Managing Labour and Delivery

1st Stage of Labour

Definitions

- 1st stage of labour = painful regular rhythmic contractions (3-4 in 10min) ± membrane rupture
- Occurs while fetal head descends into pelvis
- Cervical dilation
    - Latent 0-3cm
    - Active 3-10cm

Signs of 1st stage

- Regular painful contractions → progressive cervical dilation
- "Show" (passage of blood stained mucus)
- Rupture of membranes

Timing

- 12-15h primip (1cm/2h)
- 7.5h multip (1cm/h)

Common fetal orientations

- Lie
    - Longitudinal
    - Transverse
    - Oblique
- Presentation
    - Cephalic
    - Breech
- Position (denominator, i.e. bony prominence of presenting part, relative to pelvic rim)
    - Left/right occipito-anterior (LOA most common)
    - Left/right occipito-transverse
    - Left/right occipito-posterior

Management

- **Partogram plot** (start at 3cm cervical dilation)
    - Fetal heart auscultation (every 30 mins)
    - Maternal observations
        - Heart rate and BP (every 30 mins)
        - Temperature and urinalysis (every hour)
    - Contractions (every hour) – frequency (/10 mins), strength (/10), regularity
    - PV exam (every 4 hours) – fifths palpable per abdomen, cervical dilation (+consistency, length and position), presenting part and station of presenting part
- **Monitor 1st stage progress –** see OSCEstop notes on partogram interpretation
    - Cervical dilation rate (alert line = 1cm/2h primip, 1cm/h multip) → consider artificial rupture of membranes
    - Station of presenting part
    - Contractions → consider oxytosin
- **Observe for signs of maternal distress**
- **Observe for signs of fetal distress:** changes in fetal heart rate (normal 110-160), non-fluctuating heart rate (normal 10-15), excessive or decreased fetal movements, meconium aspiration
- **Fetal cardiotocography (CTG):** electrical fetal heart rate monitor (continuously for high risk pregnancies; otherwise, do on admission, then only if concerns)
- **Discourage maternal pushing until full cervical dilation**

Complications

- Passenger: cephalopelvic disproportion, fetal malpresentation → C-section
- Passage: fibroids/cervical stenosis → C-section
- Power: primary uterine inertia → try oxytosin ± artificial rupture of membranes; if >24 hours: deliver instrumentally (if cervix is fully dilated) or by C-section (if cervix is not fully dilated or there is faetal distress at any point)

2nd Stage of Labour

Definition

- Expulsion of the fetus

Signs of 2nd stage

- Desire to bear down
- Full cervical dilation

Timing

- 45-120min primip
- 15-45min multip

Mechanism

1. **Flexed fetus descends:** head very flexed on spine. Descends and engages.
2. **Internal rotation:** whole fetus internally rotates (until its facing towards maternal back – head at level of ischial spines)
3. **Extension of head:** head extends around pubic symphysis until delivered
4. **Restitiution (external rotation):** after head delivered, fetus rotates back to its original position i.e. shoulders AP (comes out sideways)
5. **Delivery of shoulders:** anterior shoulder comes out first, then rest in pelvic axis (i.e. anteriorly)

Management

- **Position mother** in *left lateral*, *semi-sitting* or *kneeling* position
- **Monitoring:** fetal heart rate (every 5 mins)
- **Maternal pushing**: let mother push 2-3 times with each contraction (after confirmed full cervical dilation)
- **Control occiput descent** with your left hand (optional)
- Consider mediolateral episiotomy if perineal tearing (especially in primiparous women)
- **After head crowns** (usually with occiput anteriorly)
    - Counter pressure to ensure controlled delivery
    - Ask the mother to pant (and not push) to wait for restitution (rotation of head laterally) to happen naturally
- **After head born**
    - Check the cord is not around the neck – clamp and cut it immediately if it is wound tightly around baby's neck
    - Give syntometrine (oxytocin/ergometrine) to precipitate 3rd stage later
    - Apply gently downward traction to baby's head so that the next contraction delivers the anterior shoulder
- **After anterior shoulder delivered**
    - Pull fetus out in pelvic axis (anteriorly over symphysis pubis)
- **After baby born**
    - Delayed cord clamping – clamp cord twice and cut between 1-3 minutes after birth
    - Baby
        - Aspirate mucus from mouth and nose, and keep baby warm by wrapping in blanket
        - Assess with APGAR score at 1 and 5 mins
        - Label baby
        - Give vitamin K injection
        - General exam for faetal abnormalities
    - Lie baby on mother's abdomen, and encourage her to start suckling immediately (stimulated uterine contraction)
    - Palpate uterus to exclude possibility of second fetus (if unknown)

