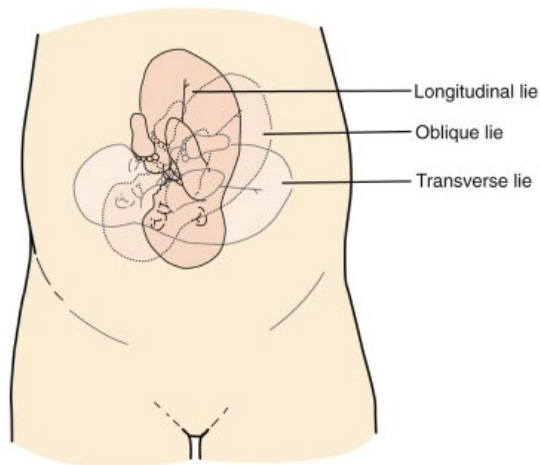


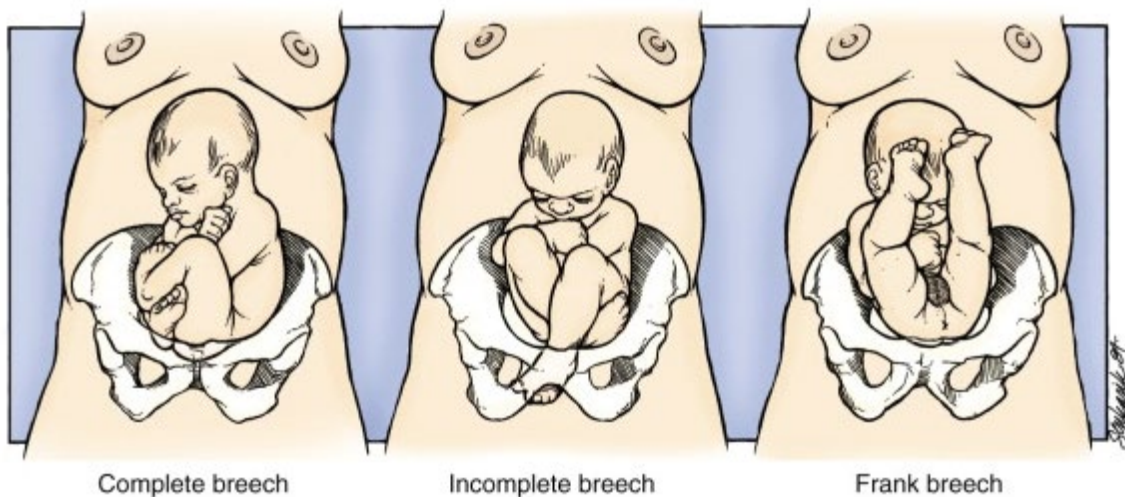
## EMERGENCY CHILDBIRTH

### LABOUR:

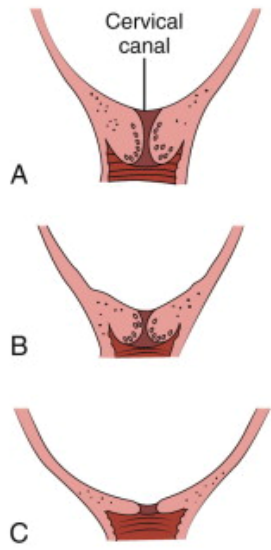
- Labour is the coordinated sequence of involuntary uterine contractions that result in progressive effacement and dilatation of the cervix
- Normally divided into THREE STAGES:
  - First stage → when contractions are strong enough to cause cervical effacement and ends when the cervix is fully effaced
  - Second stage → begins when dilatation of the cervix is complete and ends with delivery of the infant
  - Third stage → delivery of the placenta
- IDENTIFICATION OF LABOUR:
  - Contractions in late pregnancy are not uncommon
  - Irregular, brief, Braxton-Hicks contractions occur, usually with associated discomfort
  - TRUE LABOUR → regular sequence of uterine contractions with progressively increasing intensity
  - SHOW (or bloody show) consists of a small amount of blood-tinged mucous discharged from the vagina → if more than a few drops of blood escape, evaluate for APH
  - PROM → when membranes rupture prior to onset of labour and occurs in 8% of pregnancies. Most significant risk is maternal uterine infection. Foetal risks → umbilical cord compression and ascending infection
    - If rupture before 37 weeks → premature PROM (pPROM) → again biggest risk is infection to mother and to foetus are complications related to prematurity
  - Differentiation of amniotic fluid from vaginal fluid can be made by testing the pH of the fluid → amniotic fluid has pH of 7-7.5, false positive may occur with blood, semen or bacterial vaginosis.
- EVALUATION OF LABOUR:
  - When a woman presents in labour → rapid assessment of condition of mother and foetus by history and exam → frequency of contractions
  - In absence of active vaginal bleeding → determine the POSITION, PRESENTATION AND LIE OF THE FOETUS BY PALPATION
    - LIE → relation of the long axis of the foetus to that of the mother → can be longitudinal, oblique or transverse (99% of the time it is longitudinal)



