ABNORMAL LABOUR: FETOPELVIC DISPROPORTION

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-first stage

-second stage

Etiologies:

-fetal factors

-uterine factors

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Types of labour abnormalities-first stage

Prolonged latent phase

-duration >21 h (nulliparous), >14 h (multiparous)

Protraction of active phase of first stage of labour

-dilatation <1-1.2cm/h (nulliparous), <1.5cm/h (multiparous)

Secondary arrest of dilatation

-dilatation: no change in 2-4 hours (nulliparous, multiparous)

Prolonged deceleration phase

-descent: absent 3 h (nulliparous), 1 h (multiparous) when dilatation is 9 cm

Types of labour abnormalities-second stage

Protraction of descent

-descent <1cm/h (nulliparous), <2cm/h (multiparous)

Arrest of descent

-descent: unchanged for 1 h (nulliparous), ½ h (multiparous)

-disagreements among societies regarding time intervals and whether placement of epidural analgesia should add 1 hour in each stage .

Etiologies

Fetal factors

-malpresentation, malposition

-fetal weight

-fetal abnormalities

Uterine contraction factors

-dysfunctional uterine contractility

Pelvic factors

-pelvic type

-pelvic obstruction

Etiologies

Labour factors

-induction of labour

-augmentation of labour

-analgesia

-membrane sweeping

-partograph

-vaginal birth after caesarean section

Fetal factors: malpresentation, malposition

Breech presentation

-fetal presenting part: buttocks

-unable to dilate cervix with same efficiency if fetal presenting part was head

-risk of umbilical cord prolapse or compression during labour

-predisposing factors: prematurity, multiple, leiomyoma, previa, IUGR

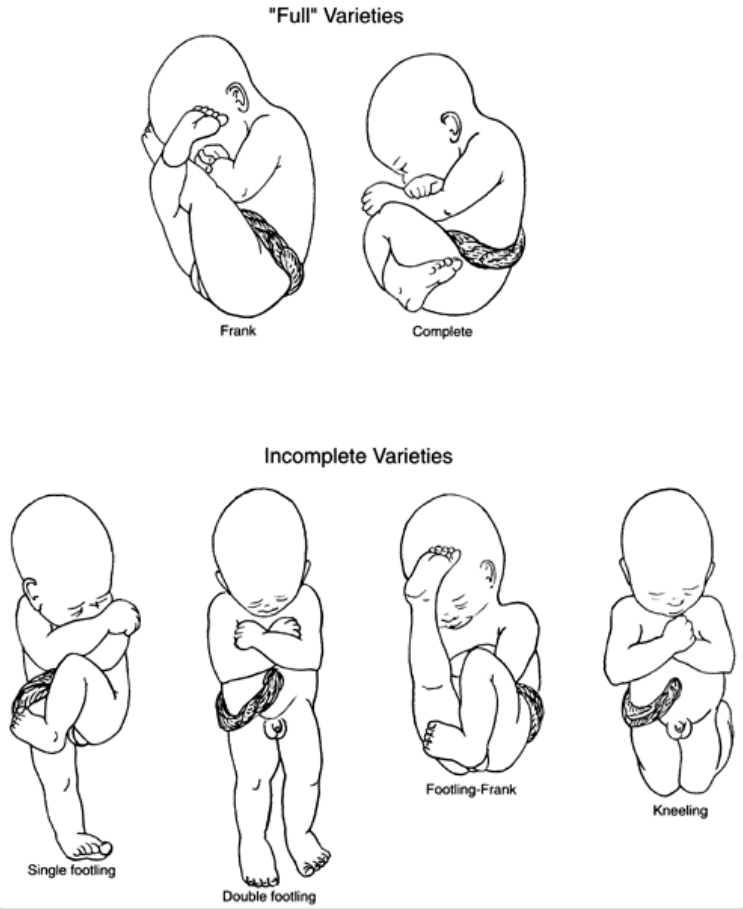
-signs: fetal head at fundus, buttocks at lower segment, meconium presence

-external cephalic version: at 36-37 weeks

-caesarean section or vaginal breech delivery (if late for c/s) is needed

Fetal factors: malpresentation, malposition

Breech presentations



Fetal factors: malpresentation, malposition

Vaginal breech delivery

Fetal factors: malpresentation, malposition

Transverse lie

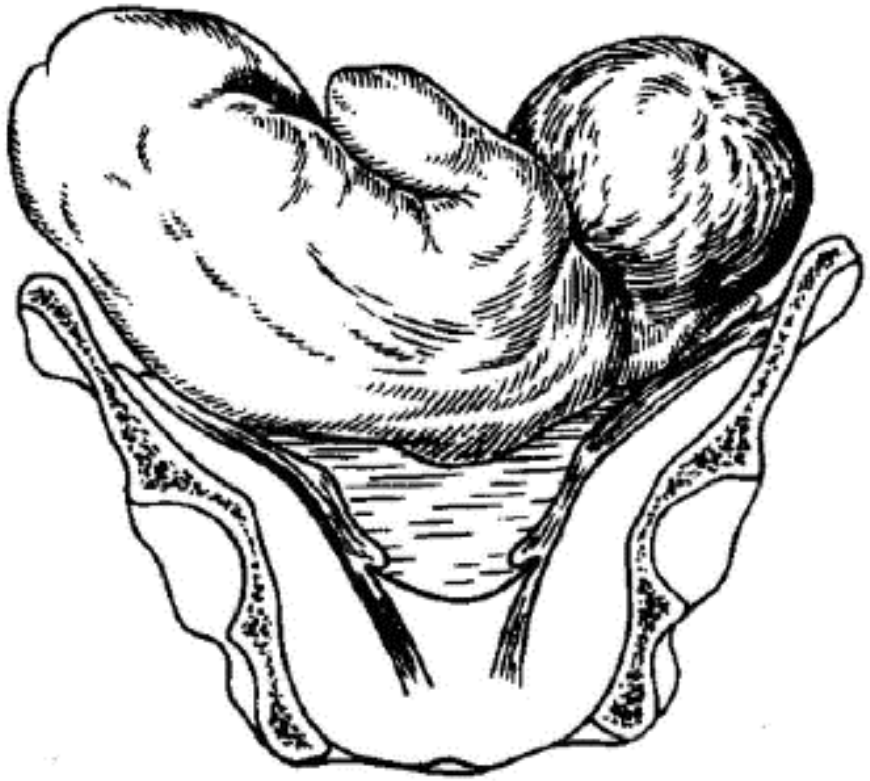
-fetal presenting part: back

-unable to achieve vaginal delivery → c/s needed

-risk of fetal arm or umbilical cord prolapse during labour

Fetal factors: malpresentation, malposition

Transverse lie



Fetal factors: malpresentation, malposition

Brow presentation

-presenting part: brow (head partially extended)

occipitomental diameter: 13.5cm (larger)

