1) Obstetric Emergencies - Dr. Chro

Types: Maternal, Fetal, Both mother and fetus at risk.

Hemorrhage

PREPARTUM/INTRAPARTUM

- Placenta previa
- Placenta accreta/increta/percreta
- Placental abruption
- Uterine rupture

POSTPARTUM

- Retained placenta
- Uterine atony
- Uterine inversion
- Birth trauma/laceration

Obstetric Emergencies

ANTEPARTUM

- Umbilical cord prolapse
- Umbilical cord compression

AT DELIVERY

- Shoulder dystocia
- Vaginal breech delivery (head entrapment)

PLACENTA PREVIA

- 1 in 200-250 deliveries
- Complete, partial or marginal
- Most diagnosed early resolve by third trimester
- Etiology:
  - Unknown
  - Previous uterine scar
  - Previous placenta previa
  - Advanced maternal age
  - Multiparity
- Painless vaginal bleeding-third trimester
- Vaginal bleeding in 3rd trimester should be considered previa until proven otherwise
- Ultrasound has eliminated the need of double set up to diagnose previa as in the past
- Expectant management if fetus immature and no active bleeding
- Cesarean delivery
- Urgent/emergent cesarean delivery for active or persistent bleeding or fetal distress
- Regional/GETA
PLACENTA ACCRETA/INCRETA/PERCRETA

- Linearly related to number of previous scars in presence of placenta previa
- PP+ unscarred uterus - 5% risk of accreta
- PP+ one previous C/D - 24% risk of accreta
- PP+ two previous C/D - 47% risk of accreta
- PP+ three previous C/D - 40% risk of accreta
- PP+ four previous C/D - 67% risk of accreta
- Combination of placenta previa and previous C/D - Dangerous
- Placenta accreta, increta and percreta difficult to diagnose antepartum
- Usually diagnosed when placenta doesn’t separate after cesarean or vaginal delivery
- Color Doppler imaging or magnetic resonance imaging may diagnose the condition antepartum
- Preoperative balloon catheters in internal iliac can be considered in cases diagnosed antepartum.
- Prompt decision for hysterectomy
- Percreta may require surgeons skilled in pelvic dissection
- GETA/Regional (CSE)
  - Good IV access/ A line
  - Level 1 or equivalent warmer
  - Cross matched blood
  - FFP/Cryo/Factor VII/Platelets
- Emergency hysterectomy more blood loss than elective hysterectomy
- Hemodilution/red cell salvage can be considered in Jehovah’s witness
- Regional may be associated with reduced blood loss but may complicate treatment of hypotension in a bleeding patient.

PLACENTAL ABRUPTION

- 1 in 77 to 1 in 86 deliveries
- Etiology:
  - Cocaine, Trauma, Smoking, Heavy maternal alcohol use, Hypertension (Chronic or pregnancy induced)
  - Advanced age and parity, History of previous abruption
  - Premature rupture of membranes
- Vaginal bleeding - Classical presentation
- May not always be obvious
- 3000 ml or more blood can be sequestered behind placenta in concealed bleeding
- Uterus can’t selectively constrict abrupted area
- Decreased placental area-fetal asphyxia
- 1 in 750 deliveries-fetal death
- Severe neurological damage in some surviving infants
- Upto 90% abruptions-mild to moderate
- Problems: Hemorrhage, Consumptive coagulopathy, Fetal hypoxia, Prematurity
- Low fibrinogen/ Factor V, Factor VII and platelets and increased fibrin split products
- Management depends on severity of situation
- Vaginal delivery-Fetus and mother stable
- Urgent/Emergent C/D- Fetal distress or severe hemorrhage
- Be prepared for massive blood loss with C/D
- Couvelaire uterus may not contract after delivery
- On rare occasions, internal iliac ligation/hysterectomy may be necessary
UTERINE RUPTURE

- Prepartum, intrapartum or postpartum
- Etiology:
  - Prior cesarean delivery especially classical cesarean scar
  - Rupture of myomectomy scar
  - Precipitous labor
  - Prolonged labor with cephalopelvic disproportion
  - Excessive oxytocin stimulation
  - Abdominal trauma
  - Grand multiparity
  - Iatrogenic
  - Direct uterine trauma-forceps or curettage
- Severe uterine or abdominal pain or shoulder pain
- Disappearance of fetal heart tones
- Vaginal or intraabdominal bleeding
- Hypotension
- VBAC: Change in uterine tone or contraction pattern and FHR changes and not pain during uterine rupture
- Emergent C/D may be necessary
- Uterine repair/Hysterectomy depending on situation

