OBSTETRICS

MANAGING CRITICAL CASES

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Content

- Didactic talk on management
  - Summary and tips
- Skill demonstration
- Case studies

Acute obstetric/perinatal morbidities

- Early pregnancy
  - Ectopic pregnancy
  - Molar pregnancy
  - Miscarriage
  - Ovarian cyst accident
  - Severe h
- Late pregn
  - Placenta
  - Preterm
  - Preterm
  - Preeclar
- Labour
  - Cardiovascular / respiratory event
  - Failure to progress / dystocia / obstructive birth
  - Foetal distress / cord prolapse / haemorrhage
  - Shoulder dystocia
- Postpartum
  - Haemorrhage / Uterine inversion
  - Pyrexia / sepsis
  - Depression / Psychosis

If you have practiced obstetrics long enough,

You will probably agree that there is no such thing as low risk obstetrics….

Important causes of maternal mortality

Direct causes:

Venous thromboembolism

Infection

Diabetes

Psychiatric diseases

Incidental causes

Trauma / accident

Malignancy

PREGNANCY COMPLICATIONS

How to avoid disaster?

Three Stages of Dealing with Crisis

Preparation
- Facility/ equipment
- Staff

Coordination
- Leadership
- Communic ation

Skills
- Resuscitati on
- Ultrasound

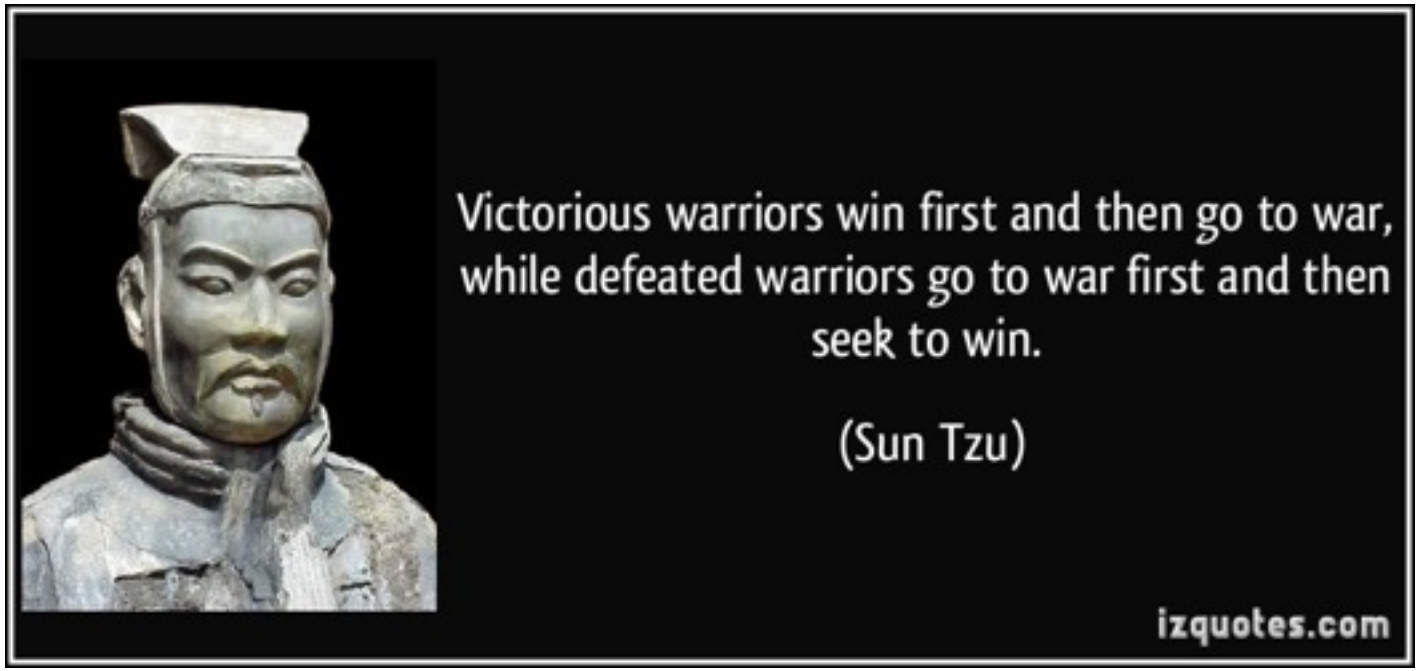
Sun Tzu's

THE ART OF WAR

孫子兵法

Planning & Preparation

- …is the deciding factor on whether you can cope / prevent / manage a crisis

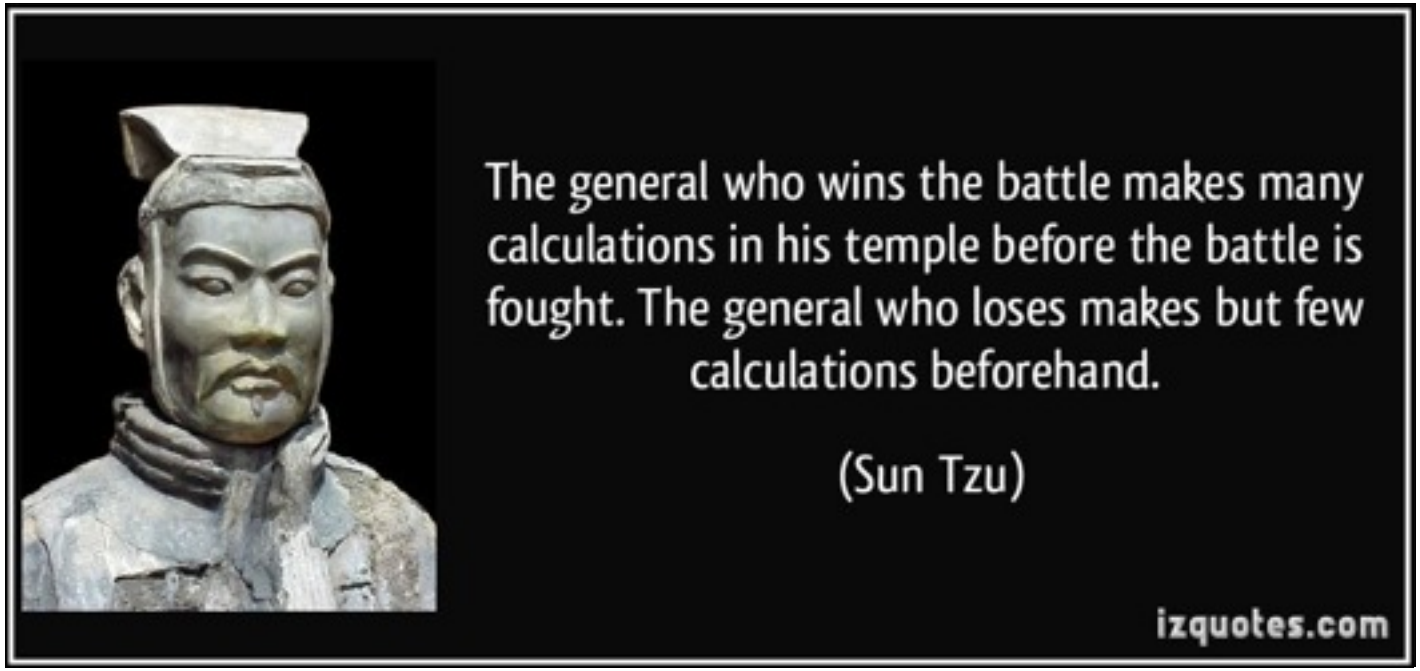