2/3 spontaneously convert: face or occiput

1/3 persist: c/s needed

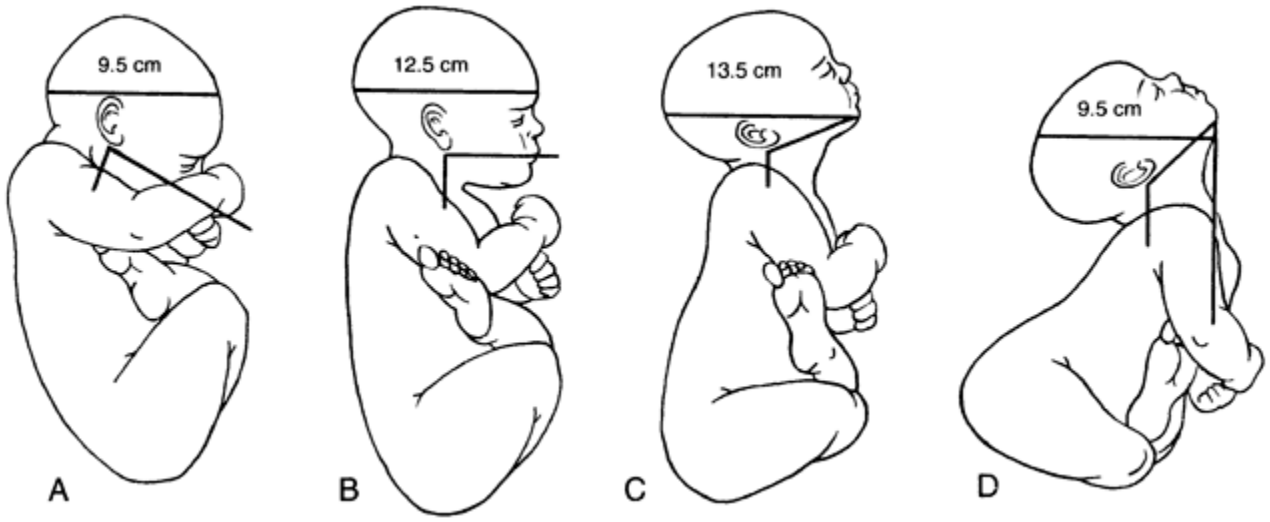
Face presentation

-presenting part: face (head completely extended)

posterior: c/s, anterior: vaginal delivery

Fetal factors: malpresentation, malposition

Brow and face presentations



Fetal factors: malpresentation, malposition

Occipito-posterior position

-occiput: closer to the sacrum than the symphysis pubis

-25% in early labour, 10-15% in active labour

-predisposing factors: anthropoid pelvis, contracted pelvis, epidural analgesia

-signs: bachache, persistent anterior cervical lip, prolonged second stage

-diagnosis: postieror fontanelle close to symphysis, ultrasound: “eyes up”

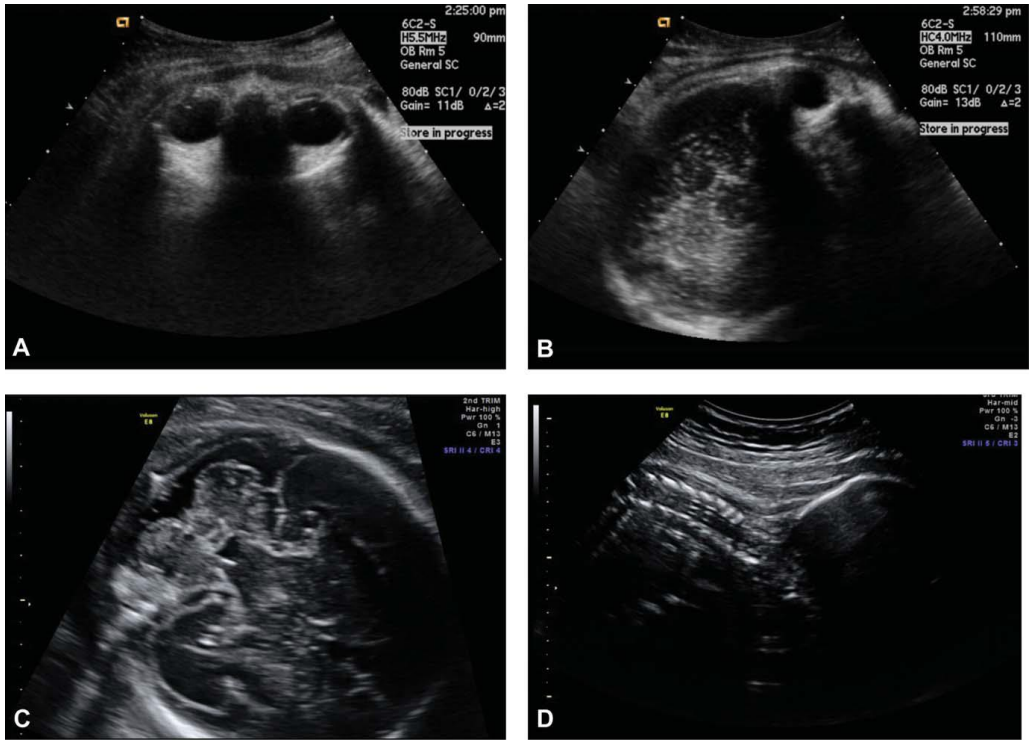
-spontaneous rotation: occipito-anterior position

