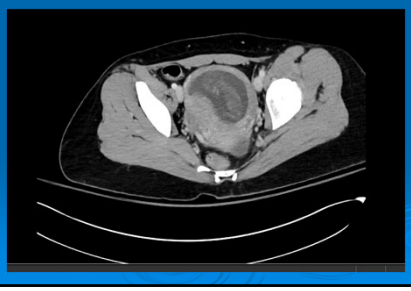
- ATLS with mother takes priority
- Once stabilized, assess the fetus – rough dates for viability
  - Fundus at umbilicus ~ 20weeks
  - Bedside ultrasound or doppler for FHT
- Arrange for transfer to definitive OB care

Trauma in Pregnancy

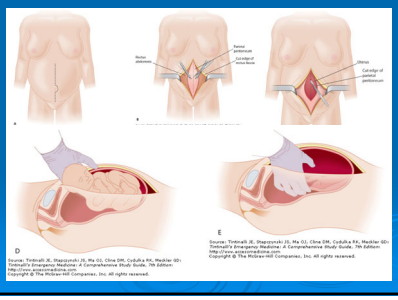
- Left lateral decubitus during 3rd trimester
- Volume, volume, volume
- Even minor trauma associated with abruption (need 4hr fetal monitoring)
- Don't forget RhoGAM if any bleeding



What about imaging?



Perimortem C-section



Domestic Violence

- Accounts for more deaths than all other medical conditions of pregnancy
- Estimated 1:6 pregnant women are assaulted during pregnancy
- ED is often their only presentation
- Recommend all women presenting to the ED be screened in private during their visit

Fever and Pregnant

- G4P3 @ 30wks comes to the ED for “low grade fevers”, increased urinary frequency, nausea & vomiting
- VS – 100.3°F HR 105 BP 126/74 RR 20 98%
- No signs/symptoms of labor…yet

- UTI vs. Pyelo vs. Chorio?

Chorioamnionitis

- Risks: Maternal STI, premature rupture of membranes, prolonged labor, multiple exams
- Fever, labor, malodorous discharge, uterine tenderness
- Requires heightened suspicion, antibiotics
  - Amp/gent or amp/sulbactam (Unasyn) or pipercillin/tazobactam (Zosyn) all fine

Urinary Tract Infections in Pregnancy

- 30% of asymptomatic bacturia progresses to pyelo in pregnant patients
  - All pregnant U/As should get culture
- Asymptomatic: 1st gen cephalosporin, nitrofurantoin, trimethoprim/sulfa
- Symptomatic, signs of pyelo: Usually admitted, 3rd gen cephalosporin

Vomiting in Pregnancy

- Small amounts PO at frequent intervals
- Some benefit from ginger?
- First line is doxylamine 10mg and pyridoxine 10mg (Diclegis)
- Antihistimines (diphenhydramine/meclizine)
- Promethazine (Phenergan) and metaclopromide (Reglan) both thought to be fine
- Ondansetron (Zofran) – controversial in the first trimester

Hyperemesis Gravidarum

- Check lytes to correct acidosis, electrolyte disturbances, U/A for ketones
- Fluids w/ MVI (thiamine):
  - 1L LR IV bolus
  - D5LR (or D5 1/2NS) at 500mL for 4 hours
- Antiemetics, famotidine
- PO challenge, encourage BRAT diet

Asthma in Pregnancy

- No adverse effects of steroids outside the usual (hyperglycemia, irritability, insomnia)
- ß-agonists safe (and tocolytic!)
- What's best for mother is best for baby

Hypertension in Pregnancy

- ACE-I contraindicated
- ß-blockers contraindicated during the first trimester
- Otherwise, follow the usual guidelines

Questions?