Preparation

- Facility/equipment
  - Theatre / ICU / NICU – what level? how far away?
  - Blood bank; pathology lab; pharmacy; radiology
  - Equipment for CS, operative vaginal delivery, maternal & neonatal resuscitation, managing haemorrhage; ultrasound scan machine
  - Analgesics, adrenalin, antibiotics etc – prepared trolley / box
- Staff support & training
  - Anaesthetist / paediatrician / midwives / nurses
  - Social worker / indigenous liaison officer
- Prepregnancy & antenatal screen
  - Community campaign for healthy women & safe pregnancy
  - For infections / nutrition / drug&alcohol / hypertension / diabetes …
- Antenatal care
  - Regular monitoring of BP / foetal growth / foetal presentation

Coordination

- When crisis looms, leadership & teamwork dictate the outcome.
- Lack of these… and you are at the mercy of mother luck

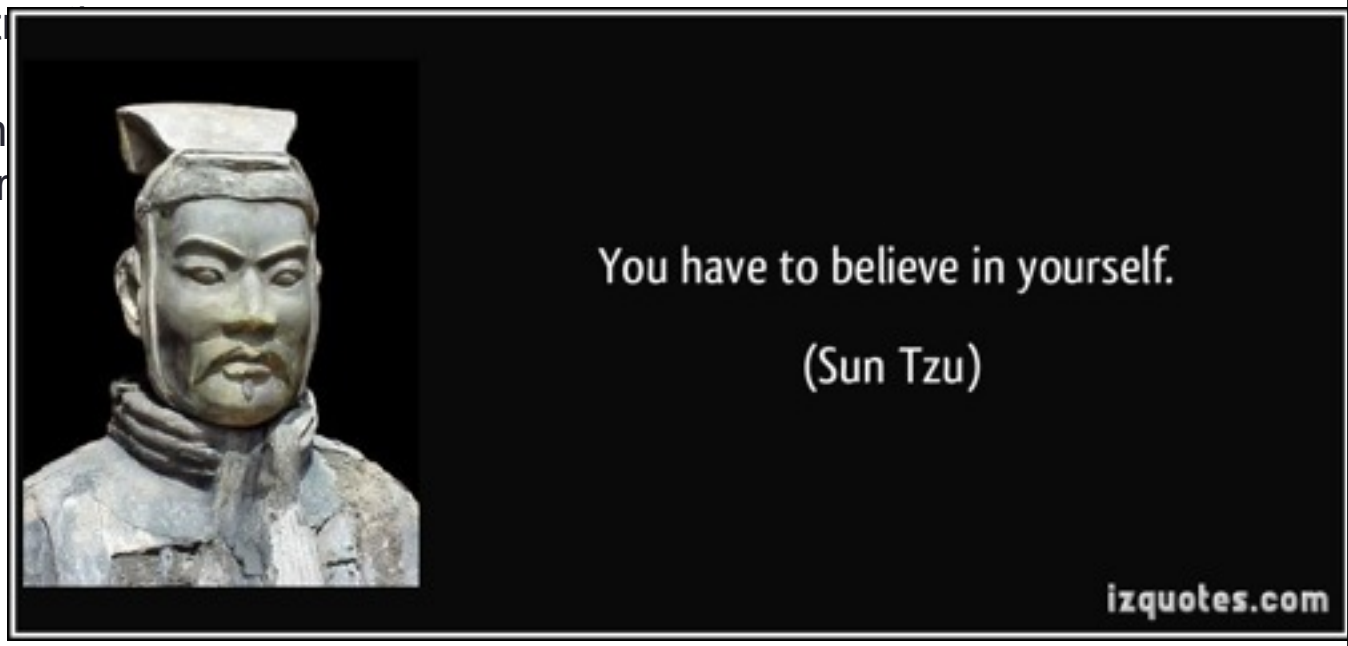


Coordination

- Leadership
  - Anticipation / experience
  - Call for help / summon your team - when & who
  - Delegate role & responsibility
- Communication
  - A two-way process
  - Clear, simple & direct instruction & response
  - Succinct handover / feedback
- Teamwork
  - Play your role / be alert / take initiative
  - Support your team mates / compliment their work
- Checklist / Priority
  - Time keeper / pre-made checklists
  - Multi-tasking & time management

