Dystocia

- Dystocia: Literally, difficult labor. Characterized by abnormally slow progress of labor.
- Labor become abnormal when there is poor progress (as evidenced by a delay in cervical dilatation or descent of the presenting part, and / or the fetus shows signs of compromise, similarly by definition, if there is malpresentation, a multiple gestation, a uterine scar, or if labor has been induced, cannot be considered normal.

Causes: 4 distinct abnormalities that may exist singly or in combination.

1. Abnormalities of the expulsive forces (power) either uterine force insufficiently strong or inappropriately coordinated to efface or dilate the cervix. (Uterine dysfunction), or inadequate voluntary muscle effort during the second stage of labor.
2. Abnormalities of presentation, position, or development of the fetus (the passenger).
3. Abnormalities of the maternal boney pelvis i.e pelvic contraction (passages).
4. Abnormalities of birth canal that form an obstacle to fetal descend (passages).

Normal labor usually divided into:

1. **Latent phase**: usually little cervical dilatation but considerable changes taken place in the connective tissue components of the cervix.
2. **Active phase**: Friedman subdivided the active phase into acceleration phase, phase of maximum slope and the deceleration phase.

Latent phase

Friedman defined it as the point at which the mother perceives regular uterine contraction along with cervical softening and effacement and ends at 3 cm dilatation.

**Prolonged latent phase:**

- Defined (1963) by Friedman and Sachtleben to be greater than 20 hours in the nullipara and 14 hours in the paras women. These are the 95th percentage.
- Factors that affect the duration of the latent phase include :
  2. Poor cervical conduction: (eg. Thick, uneffaced or undilated)
  3. False labor.
- Rest is preferable for correcting prolonged latent labor because unrecognized false labor was common, with strong sedation 85 % of females begin active labor and 10 % cease contraction (false labor) and 5 % develop recurrent abnormal latent labor and require oxytocin stimulation.
Active labor

- It begins when the cervix is 3 cm dilated.
- Active phase abnormalities are the most common abnormalities of labor about 25% of nullipara and 15% of multipara.
- Friedman subdivided active phase problems into protraction and arrest disorders.
- Protraction defined as a slow rate of cervical dilatation or descent. i.e < 1.2 cm dilatation / hour or < 1 cm / hour for nullipara or < 1.5 cm / hour or < 2 cm / hour for multipara.
- Arrest of dilatation defined as 2 hr with no cervical change or arrest of descent as 1 hour without fetal descent.

Factors contributing to both protraction and arrest disorders were:

1. Excessive sedation.
2. Conduction analgesia.

In both protraction and arrest disorders, fetopelvic examination done to diagnose CPD.

Second stage of labor

- The second stage of labor begins when cervical dilatation is complete and ends with fetal expulsion.
- The length of the second stage of labor in nullipara was limited to 2 hours and extended to 3 hours when regional analgesia was used. For multipara 1 hour was the limit extended to 2 hours with regional analgesia.
- The causes can be classified also as abnormalities of the powers, the passenger and the passages.
- Three options to treat:
  - Continued observation.
  - Attempt at operative vaginal delivery
  - Cesarean delivery

Uterine Dysfunction

- This is the most common cause of poor progress in labor. Uterine dysfunction in any phase of cervical dilatation is characterized by lack of progress, for one of the prime characteristic of normal labor is its progression.
- However, one of the most common errors is to treat women for uterine dysfunction who are not yet in active labor.
- It is more common in primigravida and in older women.

There have been 3 significant advances in the treatment of uterine dysfunction:

1. Realization that undue prolongation of labor may contribute to perinatal morbidity and mortality.
2. Use of dilute intravenous infusion of oxytocin in the treatment of certain types of uterine dysfunction.
3. More frequently use of cesarean section delivery rather than difficult midforceps delivery when oxytocin fails or its use is inappropriate.