RETAINED PLACENTA

- 1% of deliveries
- Ongoing blood loss
- Manual exploration for removal
- You need uterine relaxation and analgesia
- Anaesthesia depending on clinical situation
- Oxytocics after removal of placenta

UTERINE ATONY

- Most common cause of postpartum hemorrhage
- Follows 2-5% deliveries
- Etiology:
  - Multiparity
  - Polyhydramnios
  - Macrosomia
  - Chorioamnionitis
  - Precipitous labor or excessive oxytocin use during labor
  - Prolonged labor
  - Retained placenta
  - Tocolytic agents
  - Halogenated agents >0.5 MAC
- Management (Important Points)
  - Vaginal bleeding > 500 ml
  - Manual examination of uterus
  - Volume resuscitation
  - Infusion of oxytocics + bimanual compression of uterus
  - Evaluation for retained placenta
OXYTOCIC DRUGS

- Oxytocin: 20-40U/L - Vasodilation, hypotension, hyponatremia, no benefit after 40 U
- Methylergonovine: 0.2 mg IM, Max. 0.4 mg - Vasooconstriction, ↑ PA pressures, coronary artery vasospasm, hypertension, CVA, nausea and vomiting
- Carboprost or hemabate (prostaglandin F2α analog): 0.25 mg IM or IU, Max 1.0 mg – Vasooconstriction, systemic and pulmonary hypertension, bronchospasm, V/Q mismatch, nausea, diarrhea
- Misoprostol 800 mg PR. Minimal side effects

UTERINE INVERSION

- Uncommon problem
- Results from inappropriate fundal pressure or
- Excessive traction on umbilical cord especially if placenta accreta is present
- Mass in the vagina
- Uterine atony
- Maternal shock and hemorrhage
- Volume replacement
- Analgesia for the procedure
- Uterine relaxation for replacement
- Oxytocics following replacement

BIRTH TRAUMA/LACERATIONS

- Lesions range from laceration to retroperitoneal hematoma requiring laparotomy
- Can result from difficult forceps delivery/
- Precipitous vaginal delivery/
- Malpresentation of fetal head (OP)/
- Laceration of pudendal vessels/
- Clinical presentation of postpartum bleeding with contracted uterus
- Epidural/MAC/GETA depending on the clinical scenario

FETAL HEART RATE

- Baseline fetal heart rate, variability, decelerations or accelerations
- Normal FHR: 110-160 bpm
- Tachycardia: Maternal fever, infection, terbutaline, atropine, hyperthyroidism, tachyarrythmia, hypoxemia
- Bradycardia: Fetal autonomic response to baroreceptor or chemoreceptor stimulation
- Variability: Most reliable index of fetal well being; variability is baseline fluctuations in FHR over 2 cycles/min
- Can be absent, minimal (<5 bpm), moderate (6-25 bpm) or marked (>25 bpm)

Early Decelerations
Variable Deceleration

Late Decelerations

Variable deceleration with late component

Fetal Tachycardia

Sinusoidal Pattern
UMBILICAL CORD PROLAPSE

Definition

- Umbilical cord prolapse exists when a loop of cord is present below the presenting part and the membranes are ruptured.
- Incidence is approximately 0.2% of births
- Risk of perinatal morbidity/mortality from asphyxia secondary to mechanical compression of the cord between the presenting part and the pelvis, or spasm of cord vessels secondary to cold or manipulation.

Risk Factors

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<thead>
<tr>
<th>Fetal</th>
<th>Maternal</th>
<th>Other</th>
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<tbody>
<tr>
<td>Malpresentation</td>
<td>Contracted pelvis</td>
<td>Long cord</td>
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<td>Prematurity</td>
<td>Pelvic tumour</td>
<td>Sudden rupture of membranes, esp. if polyhydramnios</td>
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<tr>
<td>Polyhydramnios</td>
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<td>Multiple pregnancy</td>
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<td>Anencephaly</td>
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Management