Skills

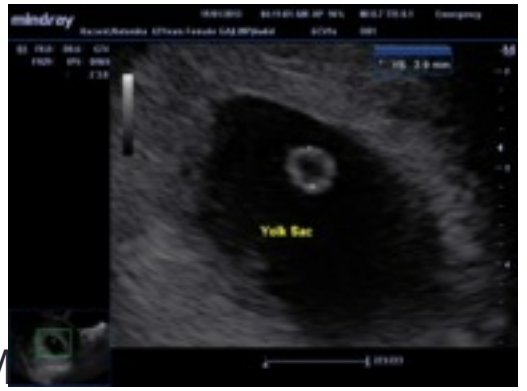
- Specific skills are just master strokes for finishing touches
- Covering the following skills
  - Resuscitation
  - Basic ultrasound scans
  - Reading CTGs
  - Operative vaginal delivery
  - Vaginal breech extr
  - Shoulder dystocia
  - Caesarean section
  - Managing haemorr
  - Others



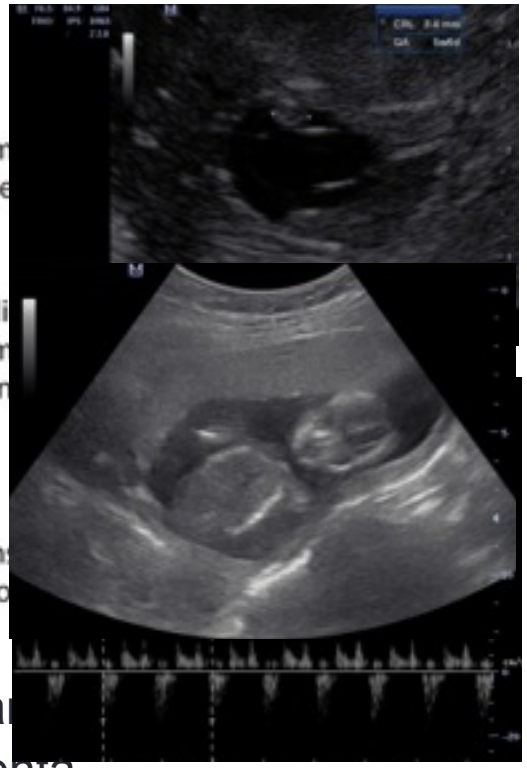
Resuscitation

- Call for help
- Mrs Tilt
- Primary survey & management
  - Check for response
  - Airway, breathing, pulse rate, colour, mental state
  - Airway management; oxygenation & ventilation
  - Restoring circulation
- Secondary survey & management
  - History: events, casenote, medical bracelet
  - Examination
  - Obstetrics: gestational age; foetal HR; need for delivery & how…

Basic ultrasound scan



- Knobology
  - Power; Modes; Depth / Zoom / Frequency / Focus; M
- Preparation
  - Pelvic scan: full bladder
  -
- C
  -
  -
- L
  -
- S
  - Early pregnancy: gest sac, yolk sac, foetal pole / hear
  - Late pregnancy: presentation; foetal heartbeat, placenta