- Assessment of uterine contraction most commonly carried out by clinical examination and by using external uterine tocography, but this only provide information about the frequency and duration of uterine contraction.
- Intrauterine pressure catheters are available and these give accurate measurement of the pressure generated by the contraction but these rarely necessary.
- A frequency of 4 – 5 contractions per 10 minutes is usually considered ideal.
Types of uterine contractions

- Uterine contractions of normal labor are characterized by gradient of myometrial activity being greater and lasting longer at the fundus (fundal dominant) and diminished towards the cervix. Usually the exciting stimulus starts in one cornue and then several milliseconds later in the other. The excitation waves then join and sweeping over the fundus and down the uterus.

- Normal spontaneous contractions often exert pressures of about 60 mm Hg.

There are 3 types of uterine dysfunction:

1. Hypotonic uterine dysfunction:
   - No basal hypertonus and uterine contraction is having a normal gradient pattern (synchronus) but the slight rise in pressure during a contraction is insufficient to dilate the cervix.
   - Treatment:
     1. Maternal rehydration.
     2. ARM.
     3. Good pain relief and emotional support.
     4. IV oxytocin (syntocinon), continuous EFM is necessary.
   - If progress fails to occur despite 4-6 hour of augmentation with oxytocin, a C/S will usually be recommended.

2. Hypertonic uterine dysfunction:
   - Either basal tone is elevated appreciably or pressure gradient is distorted, perhaps by contraction of the mid – segment of the uterus with more force than the fundus.

3. Incoordinated uterine dysfunction:
   - Complete asynchronism of the impulses originating in each cornue.
   - Sometimes combination of the last 2 types.
   - Treatment:
     - Sometimes oxytocin effective in coordinating these contractions.

Dystocia can result from several distinct abnormalities involving the cervix, uterus, the fetus, other obstruction in the birth canal or in the maternal bony pelvis. Quite often combination of these interactions to produce dysfunction labor. Recently term such as cephalopelvic disproportion and failure to progress are often used to describe these dysfunctional labors when cesarean section delivery is necessary.

Cephalopelvic disproportion (CPD)

- Abnormal labor due to disparity between the dimensions of the fetal head and maternal pelvis, as to preclude vaginal delivery. It can be due to a large head, small pelvis or a combination of the two. Originally describe for overt pelvic contracture due to rickets, however now such true CPD is rare and most disproportions are due to malpositions of the fetal head- asynchtisim or extension of the bony diameters of the fetal head, or to ineffective uterine contraction.

- Women of small stature (< 1.60 m) with a big baby in their first pregnancy are candidate to develop this abnormality. Sometimes the pelvis is unusually small due to previous fractures or metabolic bone disease. Rarely a fetal anomaly may contribute to CPD as hydrocephaly, fetal thyroid and neck tumor.

- CPD is suspected if there is:
  1. Progress is slow or arrest despite efficient uterine contraction.
  2. The fetal head is not engaged.
  3. Vaginal examination shows severe moulding and caput formation.
  4. The head is poorly applied to the cervix.
Risk factors for poor progress in labor

1. Small women.
2. Big baby.
3. Malpresentation.
5. Early rupture of membrane.
7. Dysfunctional uterine activity.

Failure to progress: this term used to indicate lack of progressive cervical dilatation or lack of descent. So it is an observation rather than a diagnosis.

Dystocia due to pelvic contraction

- Any contraction of the pelvic diameters that diminishes the capacity of the pelvic can create dystocia during labor. Pelvic contractions may be classified as follows:
  1. Contraction of the pelvic inlet.
  2. Contraction of the mid pelvis.
  3. Contraction of the pelvic outlet.
  4. Generally contracted pelvis (combination of the above).
- Abnormalties in the uterus and cervix can also delay labor. Unsuspected fibroid in the lower uterine segment can prevent the descent of the fetal head.
- Delay can also be caused by “cervical dystocia”, a term used to describe a non-compliant cervix which effaces but fail to dilate because of severe scarring usually as a result of a previous cone biopsy.
- It is rare for soft tissues of the pelvic floor to cause significant delay in labor.