- PRESENTATION → presenting part → that portion of the body of the foetus nearest to or foremost in the birth canal. 97.5% present cephalic, 3.5% breech
  - CEPHALIC → classified by relation of the foetal head to the body of the foetus → IF HEAD IS SHARPLY FLEXED → VERTEX OR OCCIPUT PRESENTATION
    - If neck is fully extended → face presentation
  - BREECH → can be frank, complete or incomplete

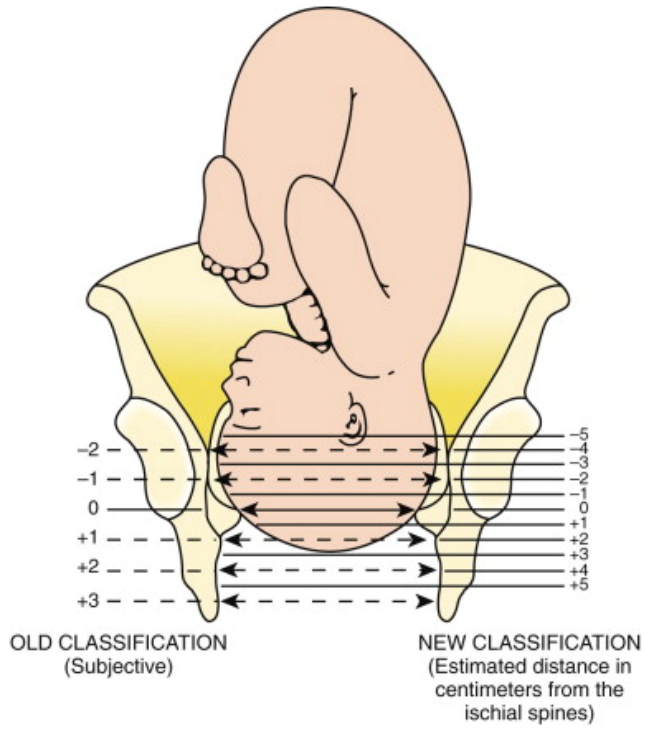


- VAGINAL EXAMINATION:
  - Unless there has been bleeding in excess of a bloody show, perform a vaginal examination (not speculum) to identify foetal presentation and position and assess progress of labour via cervical effacement and dilatation
  - THE NUMBER OF VAGINAL EXAMINATION CORRELATES WITH INFECTIOUS MORBIDITY
  - CERVICAL DILATATION → estimated by the average diameter of the cervical os



**Figure 56-4 Effacement of the cervix. A, None. B, Partial. C, Complete.**

- **STATION** → refers to the level of the presenting foetal part in the birth canal relative to the ischial spines → new method (-5 to +5) is an attempt to quantitate in centimetres the distance of the leading bony edge from the ischial spines