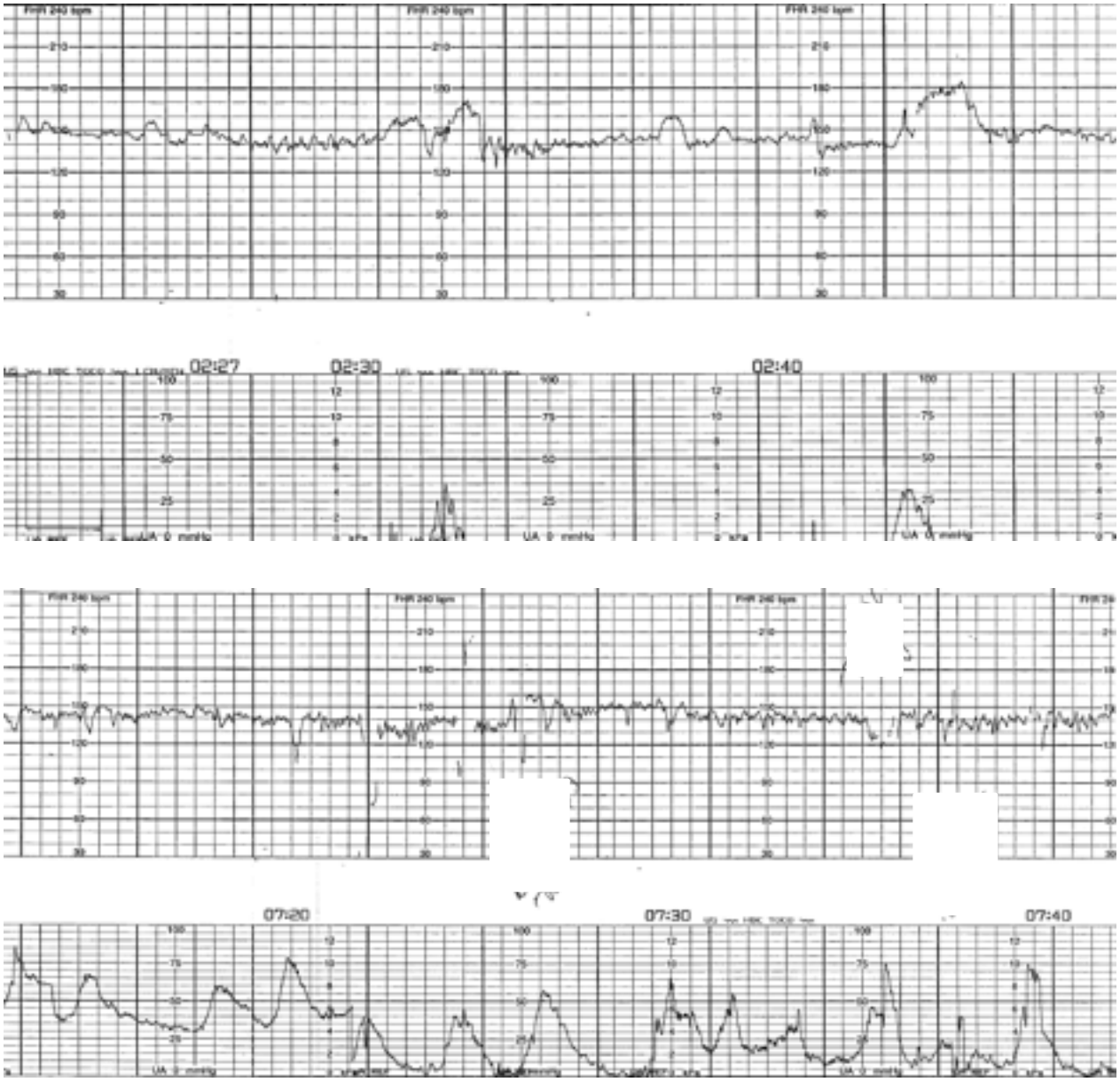


Basic ultrasound scan

- What are the important questions to answer?
- Early pregnancy
  - Ectopic pregnancy
    - empty uterus, GS / YS / FHB outside uterus, free fluid in POD
  - Viability, gestational age & number of foetuses
    - FHB; FP size; YS/FP number, amniotic sac, placenta
  - Other pelvic lesions
    - Fibroid, ovarian cyst…
- Late pregnancy
  - Foetal presentation & placenta location
  - Foetal heartbeat
  - Biometry: BPD / HC / AC / FL
  - Liquor volume

Reading CTGs

- Objective & limitation
  - To detect early/impending signs of foetal hypoxia to guide the timing of delivery
  - Cochrane: intrapartum CTG reduces neonatal seizure rates and increases intervention rates
- Important tips
  - Summarise the risk factors e.g. IUGR, GDM. prematurity…
  - Correlate with partogram
  - Be systematic: baseline, variability, accelerations, decelerations
  - Correlate with foetal outcome: cord pH, cord lactate, APGAR…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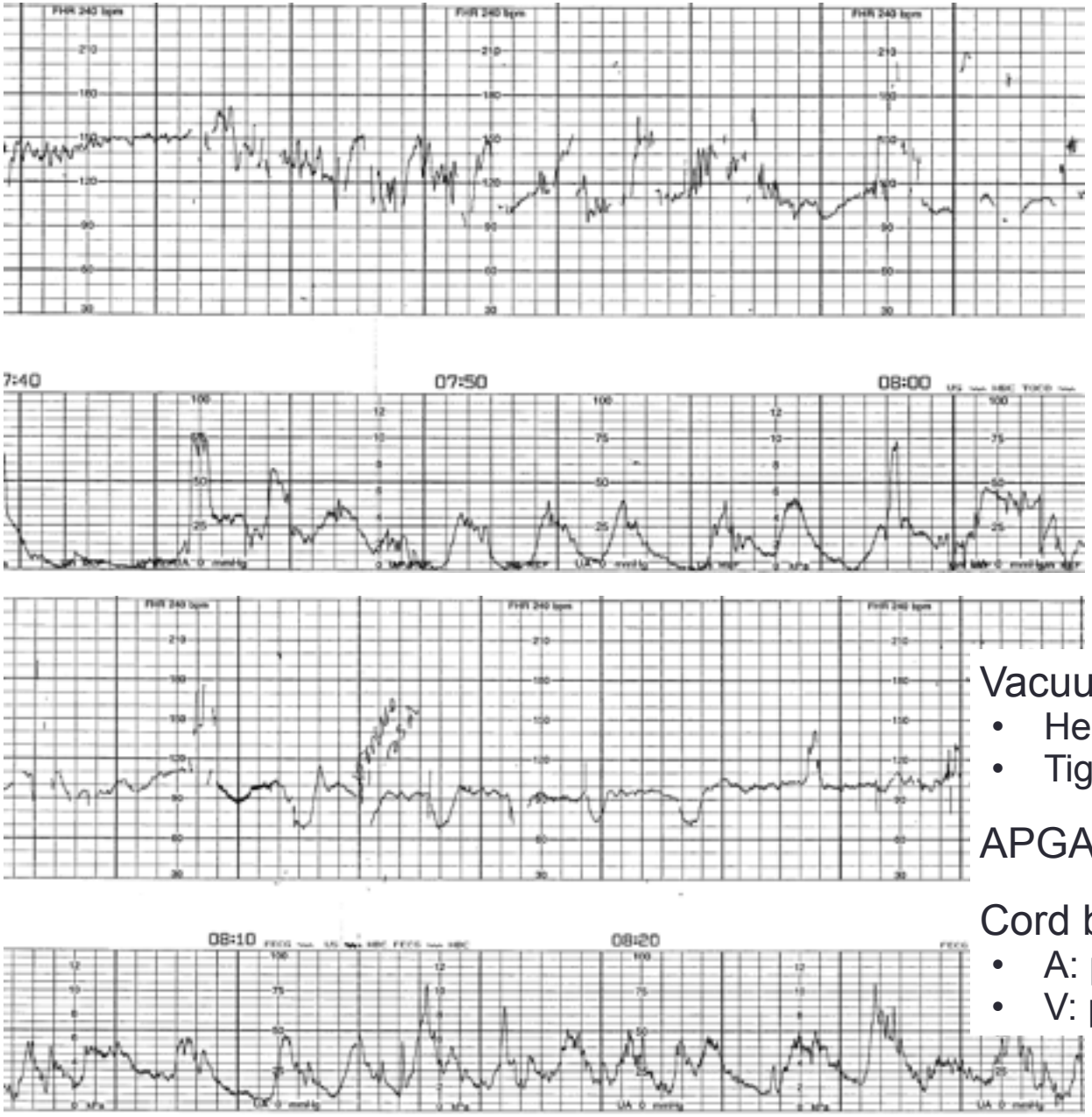