manual rotation: hand and rotate to closest direction to symphysis pubis

persistent: vaginal delivery, operative delivery

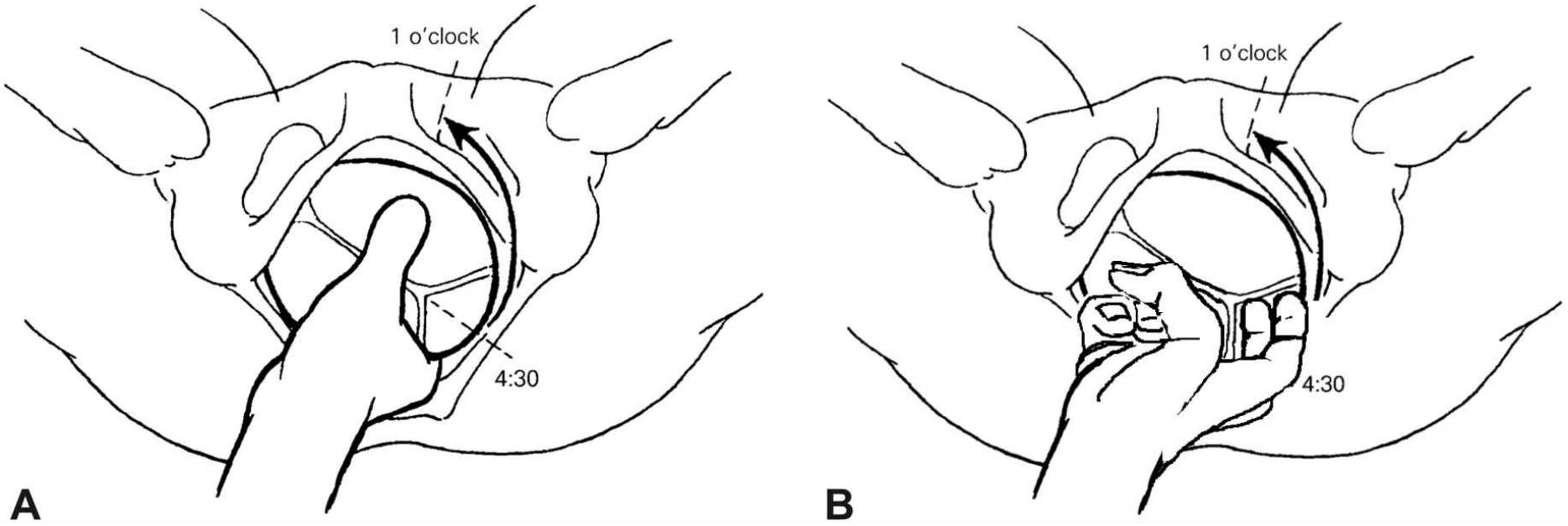
Fetal factors: malpresentation, malposition

Occipito-posterior position: sonographic idenitification



Fetal factors: malpresentation, malposition

Occipito-posterior position: manual rotation



Fetal factors: malpresentation, malposition

Occipito-transverse position

-normal at early stage, deep transverse position at late stages

-asynclitism: sagittal suture not in midplane of descent

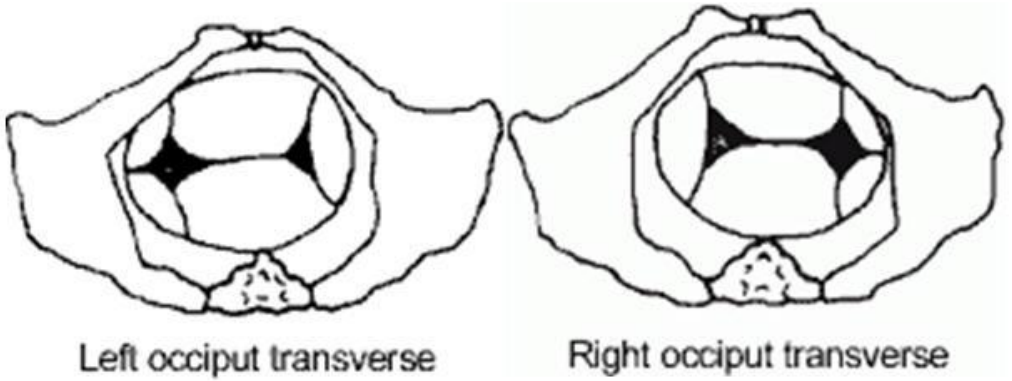
anterior, posterior

-predisposing factors: platypelloid , android pelvis

-c/s needed

Fetal factors: malpresentation, malposition

Occipito-transverse position



Fetal factors: malpresentation, malposition

Compound presentation

-presenting part: descends besides fetal arm

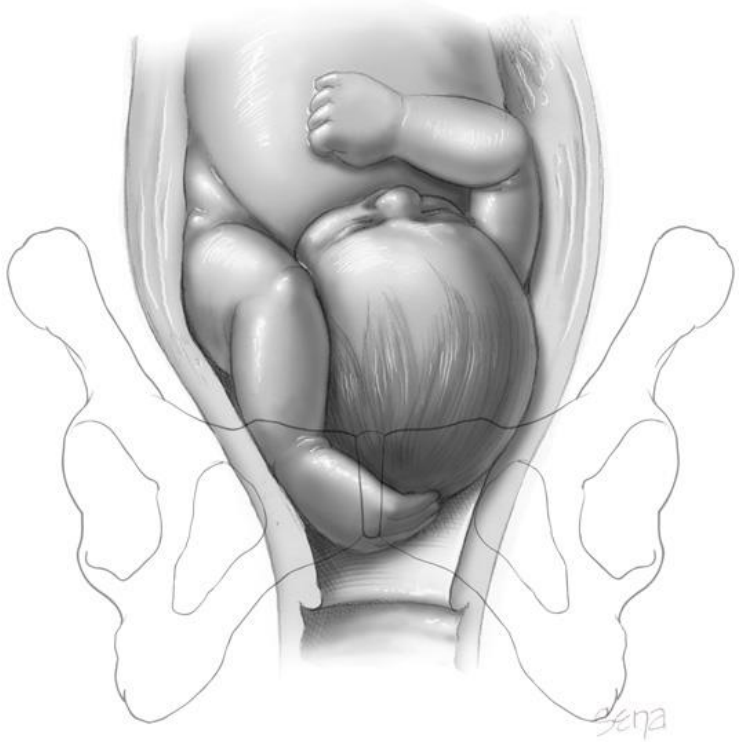
-predisposing factors: IUGR, prematurity

-vaginal delivery is achieved

-higher risk of vaginal lacerations

Fetal factors: malpresentation, malposition

Compound presentation



Fetal factors: fetal weight-macrosomia

Macrosomia

-fetal weight: above the 90-95th centile (>4000-4500gr)

-predisposing factors: male fetus, GDM, multiparity, genetic syndromes, post-term pregnancy

