**Abnormal Uterine Action**

**Classification**

* Over-efficient uterine action
  + Precipitate labour: in absence of obstruction
  + Excessive contraction and retraction: in presence of obstruction
* Inefficient uterine action
  + Hypotonic inertia
  + Hypertonic inertia
    - Colicky uterus
    - Hyperactive lower uterine segment
  + Constriction (contraction) ring
* Cervical dystocia

**PRECIPITATE LABOUR**

**Definition**

A labour lasting less than 3 hours.

**Etiology**

It is more common in multiparas when there are;

* strong uterine contractions,
* small sized baby,
* roomy pelvis,
* minimal soft tissue resistance.

**Complications**

* Maternal:
  + Lacerations of the cervix, vagina and perineum.
  + Shock.
  + Inversion of the uterus.
  + Postpartum haemorrhage:
    - no time for retraction,
    - lacerations.
  + Sepsis due to:
    - lacerations,
    - inappropriate surroundings.
* Fetal:
  + Intracranial haemorrhage due to sudden compression and decompression of the head.
  + Fetal asphyxia due to:
    - strong frequent uterine contractions reducing placental perfusion,
    - lack of immediate resuscitation.
  + Avulsion of the umbilical cord.
  + Fetal injury due to falling down.

**Management**

*Before delivery*

Patient who had previous precipitate labour should be hospitalized before expected date of delivery as she is more prone to repeated precipitate labour.

*During delivery*

* Inhalation anaesthesia: as nitrous oxide and oxygen is given to slow the course of labour.
* Tocolytic agents: as ritodrine (Yutopar) may be effective.
* Episiotomy: to avoid perineal lacerations and intracranial haemorrhage.

*After delivery*

Examine the mother and foetus for injuries.

**EXCESSIVE UTERINE CONTRACTION AND RETRACTION**

**Physiological Retraction Ring**

It is a line of demarcation between the upper and lower uterine segment present during normal labour and cannot usually be felt abdominally.

**Pathological Retraction Ring (Bandl’s ring)**

* It is the rising up retraction ring during obstructed labour due to marked retraction and thickening of the upper uterine segment while the relatively passive lower segment is markedly stretched and thinned to accommodate the fetus.
* The Bandl’s ring is seen and felt abdominally as a transverse groove that may rise to or above the umbilicus.
* Clinical picture: is that of obstructed labour with impending rupture uterus (see later).
* Obstructed labour should be properly treated otherwise the thinned lower uterine segment will rupture.

**HYPOTONIC UTERINE INERTIA**

**Definition**

The uterine contractions are infrequent, weak and of short duration.

**Etiology**

Unknown but the following factors may be incriminated:

* General factors:
  + Primigravida particularly elderly.
  + Anaemia and asthenia.
  + Nervous and emotional as anxiety and fear.
  + Hormonal due to deficient prostaglandins or oxytocin as in induced labour.
  + Improper use of analgesics.
* Local factors:
  + Overdistension of the uterus.
  + Developmental anomalies of the uterus e.g. hypoplasia.
  + Myomas of the uterus interfering mechanically with contractions.
  + Malpresentations, malpositions and cephalopelvic disproportion. The presenting part is not fitting in the lower uterine segment leading to absence of reflex uterine contractions.
  + Full bladder and rectum.

**Types**

* Primary inertia: weak uterine contractions from the start.
* Secondary inertia: inertia developed after a period of good uterine contractions when it failed to overcome an obstruction so the uterus is exhausted.

**Clinical Picture**

* Labour is prolonged.
* Uterine contractions are infrequent, weak and of short duration.
* Slow cervical dilatation.
* Membranes are usually intact.
* The fetus and mother are usually not affected apart from maternal anxiety due to prolonged labour.
* More susceptibility for retained placenta and postpartum haemorrhage due to persistent inertia.
* Tocography: shows infrequent waves of contractions with low amplitude.

**Management**

* General measures:
  + Examination to detect disproportion, malpresentation or malposition and manage according to the case.
  + Proper management of the first stage (see normal labour).
  + Prophylactic antibiotics in prolonged labour particularly if the membranes are ruptured.
* Amniotomy:
  + Providing that;
    - vaginal delivery is amenable,
    - the cervix is more than 3 cm dilatation and
    - the presenting part occupying well the lower uterine segment.
  + Artificial rupture of membranes augments the uterine contractions by:
    - release of prostaglandins.
    - reflex stimulation of uterine contractions when the presenting part is brought closer to the lower uterine segment.
* Oxytocin:
  + Providing that there is no contraindication for it, 5 units of oxytocin (syntocinon) in 500 c.c glucose 5% is given by IV infusion starting with 10 drops per minute and increasing gradually to get a uterine contraction rate of 3 per 10 minutes.
* Operative delivery:
  + Vaginal delivery: by forceps, vacuum or breech extraction according to the presenting part and its level providing that,
    - cervix is fully dilated.
    - vaginal delivery is amenable.
  + Caesarean section is indicated in:
    - failure of the previous methods.
    - contraindications to oxytocin infusion including disproportion.
    - fetal distress before full cervical dilatation.