Vacuum delivery

- Head delivered in 2 pulls; OA
- Tight nuchal cord x1

APGAR: 8, 9

Cord blood

- A: pH 7.06; BE -11.6; lact 9.9
- V: pH 7.19; BE -8.4; lact 7.9

Reading CTGs

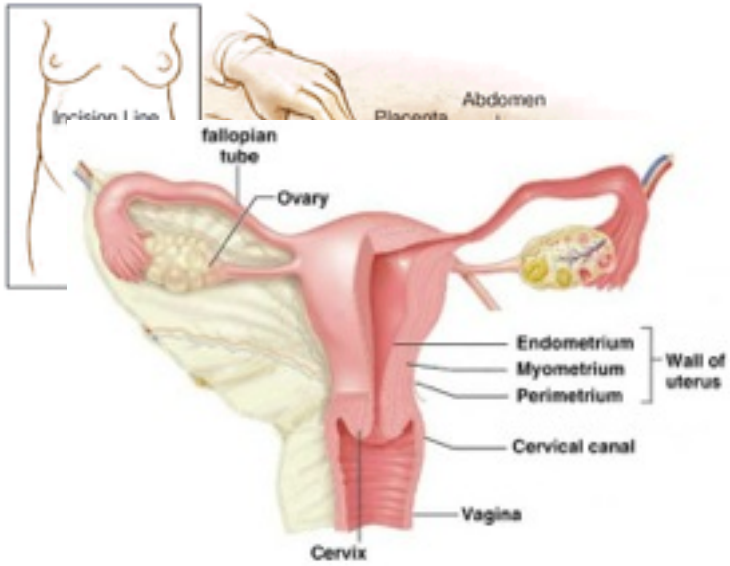
- It's all about pattern recognition
- Bad signs
  - Reduced variability AND change in baseline
  - Shallow AND late decelerations
  - Prolonged decelerations >7min
  - Persistent variable decelerations >1 hour
- What can you do?
- Identify the cause and rectify it if possible
  - Minor: IVT, lateral positioning, check & stabilise maternal obs
  - Concerning: VE / ARM / Foetal scalp electrode / Scalp sampling
  - Serious: expedite delivery

Mode of delivery

- Vaginal delivery
  - If cervix is fully dilated
  - Foetal head below the ischial spines
  - Preferably with adequate pain control
- Caesarean section
  - When vaginal delivery not possible / safe / ideal ….

Caesarean section

- Preparation
  - Anaesthesia: Spinal / epidural / GA
  - Empty bladder
  - Check for foetal heart
  - Prophylactic antibiotics
- Incision
  - Skin / uterus
  - Low transverse / Vertical
- Closure
  - Uterine: secure lateral edges; 2 layers; exterioration?
  - Peritoneum? / Rectal sheath / Skin
- Postoperative
  - Analgesia
  - Thromboembolic prophylaxis
  - Others: placenta histo; FBC, debriefing…



SKILL BREAK

Hand knot-tying

Operative vaginal delivery

- Objective
  - Assist / expedite vaginal delivery
- Important tips
  - Must examine to ensure a high possibility of vaginal birth
    - Cervix fully dilated; vertex/face presentation & position; station below spine (0 – 3+)
  - Must have foetal heart rate monitoring; AND neonatal resus trolley standby
  - Explain to patient first ; ensure good pain management
  - If in doubt, do it in theatre with CS tray standby

Concept of successful passage

Successful passage through the birth canal

requires getting

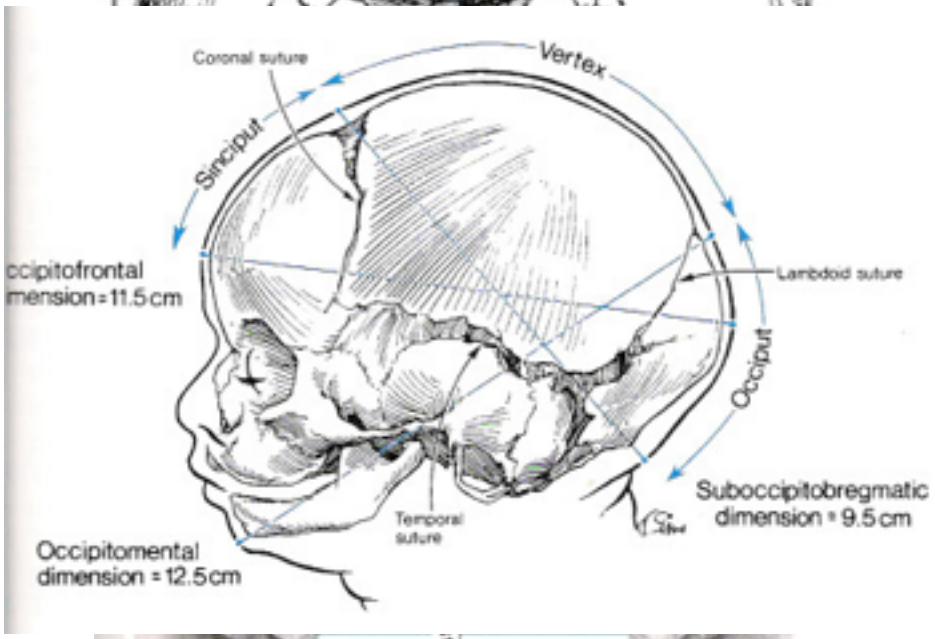
the smallest dimension of the largest foetal part