-complications: perineal tear, shoulder dystocia, hypoxia, CPD

-management: planned c/s if EFW >4200-4500gr

Fetal factors: fetal abnormalities

Fetal abnormalities

-hydrocephalus, encephalocele, meningomyelocele

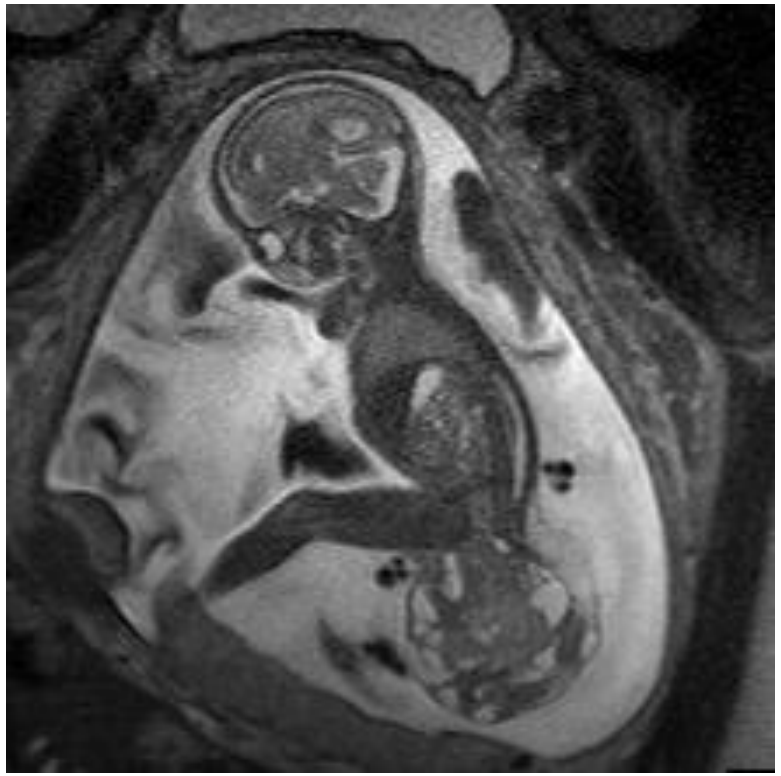
-gastroschisis, exomphalos

-hydrops

-sacrococcygeal teratoma

Fetal factors: fetal abnormalities

Sacrococcygeal teratoma



Fetal factors: fetal abnormalities

Hydrocephalus

Uterine factors: Dysfunctional uterine contractility

Definition

-uterine contractions: inadequate to affect cervical dilatation and fetal descent

-frequency: >3-5 minutes (early labour), >2-4 minutes (active labour)

-duration: <30-60 seconds (early labour), <60-90 seconds (active labour)

-intensity: <20-30 mmHg (early labour), <30-50 mmHg (active labour)

-resting pressure: <5-10 mmHg (early labour), <12-14 mmHg (active labour)

Uterine factors: Dysfunctional uterine contractility

Hypertonic uterine dysfunction-tachysystole

-frequency: increased (>3-5 in 10 minutes), co-ordination decreased

-duration: same

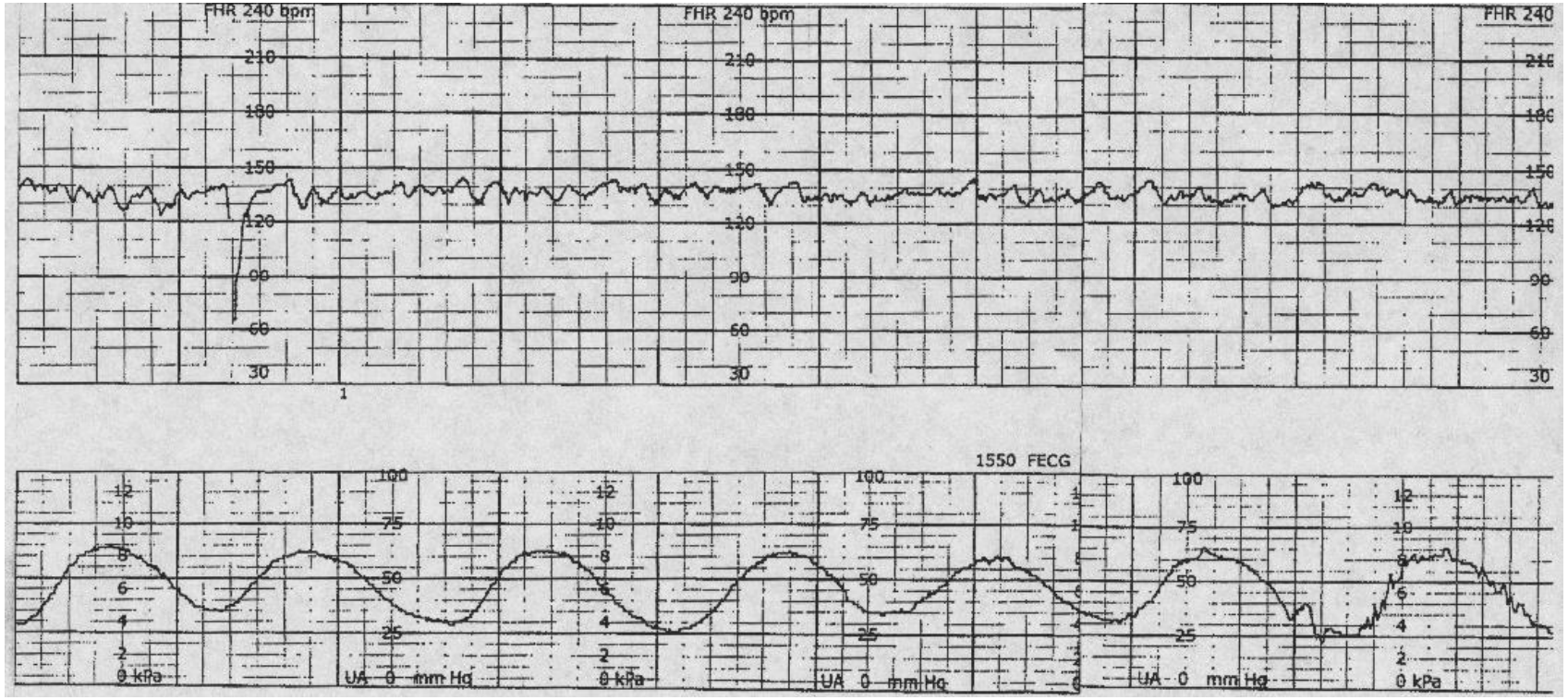
-intensity: increased

-resting pressure: increased

-etiologies: abnormal position, uterine overdistention (multiple pregnancy, polyhydramnios, macrosomia)