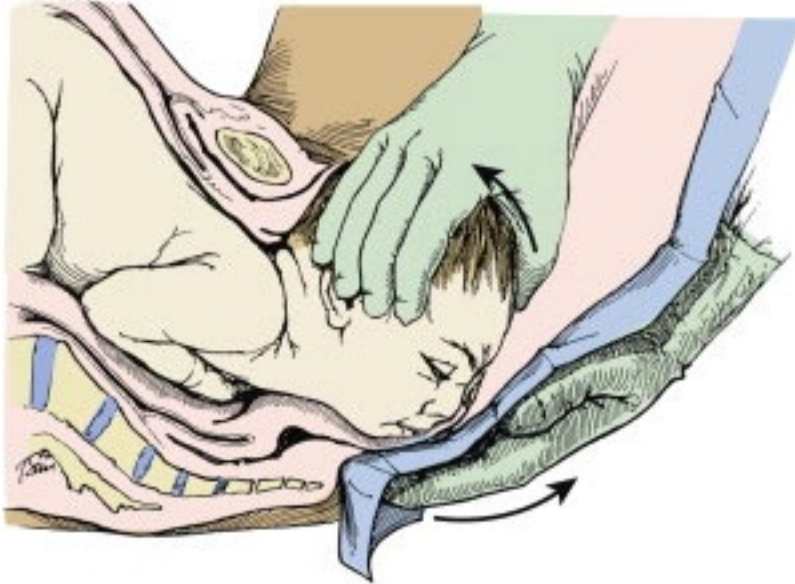
### **FOETAL WELL BEING:**

- Can be assessed with auscultation of foetal heart sounds, Doppler US is preferred → normal baseline FHR is 120-160/min → anything above or below this range is considered abnormal and may indicate foetal distress
- CTG MONITORING:
  - Decelerations that occur independently of uterine contractions (VARIABLE) or those that persist significantly after a contraction (LATE) are ominous and may represent cord compression and uteroplacental insufficiency
- MANAGEMENT OF FOETAL DISTRESS:
  - The definitive evaluation of foetal distress is in the obstetric unit by the delivery team
  - There is NO ROLE FOR SOPHISTICATED MONITORING OF THE FOETUS IN ED
  - Expedite transfer as soon as possible → mindful of eclampsia, bleeding and abnormal foetal presentation
  - CORD PROLAPSE → normally occurs at time of rupture of membranes → management aimed at sustaining foetal life until delivery is accomplished → emergency LSCS and start tocolytics if appropriate
    - Minimise compression of the umbilical cord by exerting manual pressure through the vagina to lift and maintain the presenting part away from the prolapsed cord
- TOCOLYTIC THERAPY:
  - Uterine, cervical or urinary tract infection account for 20-40% of preterm labour
  - THERE IS LITTLE DATA TO SUGGEST TOCOLYSIS IMPROVES LONG-TERM PERINATAL OR NEONATAL OUTCOME
  - The main benefit of pharmacological therapy may be to allow maternal transfer to a tertiary care facility or to delay delivery sufficiently to improve foetal maturation with corticosteroids
  - CONTRAINDICATIONS → severe preeclampsia, placental abruption, intrauterine infection, advanced cervical dilation, evidence of foetal compromise or placental insufficiency
  - OPTIONS → MAGNESIUM SULPHATE, TERBUTALINE, SALBUTAMOL → consult O&G for advice

### **TECHNIQUE FOR UNCOMPLICATED VERTEX DELIVERY:**

- Broken up into:
  - DELIVERY OF THE HEAD
  - DELIVERY OF THE SHOULDER
  - DELIVERY OF THE BODY AND LEGS
- DELIVERY OF THE HEAD:
  - Anticipate delivery when the presenting part reaches the pelvic floor
  - Gentle, gradual and controlled delivery is desirable → place the palm of one hand over the occipital area and provide gentle pressure to control delivery of the head

- Exert forward pressure on the chin of the foetus through the perineum just in front of the coccyx using the RITGEN MANOEUVRE:



- Gently support the head during subsequent delivery of the forehead, face, chin and neck
  - With delivery of the neck, pass a finger around the infant's neck to determine whether it is encircled by one or more coils of the umbilical cord
  - If it is loosen it carefully and gently slip it over → if this cannot be done easily, clamp the cord doubly and cut the cord between the clamps and deliver ASAP

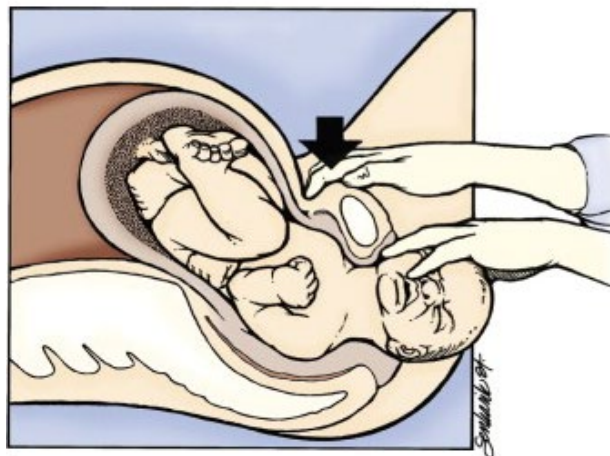


- DELIVERY OF THE SHOULDERS:
  - In most cases, the shoulders are born spontaneously