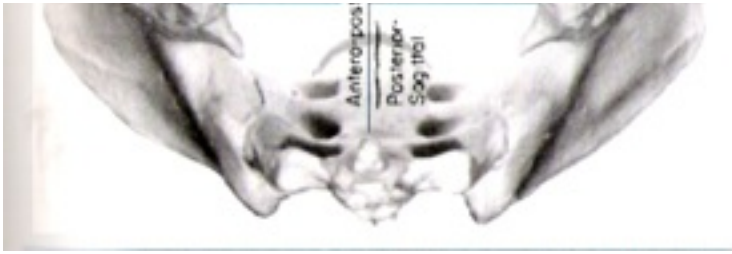
transversing

the narrowest diameter of the birth canal

Relationship b/w Foetal head and Bony pelvis

- Foetal head is usually the largest part, and relatively pliable
- The smallest dimension of foetal head is at the suboccipito-bregmatic and biparietal planes: ≤10cm
- Bony birth canal is relatively rigid and gives a sigmoid-curved
- 3 pelvic segments:
  - Pelvic inlet:
    - AP – 11.5cm, Transverse – 13.5cm
    - Obstetrical conjugate – 10.5cm
    - Diagonal conjugate – 12.5cm
  - Mid-pelvic cavity
    - AP – 11.5cm; IS – 10.5cm
  - Pelvic outlet
    - AP – 9.5-11.5cm; IT – 11cm

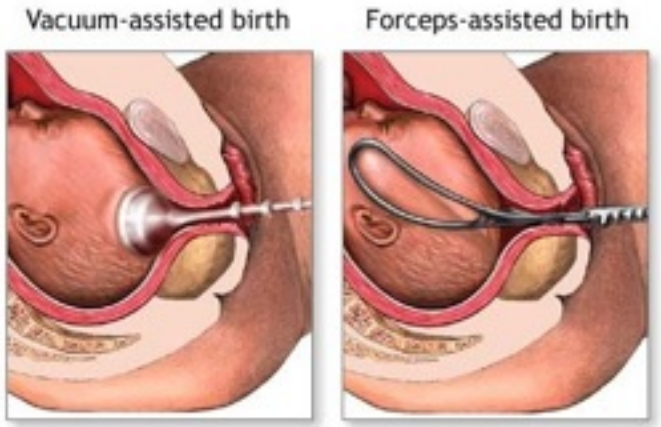




Operative vaginal delivery

- Vacuum delivery
  - ALSO checklist: A, B, C, D, E, F, G, H, I and J
  - Determine the flexion point
  - Insert the cup – always more posterior than you think

- Forceps delivery
  - ALSO checklist: A, B, C, D, E, F, G, H, I and J
  - Determine foetal scalp suture / ears
  - Position For Safety
  - Remember downward traction

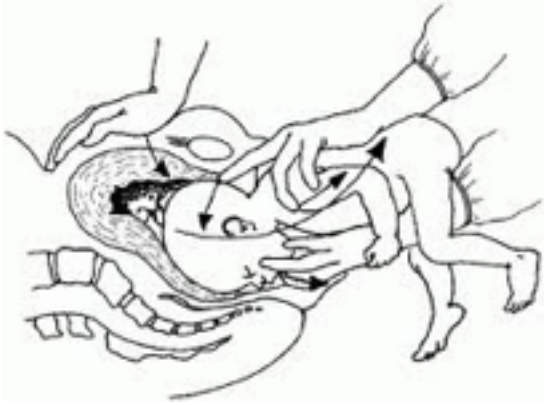


SKILL BREAK

Operative vaginal delivery

Breech delivery

- Avoid vaginal breech delivery if you can
  - Higher perinatal morbidities than caesarean section 5% vs 1.6%
- Caesarean breech delivery
  - Similar entry
  - Locate the hips to deliver the bottom first
  - Gentle traction by grasping the thighs not the abdomen
  - Pinard, Lovsett's and MSV manoeuvres
  - Nuchal arm:
    - Rotate towards where the hand is
    - Apply firm downward pressure on the cubital fossa



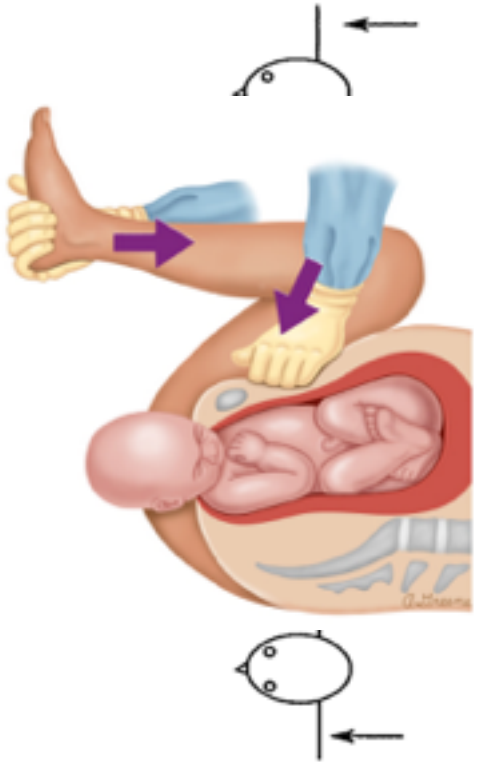
- Vaginal breech delivery
  - Possible when
    - Frank breech presentating at perineum, and cervix fully dilated
    - Not macrosomic / post-dates
    - Second twin
  - DO NOT apply traction until you see the nape / DO NOT pull on the cord
  - Pinard manoeuvre / Lovsett's manoeuvre
  - Remember to keep the foetal head flexed: MSV, fundal pressure (Bracht)
  - Consider episiotomy
  - Allow take cord blood for blood gases