Uterine factors: Dysfunctional uterine contractility

Hypertonic-tachysystole



Uterine factors: Dysfunctional uterine contractility

Hypotonic uterine dysfunction

-frequency: decreased (<3-5 in 10 minutes), co-ordination: normal

-duration: decreased

-intensity: decreased

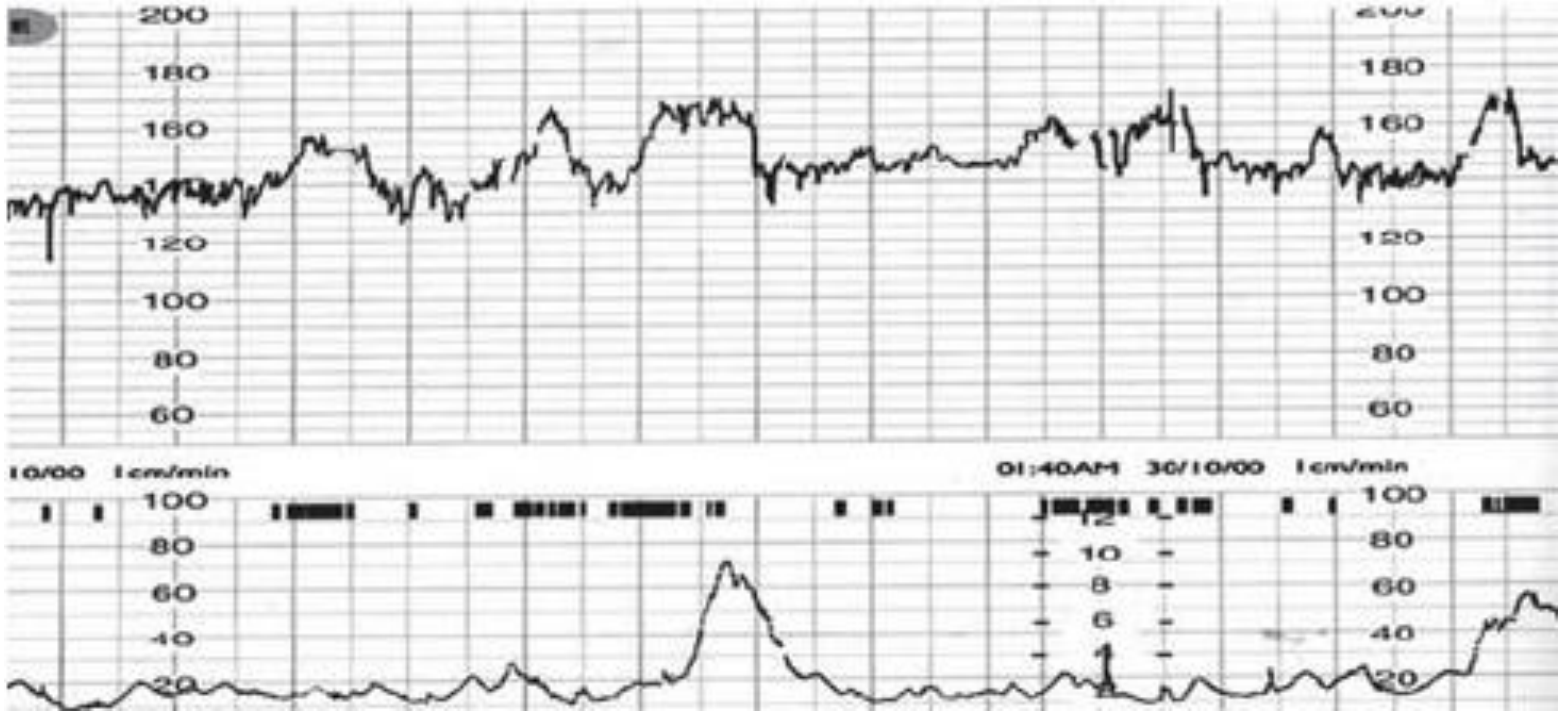
-resting pressure: normal

-etiologies: primary, secondary

-management: augmentation with oxytocin infusion, amniotomy

Uterine factors: Dysfunctional uterine contractility

Hypotonic uterine dysfunction



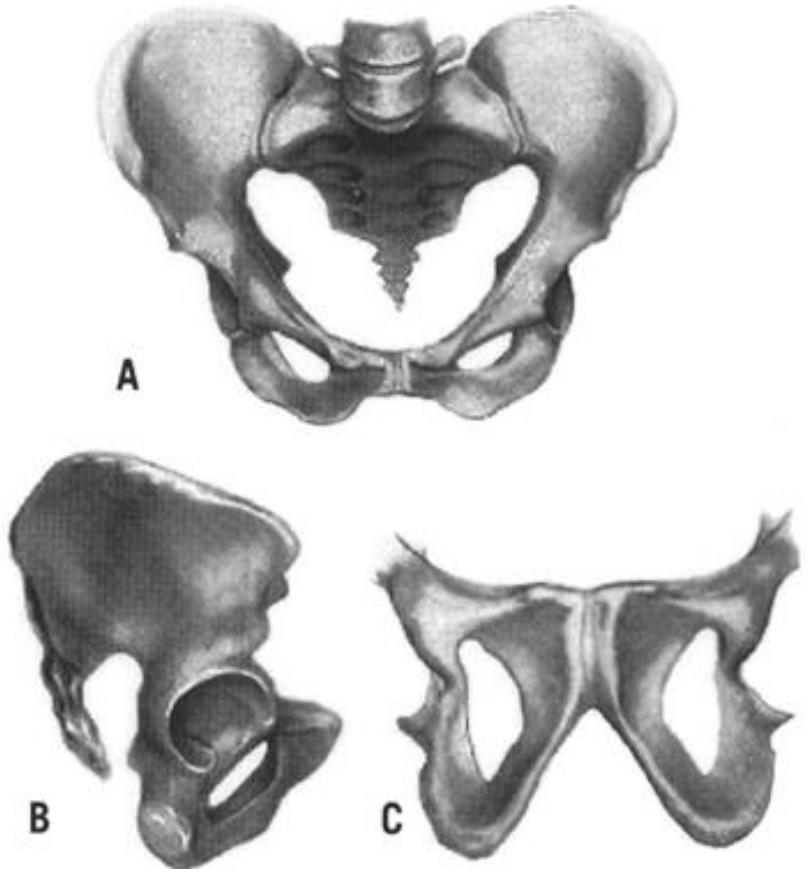
Pelvic factors: pelvic type

Android pelvis

-interspinous diameter: narrow

-sacral inclination: forward

-subpubic arch: narrow, wedge