Complications

- Cord prolapse (proceeding risks asphyxia) → place mother in knee-to elbow position on front, put pressure on the presenting part and rush theatre for C-section
- Shoulder dystocia (may be signified by failure of restitution or 'turtling') → tell mother not to push. Try to deliver the anterior shoulder using 4 sequential manoeuvres at 30 second intervals until success:
    1. McRoberts (hyperflexed lthotomy) position: patient lies flat with hips hyperflexed
    2. With mother in position above, apply suprapubic pressure (with your hands in CPR formation) to rotate baby's shoulders into an oblique plane
    3. Via the vagina, use the flats of your hands to place pressure on the backs of the baby' shoulders to rotate them into the oblique plane (either direction)
    4. Grasp the baby's posterior arm (usually flexed against the baby's chest) and deliver it by pulling hard

  Lastly, you can also try getting mother on all fours with the back arched (Gaskin manoeuvre, widens pelvic outlet), but urgent C-section is probably needed
- Secondary uterine inertia → try oxytosin or instrumental delivery
- Persistent occipito-posterior position → deliver face-to-pubes if pelvis is reasonable size, but forceps or C-section may be needed
- Narrow mid-pelvis → instrumental delivery if possible, or C-section
- Breech position
- Multiple pregnancy

Intervene when: maternal/fetal distress, incomplete internal rotation causing failure to progress

3rd Stage of Labour

Definition

- Expulsion of the placenta

Signs of 3rd stage

- Gush of blood (50-100ml)
- Lengthening of cord

Timing

- 5-10min with syntometrine
- 30min-1hour without syntometrine

Management

- Use a dish to collect blood loss
- Controlled cord traction when uterus contracts: left hand press down on fundus, right hand apply tension to cord
- Check the placenta is complete
- Repair perineal damage with sutures

Complications

- Post partum haemorrhage → ABC, blood transfusion, firm urine massage (to stimulate contraction), oxytosin, correct cause, catheterise (space allows uterus to contract), is patient shocked/severe blood loss then bimanually compress uterus
    - Primary (>500ml in <24h) = TTTT = Tone↓, Tension (of slightly invasive placenta), Trauma to perineum, Thrombosis
    - Secondary (>500ml >24h) = retained tissue/clot
- Retained placenta
- Inversion of uterus

Other Points

Instrumental delivery

- Instruments
    - Short-shanked (e.g. Wrigley's) forceps - for lift out deliveries, where head is on the peritoneum
    - Long-shanked (e.g. Neville-Barneys) forceps - for higher deliveries
    - Kielland's forceps - reduced pelvic curve, therefore suitable for rotation
    - Ventousse (vacuum extractor) - goes over posterior fontanelle; not if head is higher than ischial spines; less maternal trauma
- Indications: delayed 2nd stage, fetal distress, prolapsed cord, eclampsia

C-section

- Indications: obstructed labour, fetal distress, prolapsed cord, placenta previa, maternal condition requiring delivery, previous C-section (relative)

Analgesia options

- None
- Paracetamol
- Codeine
- Entenox – best method in an emergency
- Pethidine
- Morphine
- Epidural
- Spinal (for C-section)

Complex deliveries

- Breech presentation → C-section preferred but can deliver vaginally if not footling/kneeling breech and not had previous C-section
- Abnormal lie → C-section at 39 weeks
- Multiple pregnancy → can deliver vaginally if first fetus is cephalic and not monochorionic; after 1st delivery, mother will require oxytosin (contractions stop after 1st delivery) and position of 2nd fetus must be confirmed. If any complications, perform C-section.

Scoring systems

Bishop score: PV exam scoring system to determine if labour is likely to commence spontaneously or induction will be required (total <5 = labour unlikely to start without ripening the cervix; total ≥7 = labour should commence easily)				
	Score 0	**Score 1**	**Score 2**	**Score 3**
Cervical dilation (cm)	0	1-2	3-4	≥5
Cervical consistency	firm	medium	soft	-
Length of cervix (cm)	>2	2-1	1-0.5	<0.5
Cervix position	posterior	central	anterior	-
Station of presenting part (cm above ischial spines)	+3	+2	+1 to 0	<0

Apgar score: baby score at 1 minute and 5 minutes to determine well being of the baby after the birthing process and outside the womb (total <7 = baby needs specialist paediactric support and oxygen)			
	Score 0	**Score 1**	**Score 2**
Appearance	pale	blue extremities	Pink all over
Pulse	absent	<100	>100
Grimacing	absent	weak	good
Activity	no tone	some/floppy	normal muscle tone
Respiration	none	weak	strong