- Aid delivery by grasping the sides of the head and exerting gentle downward (posterior) traction until the anterior shoulder appears beneath the symphysis pubis
- Gently lift the head upward to aid delivery of the posterior shoulder → the remainder of the body usually follows without difficulty



A

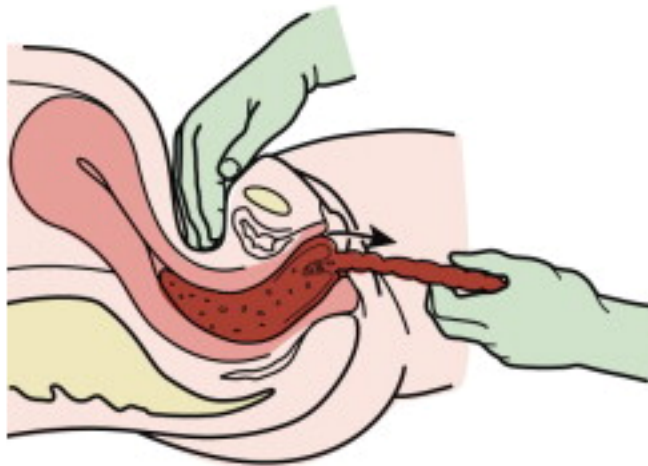


B

- CLEAR THE AIRWAY AFTER DELIVERY OF THE HEAD
- CLAMPING THE CORD:
  - Cut the umbilical cord with scissors between two Kelly clamps placed 4-5cm from the infant's abdomen
  - Delayed clamping of the umbilical cord for at least 2 minutes after birth consistently improves short and long-term haematologic and iron status of full-term infants
- RAPID ASSESSMENT OF THE NEWBORN:
  - Was the baby born after full-term?
  - Is the amniotic fluid clear of meconium and without evidence of infection?



- Is the baby breathing or crying?
- Does the baby have good muscle tone?
  - If the answer to all of above is NO → THEN THE INFANT DOES NOT NEED RESUSCITATION
- DELIVERY OF THE PLACENTA:
  - Placental separation usually occurs within about 5 minutes after delivery of the infant
  - Ask the mother to bear down and use one hand to exert gentle pressure through the abdominal wall to lift the uterine fundus cephalad while keeping the umbilical cord slightly taut with the other hand
  - Never force the expulsion of the placenta before placenta separation has occurred and never use forceful traction as this may result in UTERINE INVERSION with catastrophic haemodynamic consequences