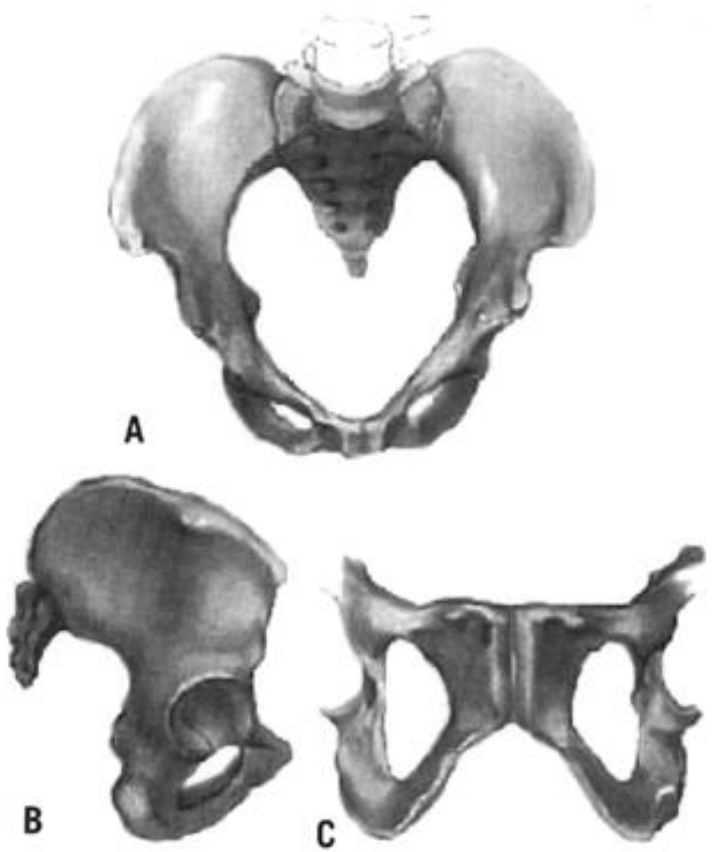
Pelvic factors: pelvic types

Anthropoid pelvis

-interspinous diameter: below average

-sacrum: narrow, long

-subpubic arch: narrow



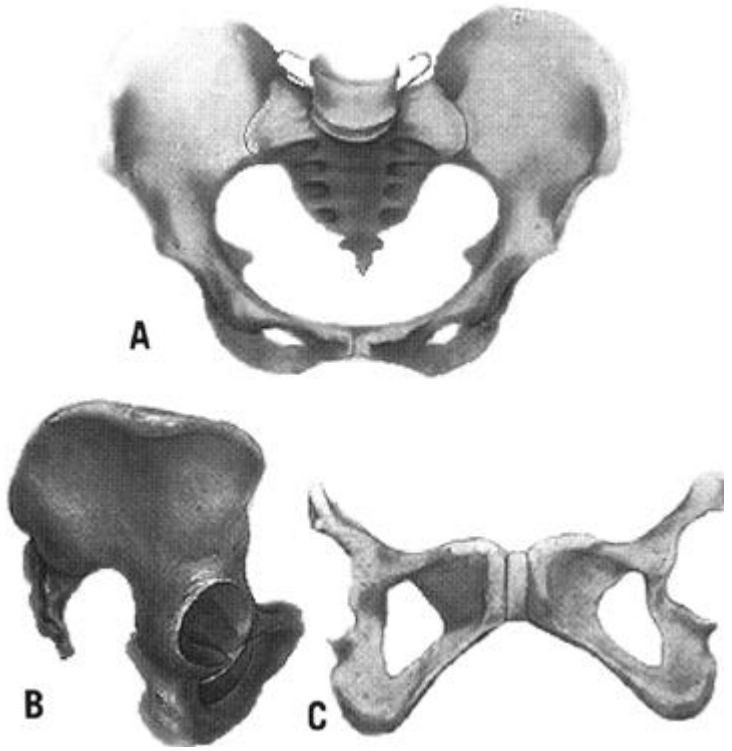
Pelvic factors: pelvic type

Platypelloid type

-interspinous diameter: wide

-sacral inclination: average

-subpubic arch: wide



Pelvic factors: pelvic types

Pelvic diameters in a non-gynaecoid pelvis

-diagonal conjugate (anteroposterior diameter): symphysis pubis-sacrum:
less than 11.5cm

-bi-ischial diameter (ischial tuberosities): ischial spine-ischial spine
less than 8cm

Pelvic factors: pelvic types

X-ray Pelvimetry

-technique used to assess pelvic diameters

-limited value due:

no taking into account molding capacity of fetal head

no taking into account pelvic muscles impact

fetal exposure to radiation

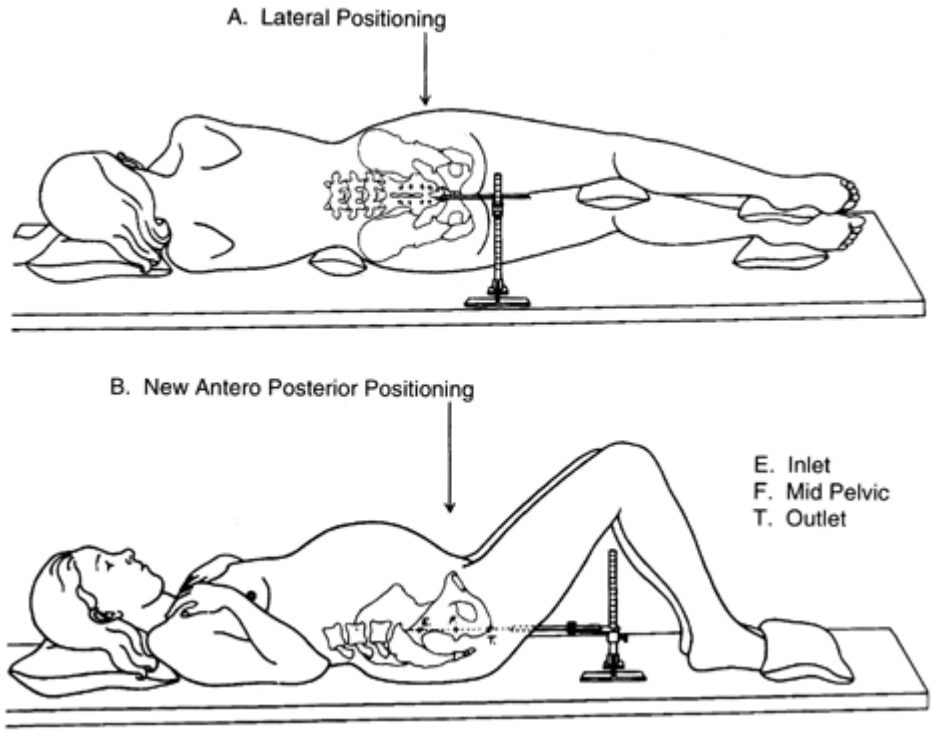
CT or MRI pelvimetry

-CT: fetal exposure to radiation, high cost

-MRI: high cost

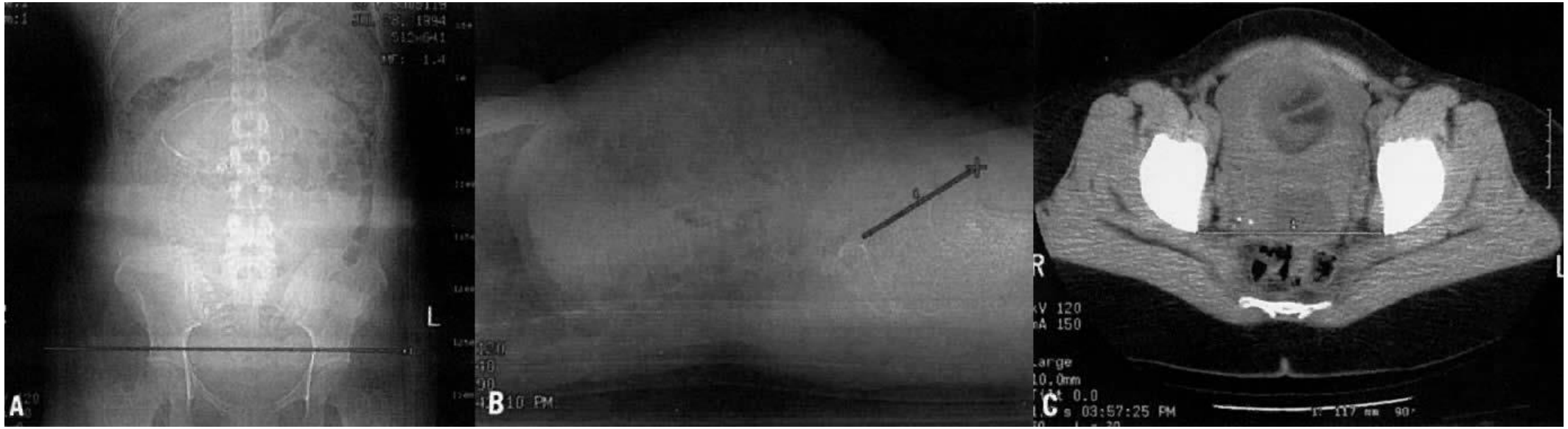
Pelvic factors: pelvic types

X-ray Pelvimetry



Pelvic factors: pelvic types

CT Pelvimetry



Pelvic factors: pelvic obstruction

Pelvic fracture

Leiomyoma (lower uterine segment, cervix)

Pelvic kidney

Cervical cancer

Vaginal condylomata (obstructing descent)

Labour factors: induction of labour-prostaglandins

Dose

-dinoprostone: 2mg vaginal gel

-misoprostole: 200mcg vaginal tabs (off-licenced in many countries)

Indications

-cervix: unfavorable, dilatation <3-4cm

-contractions: absent

Contraindications

-previous uterine incision (c/s, myomectomy)

Labour factors: induction of labour-prostaglandins

Adverse effects

-uterine tetany

-fetal heart rate decelerations

-uterine rupture: in VBAC cases

Labour factors: induction of labour-mechanical methods

Methods

-cervical ripening balloon

-foley's catheter

Indications

cervix: unfavorable, dilatation <3-4cm

-contractions: absent

-previous uterine incision: c/s, myomectomy

Labour factors: induction of labour-mechanical methods

Cervical ripening balloon

Labour factors: augmentation-oxytocin

Actions

-increased strength, velocity, frequency of contractions

-increased intrauterine resting pressure

Indications

-prolonged latent phase of first stage

-secondary arrest of first stage

-protraction of labour

Contra-indications

-cephalopelvic disproportion

Labour factors: augmentation-oxytocin

Dose

-low infusion rate: 0.5-2 mU/min

increase by 1-2 mU/min every 30 min (stepwise increase)

-maximal response: after 40-60 minutes

-myometrial oxytocin receptors: increase as gestational age increases and after active labour establishes (second stage)

-cessation of effect: 5 minutes after discontinuation (half-life)

-monitor effect: contractions in 10 minutes, fetal heart rate

Labour factors: augmentation-oxytocin

Adverse effects

-uterine tetany

-fetal heart rate decelerations

-water retention, intoxication, oliguria

Labour factors: augmentation-amniotomy

Technique

Early: at cervical dilatation <6cm

Late: at cervical dilatation >6cm preferred due to less complications

Indications

-same as oxytocin infusion

+FHR abnormalities: necessity to assess amniotic fluid status (color, odor)

Contraindications

-presenting part: unengaged-risk of umbilical cord prolapse

Labour factors: augmentation-amniotomy

Actions

-prostaglandin release

-assess amniotic fluid: color (clear, meconium, blood), smell (odorless, foul)

-attach internal scalp electrode: direct FHR monitoring

-fetal blood sampling

Complications

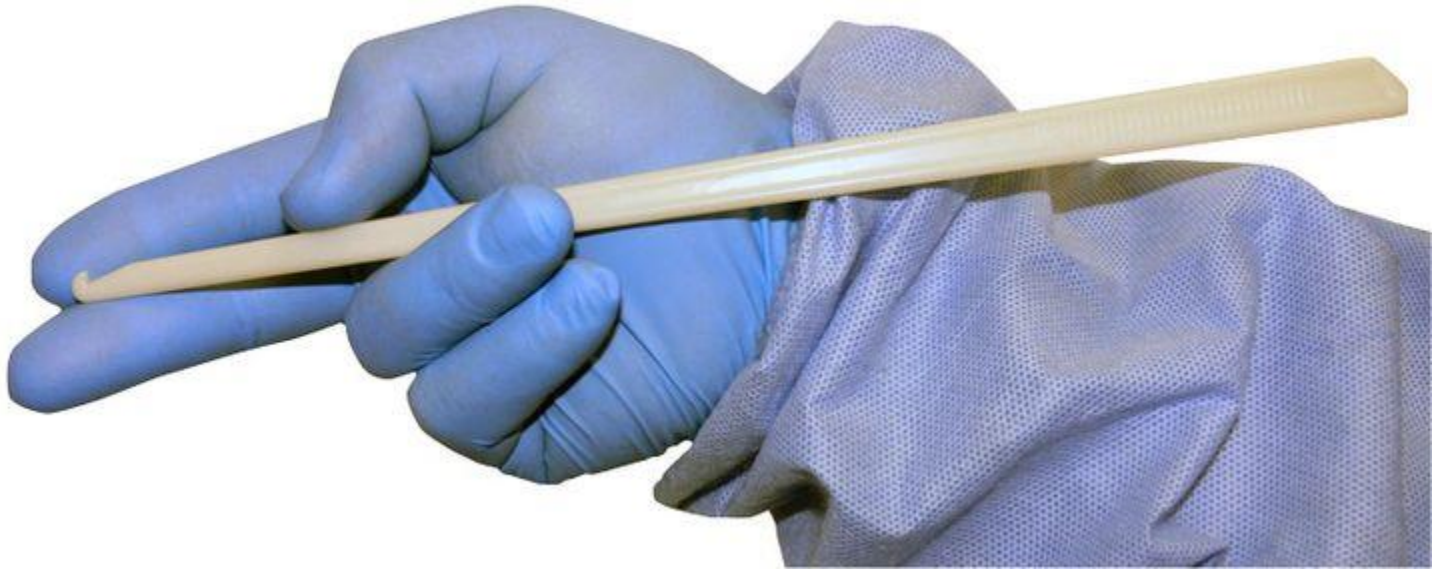
-chorioamnionitis: if prolonged rupture >12-18 hours

-fetal heart rate decelerations

-umbilical cord prolapse

Labour factors: augmentation-amniotomy

Amniotomy devices



Labour factors: analgesia, sedation

Epidural analgesia

-catheter placement and drug administration should be reserved for the active phase of first stage of labour.