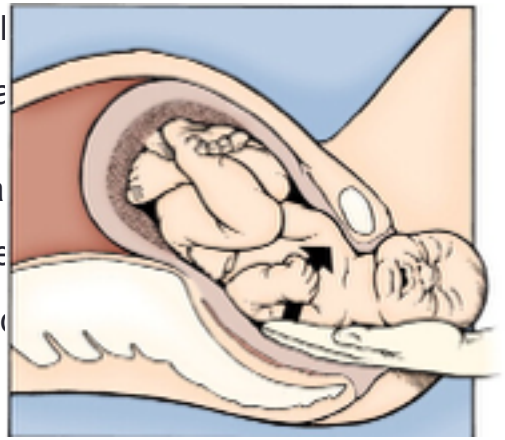
SKILL BREAK

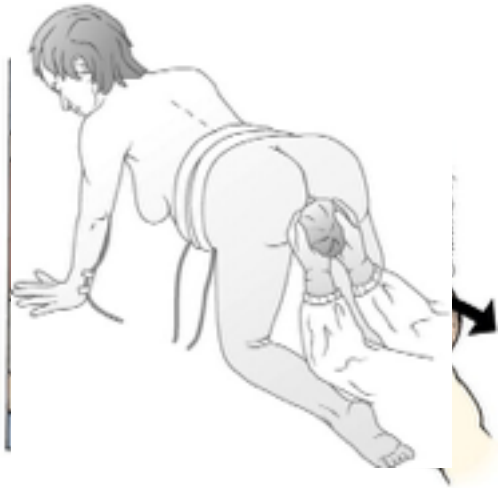
Breech delivery

Shoulder dystocia

- Recognition of risk factors & diagnosis
  - GDM / postdates / large SFH *often unexpected*
  - Slow/minimal head descent during 2nd stage of labour; turtle
  - Failure to deliver anterior shoulder
- Management
  - HELPERR
  - Call for help senior doctors & midwives, anaesthetist, paediatrician
  - Time pressure
  - Positioning
    - McRoberts; lateral suprapublic pressure
    - Rubin / Woodscrew / Reverse Woodscrew / Posterior shoulder
    - Gaskin manoeuvre
  - Tips:
    - DON"T rush…apply each manoeuvre at l
    - Think unlocking a jammed cockscrew – a and keep apply firm downward traction
    - Communicate with the patient and collea
    - If all fails…Zavanelli's manoeuvre → Cae
    - Don't forget to review baby, do cord bloo



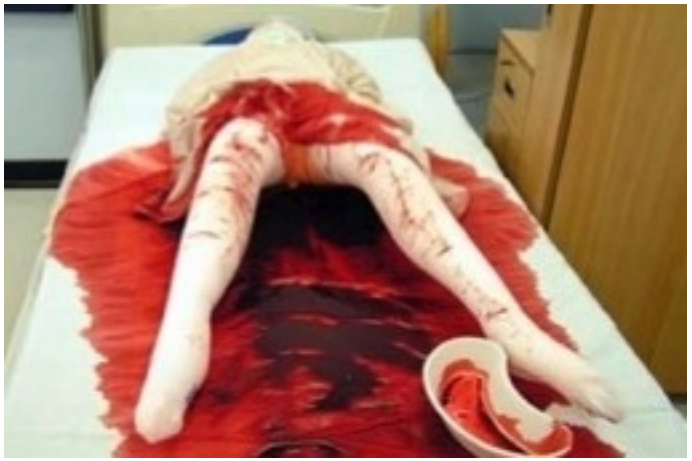




SKILL BREAK

Shoulder dystocia

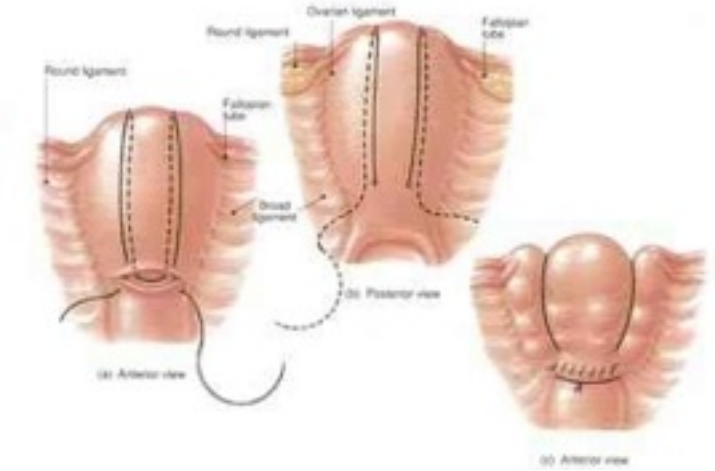
Vaginal haemorrhage



- DR ABCDE….
- Not pregnant
  - Exclude trauma / foreign body / warfarin
  - Primolut / tranexamic acid
  - Vitamin K / Clotting factors
- Early pregnancy
  - Think ruptured ectopic / miscarriage / molar pregnancy
- Antepartum haemorrhage
  - Think placenta praevia/accreta/abruption – DON'T simple do a VE
  - Fundal palpation; CTG / Doppler; USS
- Postpartum haemorrhage
  - Think Tone / Tissue / Trauma / Thrombin
  - Check uterine tone, placenta, cervix/vagina/vulva, blood
  - Start IDC / IVT / uterotonics / fundal rub / vaginal packing → theatre