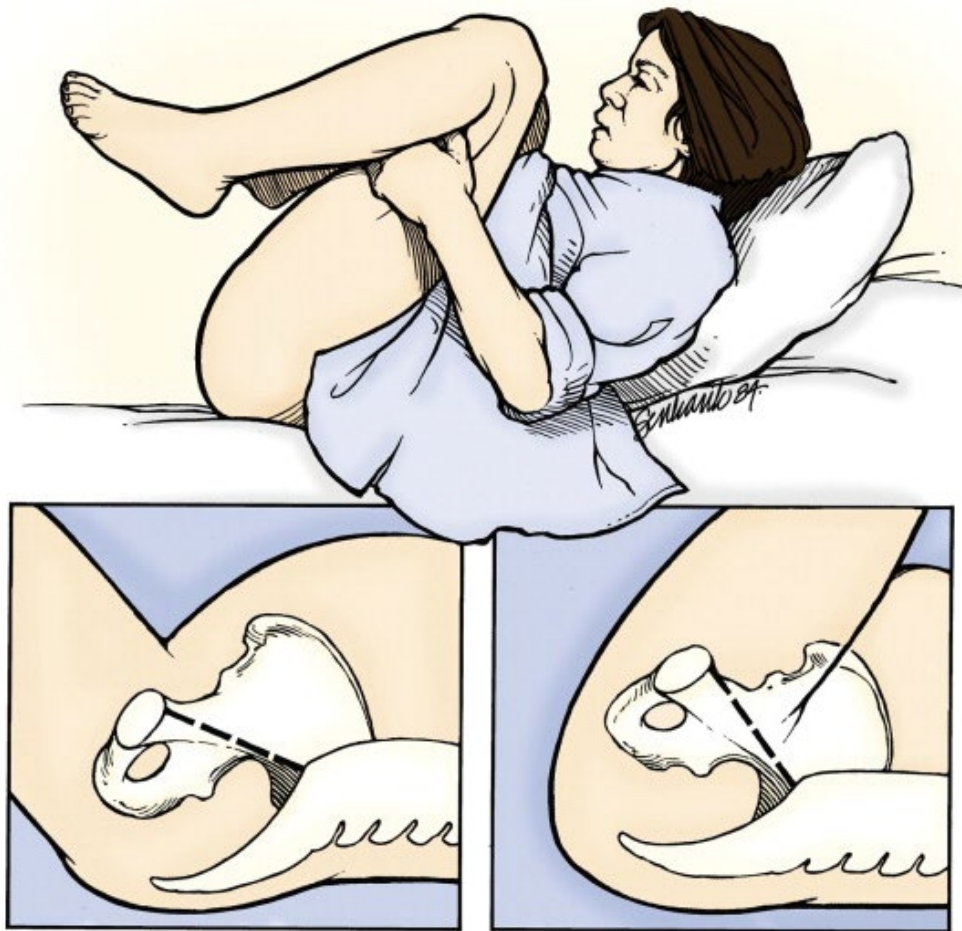
- After delivery of the placenta → the main method of achieving haemostasis is via myometrial contraction → add 20 units of OXYTOCIN to one litre of normal saline and administer at a rate of 10mL/minute and reduce at that point to 2mL/min
  - Constant firm uterine massage can lessen haemorrhage and be life-saving

### **COMPLEX DELIVERIES:**

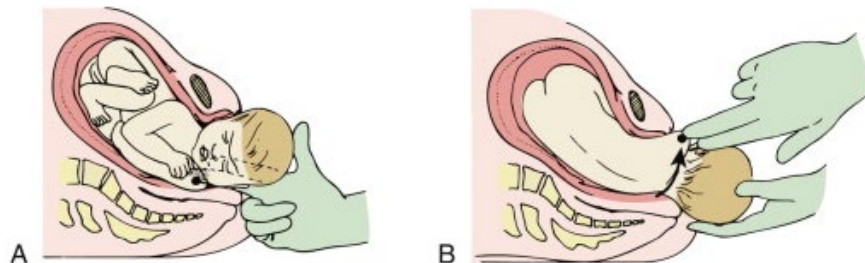
#### **SHOULDER DYSTOCIA:**

- Refers to the impaction of the foetal shoulders in the pelvic outlet occurring after delivery of the head which occurs in 0.15-1.7% of vertex presentations
- Associated with risk factors in 50% of cases:
  - Foetal macrosomia
  - Maternal diabetes
  - Obesity
  - Multiparity
  - Post-term pregnancy
- Impaction of the shoulders in the pelvis prohibits adequate respiration and compression of the umbilical cord frequently compromises foetal circulation → serious and potentially fatal complication of delivery

- Foetal complications → brachial plexus injuries, clavicular fractures, humeral fractures (AND DEATH!)
- MANAGEMENT:
  - Call for assistance from O&G urgently
  - Least invasive manoeuvre to disimpact the shoulders is THE MCROBERTS MANOEUVRE → extreme lithotomy position with hips completely flexed → frequently frees the anterior shoulder