-if provided during the latent phase of first stage, it may inhibit contractions.

-transient reduction of contractions for 10-30 minutes if placed in active phase

-prolongation of second stage of labour for up to 1 hour longer

-persistent occipito-posterior position due to relaxation of pelvic muscles

-increased rate of operative delivery due to inadequate pushing or prolongation

Labour factors: membrane sweeping

Technique

-separation of membranes from attachment site on the internal cervical os.

-performed at 38-40 weeks in order to prevent pharmaceutical induction

Action

-prostaglandin release

-spontaneous labour earlier than 41 weeks

Labour factors: partograph

Components

-patient data

-time

-BP (every 2h), pulse (every 30 min), temperature (every 2h)

-urine dipstick

-cervical dilatation, fetal station, membrane status

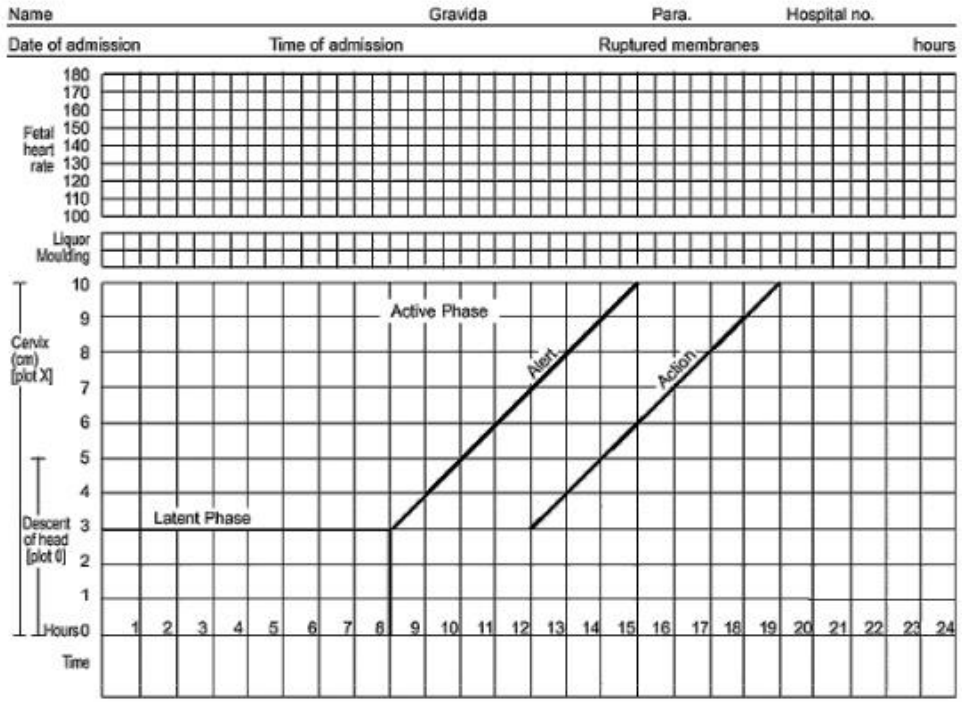
-FHR (every 30 min), contractions (in 10 min)

-drugs: pethidine, oxytocin

-fluids

Labour factors: partograph

Partograph

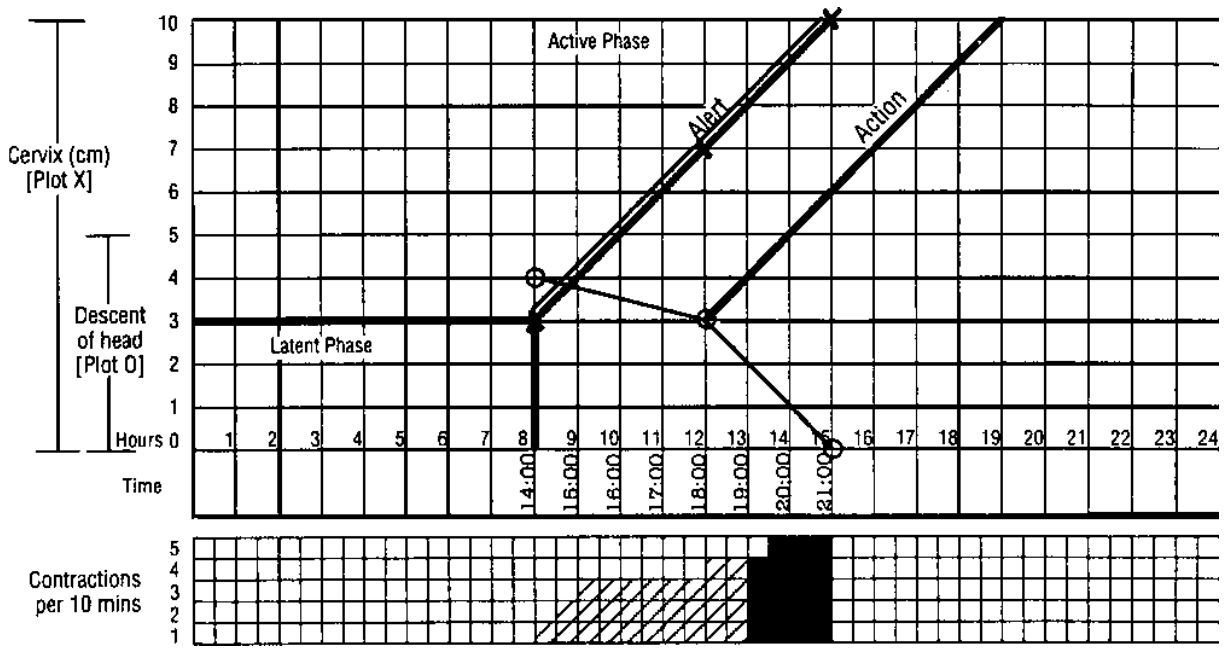


Labour factors: partograph

Use

-identification of slow progression (protraction) or arrest of labour

-necessity for further actions



Labour factors: VBAC

Restrictions

-induction: avoided

-augmentation: limited dose and duration

-continuous FHR monitoring: reduction of ambulation

-epidural analgesia: allowed

-birth site: NICU and ICU facility

-caesarean section: available as grade I (within 20 minutes)

-previous c/s: at least 18-24 months before, low transverse

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