Vaginal haemorrhage

- Systematic assessment
  - Speculum examination
  - Manual removal of clots / retained placenta
  - FBC / INR / APTT / ELFT; XM 2-4 units
- Refractory atonic uterus
  - B-lynch suture
  - Bakri balloon
- Ring obstetrician at tertiary hospital



Other obstetric complications

- Cord prolapse
  - Initial steps
    - Call for help; Reverse Trendenlenburg position
    - Keep cord warm, e.g. in vagina; Keep pressure off the cord
  - Expedient delivery
  - If delivery time is being delayed
    - Fill up bladder with 500ml NS; Keep monitoring foetal heart rate
- Uterine inversion
  - Do not manually remove placenta before replacing uterus
  - Resus / analgesia → replace uterus / vaginal irrigation / tocolytics → oxytocin infusion / bimanual compression

For more training….ALSO, MOET, MaCRM, FOREMOST

CASE STUDIES

Case 1

Going to instrumental vaginal delivery…head too low or baby too distressed to wait 30-40 minutes for theatre. Very asynclitic head, lots of fetal hair with poor seal with cup….needed about 3 pulls gets the head to crowning but then pops off. In this scenario have previously taken the cup off, cut a big episiotomy, prayed to the obstetrics gods and hoped the mum would push like the devil! Has always somehow managed to get the baby out but have at times had to resort to pulling beyond the recommended 3 times.

Comments

- First cup position is critical. Change of cup position not advisable
- Gentle traction with subtle change of direction
- 3 pulls limit is a guide NOT a rule…can proceed as long as head descent is satisfactory
- Reserve the use of forceps for liftout – direct OA or direct OP
- Forceps following failed vacuum is associated with higher risk of neonatal trauma

Case 2

Terrible shoulder dystocia at caesarean - difficulty extending the uterine excisions into J excision due to large head in the way. Any tips for this scenario? .

Comments

- Check the foetal position/lie/size…
- Optimize access to lower uterine segment
- Feel the foetal head just before incising
- Uterine incision: smiley cut, then blunt entry, and stretch
- Fundal pressure: firm not rocky
- Incision extension: lift up upper incision edge
- Shoulder rotation, abduction and firm traction

Case 3

32 yo G3P2. no PHx of LSCS or accreta etc…known post. Placenta. At 3am, had a NVD of live male infant. Had gas n air only for analgesia, no epidural in situ or opiates given. Oxytocin with delivery ant shoulder, CCT by midwife...until cord ruptured, placenta "retained". Attended by GP-obs…placental end of cord clamped…PPH with ongoing blood loss -> 250ml -> 500ml -> 750 ml. Did fundal massage; IV access; ergometrine; misoprostol PR; IDC, synto infusion…ongoing blood loss...1000...1250ml - p110 BP 90 RR28 anxious…Anaes colleague called, plan to attend to assist and aid MROP…

What to do now? Should we do spinal / GA / sedation?

Comments

- Early call for anaesthetist and theatre staff because they take time to arrive
- Initial PPH management satisfactory but won't be enough until placenta is removed…hence, removal of placenta & intra-uterine clot is critical…thereafter, continue using uterotonics, add PGF2a and Bakri's balloon tamponade…if failed, proceed with B-Lynch suture
- In a shock patient, resuscitation and treating the cause are most important than anaesthetic issue. Anaesthetic choice should go by which way is quickest and safe. I would favour quick spinal, then rapid sequence induction with laryngeal mask

Case 4

33/40. Known placenta praevia grade IV, has self discharged after bleeds x2 from WCH, limited social supports…presents by ambulance 0745 with painless pv bleeding all night… oncall doctor called in while having a shower at home… get nursing help and O neg blood ready, O2 and IVT

- Exam: Alert, pale, but sl combative, hypotensive 60/-, ↓ capillary return, Pulse 90. Tender fundus = 32 wk sized. FHR= 120bpm but deep prolonged deceleration, contracting 3:10 painful. Noted heavy dark bleeding and clots on trolley.
- Mx: blood transfusion…Medstar good "frank discussion" on plan with consultant icu and obs consultant on call – us obstetricians feel needs delivery = empty the uterus here rather than collect and run via helicopter
- To theatre 0845. Rapid sequence induction in theatre after increasing bp blood and crystalloid. Fetal heart 60-100 prior to commence CS
- Operation commenced 0855; finished 0925, loss settled well once placenta delivered
- Flat female to paed – baby intubated. Large clot lower segment, approx 400-500 ml size. EBL guesstimate 2000+ mls. Hb arrival 6.2 – informed during CS.
- Retrieval team arrive after operation 0930 ; given 5 units blood and 2l normal saline, kept intubated for transfer. Uneventful recovery – Hb next day 9.2

Case 4

33/40. Known placenta praevia grade IV, has self discharged after bleeds x2 from WCH, limited social supports…presents by ambulance 0745 with painless pv bleeding all night… oncall doctor called in while having a shower at home… get nursing help and O neg blood ready, O2 and IVT.

Comments

- Good decision to go for delivery before retrieval
- Placenta abruption with signs of foetal compromise MUST proceed with immediate delivery
- Summon your team – PIN POINT the GLORY, and SHARE the BLAME

Case 5

Emergency LSCS (failure to progress I think), no great rush, spinal in, LSCS going fine but the baby was dead at delivery. The neonatal team tried resuscitation to no avail. From what I could gather the post-mortem suggested an antepartum haemorrhage (concealed). It was presumed that the heartbeat the midwives were picking up on doppler during labour was in fact the mother's (she was tachycardic). Very tragic.

Comments

- If you have practiced obstetrics long enough, you will probably agree that there is no such thing as low risk obstetrics
- Always check maternal pulse rate when checking FHR with handheld Doppler
- I routinely check antenatal FHB with my portable USS
- Even foetal scalp electrode can be wrong too.