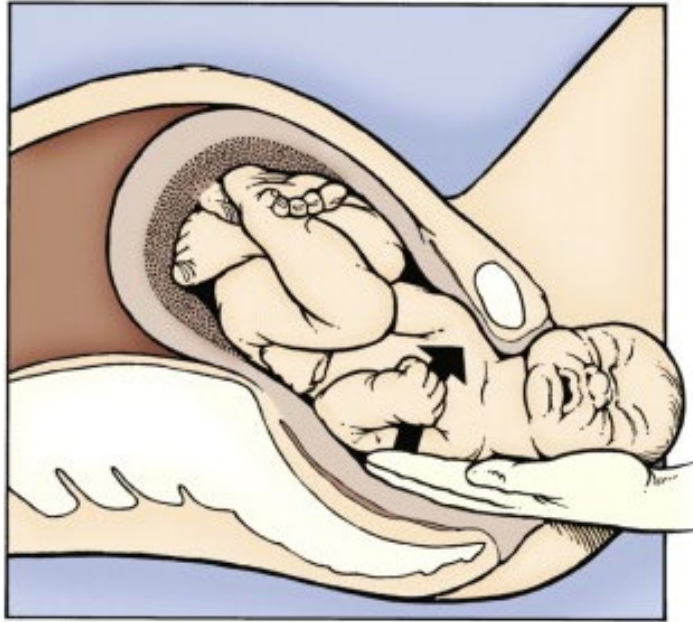


- REVERSE WOOD'S SCREW:
  - Insert two fingers in the vagina and exert pressure on the foetal scapula, rotating the posterior shoulder in a 180 degree corkscrew fashion

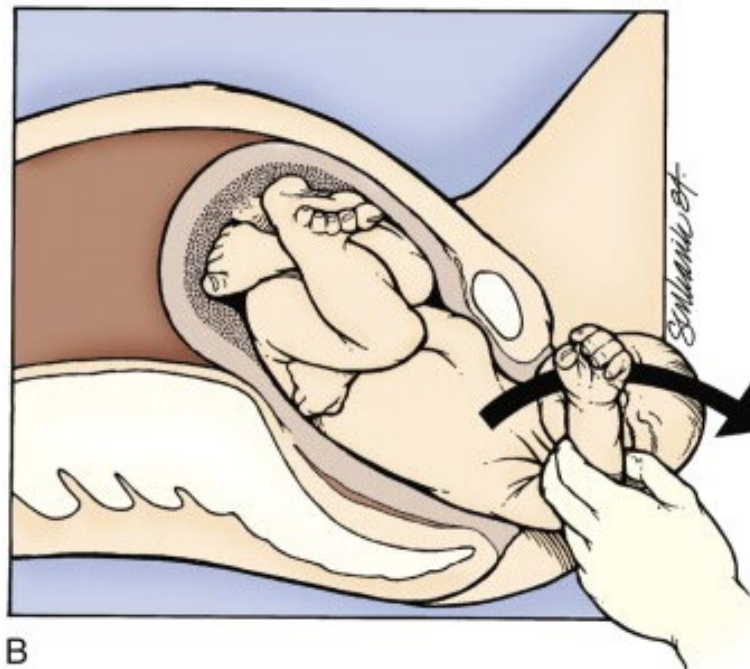




- Alternatively → insert the hand along the hollow of the maternal sacrum to the level of the foetus' posterior elbow and exert pressure at the antecubital fossa, flex the foetus' posterior forearm and grasp the hand and sweep the posterior arm of the foetus across its chest to effect delivery of the posterior arm