- Obstetric Intervention
  - amniotomy, FSE application
  - expectant management of PPROM
- Recommendations
  - Diagnosis
  - Vaginal examination to confirm diagnosis of prolapsed cord and to ascertain cervical dilatation.
  - Call for help – senior midwife, obstetric registrar, anaesthetist
  - Determine that fetal heart present and monitor by CTG.
- If fetus is viable
  - Discontinue Syntocinon, administer oxygen by face mask
  - Make preparations for emergency Caesarean section - IV access, group and save
  - Elevation of the presenting part of the fetus above the pelvic inlet will relieve cord compression. This can be achieved manually, in which case the hand should remain in the vagina until delivery. Alternatively the patient may be placed in the knee chest position, or the bladder may be filled with 500mls saline through a Foley catheter. The catheter should be clamped, then unclamped to allow bladder emptying when the skin incision is made at Caesarean section.
- Anaesthesia
  - Delivery will usually be by Caesarean section under GA. However, where the bladder filling has been employed and there is no evidence of fetal distress, regional anaesthesia may be considered.
- Vaginal delivery
  - If the cervix is fully dilated then instrumental delivery may be appropriate but should only be undertaken by experienced obstetric staff, i.e. Consultant or experienced SpR.
  - If no FH auscultated – confirm intrauterine death using ultrasound and aim for vaginal delivery.
  - If fetus of a non-viable gestation – discuss with senior obstetric staff and aim for vaginal delivery.
Shoulder Dystocia

- Bony prominence disorder where the anterior fetal shoulder becomes impacted behind the suprapubic arch of the maternal pelvis following the birth of the fetal head.

Occurrence

- 0.3 – 1% birth weight 2500 – 4000gms
- 5-7% birth weight 4000 – 4500gms
- 50% occur in babies of normal birth weight

Risk factors

Antenatal

- Gestational Diabetes
- Short Stature
- Previous shoulder dystocia
- Maternal wgt gain > 20 kgs
- Pelvic anomalies
- Fetal macrosomia
- Postdates

Intrapartum

- Prolonged second stage
- precipitate labor
- Instrumental birth
- Head bobbing in second stage

Identification of Shoulder Dystocia

- Turtle sign following birth of the baby’s head. The baby’s head will retract right back against the perineum.
- Baby does not birth using normal traction

Risk Reduction

- Good diabetes control
- Birthing women on all fours or in McRoberts or upright position where risk is identified / suspected
- Elective C/S – need to increase the rate 5 to 6 fold to avoid 1 case of shoulder dystocia
- IOL at term has not shown to reduce the rate

Mortality/Morbidity

Maternal

- 3rd – 4th degree tears
- Genital tract trauma
- Uterine atony – PPH

Fetal

- # clavical
- Erb’s palsy
- Brachial nerve palsy
- Hypoxia – Fetal blood pH will fall by 0.04/min, so a pH of 7.25 over 7 min will fall to 6.97

Interventions

- Reduction Maneuvers aim to
- Increase the functional size of the pelvis (McRoberts)
- Decrease the bisacromial diameter (Suprapubic Pressure and Rubins)
- Change the relationship of the bisacromial diameter with the bony pelvis (Woodscree
HELPERR

- Help
- Evaluate for episiotomy
- Legs – McRoberts maneuver
- Drop the head of the bed and lie the woman flat
- Pressure – suprapubic
  - CPR style pressure as a constant downward and lateral force over the anterior shoulder to facilitate adduction of the fetal shoulders and reduce the bisacromial diameter. Pressure is applied over the fetal back.
  - After 30 seconds a rocking motion of the hands can be tried to achieve the same outcome.
- Enter manoeuvers
  - Rubins’ 2
  - 30 secs
  - Remove the bottom of the bed or turn the woman sideways to improve access to the perineum
- Remove the posterior arm x 30 secs
- Roll the woman over & deliver the posterior shoulder x 30 secs

Other interventions

- The following maneuvers are in the scope of practice for medical officers:
  - Fracture the clavical
  - Zavanelli Maneuvre
  - Symphysiotomy

Practice Points

- Drop the head of the bed – lie the woman flat
- Improve access for enter maneuvers by removing bottom of the bed or lying the woman sideways on the bed
- Encourage NO pushing during enter maneuvers

Documentation

- Timing
- Interventions
- Assistants
- Maneuvers
- Outcomes: maternal, neonatal (incl cord gases)

Post Birth Considerations

- Debrief with parents and support people
- Staff debrief
- Case review

BREECH (HEAD ENTRAPMENT)

- True obstetric emergency
- Smaller body pushed through partially dilated cervix trapping aftercoming head
- Vaginal breech delivery-Discouraged by ACOG
- 5% vs.1.6% deaths-Vaginal vs. C/D (Study in 2000 women)
- Incisions in cervix to enlarge opening or skeletal muscle and cervical relaxation or CD
- Epidural-prevents early pushing before cervix is fully dilated and relaxes the perineum
- GETA may be necessary for uterine and perineal relaxation