**HYPERTONIC UTERINE INERTIA** (Uncoordinated Uterine Action)

**Types**

* Colicky uterus: incoordination of the different parts of the uterus in contractions.
* Hyperactive lower uterine segment: so the dominance of the upper segment is lost.

**Clinical Picture**

The condition is more common in primigravidae and characterised by:

* Labour is prolonged.
* Uterine contractions are irregular and more painful. The pain is felt before and throughout the contractions with marked low backache often in occipito-posterior position.
* High resting intrauterine pressure in between uterine contractions detected by tocography (normal value is 5-10 mmHg).
* Slow cervical dilatation .
* Premature rupture of membranes.
* Fetal and maternal distress.

**Management**

* General measures: as hypotonic inertia.
* Medical measures:
  + Analgesic and antispasmodic as pethidine.
  + Epidural analgesia may be of good benefit.
* Caesarean section is indicated in:
  + Failure of the previous methods.
  + Disproportion.
  + Fetal distress before full cervical dilatation.

**CONSTRICTION (CONTRACTION) RING**

**Definition**

* It is a persistent localised annular spasm of the circular uterine muscles.
* It occurs at any part of the uterus but usually at junction of the upper and lower uterine segments.
* It can occur at the 1st, 2nd or 3 rd stage of labour.

**Etiology**

Unknown but the predisposing factors are:

* Malpresentations and malpositions.
* Clumsy intrauterine manipulations under light anaesthesia.
* Improper use of oxytocin e.g.
  + use of oxytocin in hypertonic inertia.
  + IM injection of oxytocin.

**Diagnosis**

* The condition is more common in primigravidae and frequently preceded by colicky uterus.
* The exact diagnosis is achieved only by feeling the ring with a hand introduced into the uterine cavity.

**Complications**

* Prolonged 1st stage: if the ring occurs at the level of the internal os.
* Prolonged 2nd stage: if the ring occurs around the fetal neck.
* Retained placenta and postpartum haemorrhage: if the ring occurs in the 3rd stage (hour- glass contraction).

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| **Pathological Retraction Ring** | **Constriction Ring** |
| Occurs in prolonged 2nd stage. | Occurs in the 1st, 2nd or 3rd stage. |
| Always between upper and lower uterine segments. | At any level of the uterus. |
| Rises up. | Does not change its position. |
| Felt and seen abdominally. | Felt only vaginally. |
| The uterus is tonically retracted, tender and the fetal parts cannot be felt. | The uterus is not tonically retracted and the fetal parts can be felt. |
| Maternal distress and fetal distress or death. | Maternal and fetal distress may not be present. |
| Relieved only by delivery of the foetus. | May be relieved by anaesthetics or antispasmodics. |

**Management**

* Exclude malpresentations, malposition and disproportion.
* In the 1st stage: Pethidine may be of benefit.
* In the 2nd stage: Deep general anaesthesia and amyl nitrite inhalation are given to relax the constriction ring:
  + If the ring is relaxed, the fetus is delivered immediately by forceps.
  + If the ring does not relax, caesarean section is carried out with lower segment vertical incision to divide the ring.
* In the 3rd stage: Deep general anaesthesia and amyl nitrite inhalation are given followed by manual removal of the placenta.

**CERVICAL DYSTOCIA**

**Definition**

Failure of the cervix to dilate within a reasonable time in spite of good regular uterine contractions.

**Varieties**

* Organic (secondary) due to:
  + Cervical stances as a sequel to previous amputation, cone biopsy, extensive cauterisation or obstetric trauma.
  + Organic lesions as cervical myoma or carcinoma.
* Functional (primary):
  + In spite of the absence of any organic lesion and the well effacement of the cervix, the external os fails to dilate.
  + This may be due to lack of softening of the cervix during pregnancy or cervical spasm resulted from overactive sympathetic tone.

**Complications**

* Annular detachment of the cervix: surprisingly the bleeding from the cervix is minimal because of fibrosis and avascular pressure necrosis leading to thrombosis of the vessels before detachment.
* Rupture uterus.
* Postpartum haemorrhage: particularly if cervical laceration extends upwards tearing the main uterine vessels.

**Management**

* Organic dystocia:
  + Caesarean section is the management of choice.
* (II) Functional dystocia:
  + Pethidine and antispasmodics: may be effective.
  + Caesarean section: if
    - medical treatment fails or
    - fetal distress developed.