A

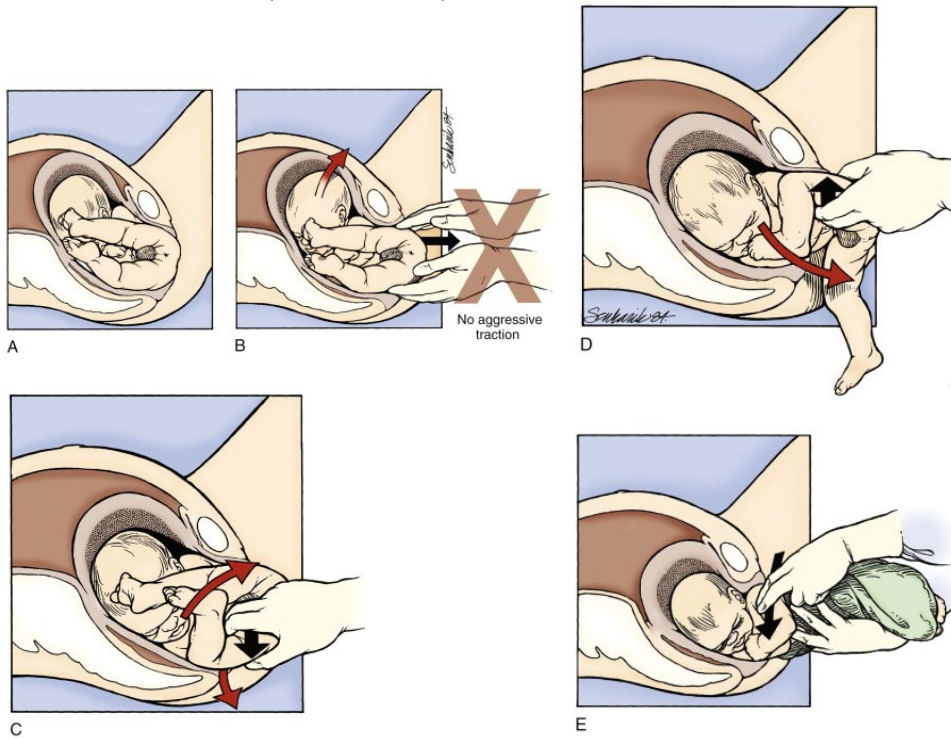


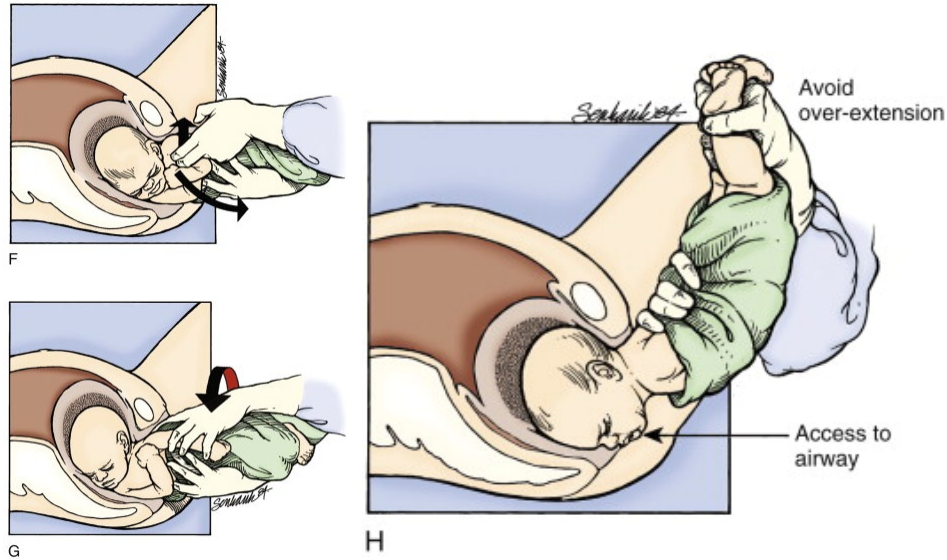
B

- If all these strategies fail, it may be necessary to perform a controlled destructive procedure, such as fracture of the clavicle or the cephalic replacement manoeuvre with subsequent LSCS

## BREECH DELIVERY:

- Breech is associated with greater incidence of prematurity, prolapsed cord, low implantation of the placenta, uterine and congenital abnormalities, multiple pregnancies and increased perinatal morbidity and mortality
- The increased use of LSCS has greatly decreased morbidity and mortality
- Similar to vertex presentation, the role of the clinician is to assist the mother in the birthing process, allowing maternal expulsive efforts to effect delivery of the infant → premature or aggressive assistance or traction can significantly increase foetal and maternal morbidity
- If assisted delivery of the frank breech becomes necessary → FIRST PERFORM AN EPISIOTOMY (SEE LATER) →





**Figure 56-14** The fetus emerges spontaneously (A), while uterine contractions maintain cephalic flexion. Avoid premature aggressive traction (B) which encourages deflexion of the fetal vertex and increases the risk of head entrapment or nuchal arm entrapment. After spontaneous expulsion of the umbilicus, rotate each thigh externally (C) combined with opposite rotation of the fetal pelvis which will result in flexion of the knee and delivery of each leg (D). When the scapulae appear under the symphysis, reach over the left shoulder, sweep the arm across the chest (E), and deliver the arm (F). G, Gently rotate the shoulder girdle to facilitate delivery of the right arm. H, Following delivery of the arms, wrap the fetus in a towel for control and elevate the fetus slightly. The fetal face and airway may be visible over the perineum. Avoid excessive elevation of the trunk.

- To deliver the head → use the MAURICEAU MANOEUVRE → with the foetal body resting on the clinicians' palm and forearm, place the index and middle finger of the hand over the infant's maxilla, flexing the foetal head and grasp the shoulders, applying downward traction until the suboccipital region appears under the symphysis pubis while asking an assistant to apply suprapubic pressure to help with the delivery of the head



## EPISIOTOMY:

- Routine use of episiotomy has been abandoned, as it has been shown to INCREASE THE RISK OF THIRD AND FOURTH DEGREE TEARS
- Indications are shown below and are performed most often in a mediolateral fashion

**TABLE 56-2 -- Traditional Indications for Episiotomy**

Fetal macrosomatia
Shoulder dystocia
Breech delivery
Operative vaginal delivery
Occiput posterior position
Risk of major perineal laceration
Non-reassuring fetal heart rate tracing

- Needs to be repaired

## PERIMORTEM CAESAREAN SECTION:

- From 1879-1986, there were 188 reports of perimortem caesarean section resulting in delivery of a live infant → since then, only isolated cases of long-term foetal survival have been reported
- Accurate survival statistics are NOT KNOWN
- It should be considered in any woman who suffers a cardiac arrest after 24 weeks gestation and is unresponsive to brief resuscitation
- INDICATIONS:
  - Survival of the infant is directly related to the elapsed time from death of the mother to delivery, the maturity of the foetus and performance of CPR as well as NICU service availability
  - Potential for infant survival decreases and the chance of neurologic damage increases as the time from maternal death (cessation of circulation) to caesarean section rises

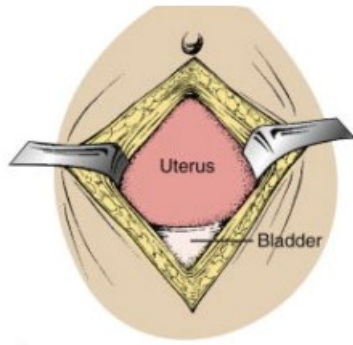
**TABLE 56-4 -- Outcome of 61 Infants Who Survived Postmortem Cesarean Section from 1900 to 1985 as a Function of Time from Maternal Death to Delivery**

Time (min)	No. of Patients (%)	Normal	Neurologic Sequelae
0-5	42 (69)	42	0
6-10	8 (13)	7	1 (mild)
11-15	7 (11)	6	1 (severe)
16-20	1 (2)	0	1 (severe)
21-25	3 (5)	1	2 (severe)

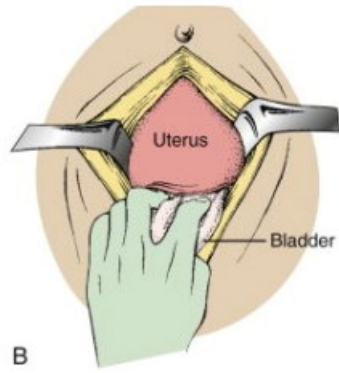
- HENCE → AFTER 15 MINUTES, OUTCOMES ARE VERY POOR
- Even under optimal conditions, CPR results in cardiac output of 30-40% of normal and placental perfusion may be severely compromised → make every effort to start within 4 minutes of arrest and have baby out by 5 minutes

- Foetal prognosis is generally better after sudden death of a previously healthy mother than after death of a mother with prolonged and debilitating illness
- TECHNIQUE:
  - Should be performed by the most experienced person present
  - CPR to continue throughout operation
  - Do not waste time assessing for foetal heart tones or making it a sterile procedure
  - Midline vertical incision through the abdominal wall extending from the symphysis pubis to the umbilicus
  - Reflect the bladder
  - Make a small incision vertically through the lower uterine segment until amniotic fluid is obtained or until cavity is entered
  - Then insert the index and middle fingers into the incision and use them to lift the uterine wall away from the foetus
  - Use bandage scissors to extend the incision vertically to the fundus until a wide exposure is obtained → deliver the infant and perform resuscitation
  - In rare instances → relief of vena caval compression by the uterus improves maternal haemodynamics such that survival of the mother is possible → check maternal pulses and continue CPR after delivery of the infant

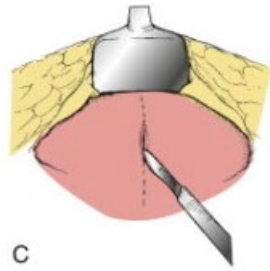




A



B



C



D



E