CASE ONE

Short case number: 3_13_1
Category: Endocrine & Reproductive
Discipline: Obstetrics and Gynaecology
Setting: Hospital-labour ward
Topic: Pregnancy – normal/abnormal labour

Case

Annette Thomas, aged 38 years, G_1P_0, presented to the labour ward at 2pm. On examination she was contracting every 5 minutes and on vaginal examination she was -2, LOA, 4cm dilated, clear liquor. She was reassessed at 5pm and was -1, LOA, 5cm dilated, clear liquor. You have been called because it is now 8pm and on vaginal examination there has been no change since the 5pm examination but there is now caput ++.

Questions

1. How is labour diagnosed? How do you confirm spontaneous ruptured membranes?
2. Define the first, second and third stage of labour.
3. Describe an assessment of the powers, the passenger and the passage.
4. How would you manage this scenario in terms of further history, examination, investigations and management?
5. Summarise the mechanism of normal labour.
6. In a table summarise the routine observations in a normal labour.
7. When is an episiotomy indicated? List the principles of repair.

Suggested reading:

1. Abbott J, Bowyer L, Finn M, editors. *Obstetrics & Gynaecology: an evidence-based guide* (Chapter 15). Chatswood, NSW: Churchill Livingstone/Elsevier Australia 2014.
2. Edmonds K, editor. *Dewhurst's Textbook of Obstetrics and Gynaecology*. 8th Edition. Wiley-Blackwell; 2012.

ANSWERS

1. How is labour diagnosed?

Diagnosis of labour is made by the presence of painful regular uterine contractions producing changes in the cervix: effacement (thinning out) and dilatation. If vaginal examination is performed when the cervix has not dilated, then the diagnosis of labour cannot be made until a second vaginal examination is performed 2-4 hours later and cervical changes noted. Therefore, the diagnosis is made from a careful history and one or two vaginal examinations.

2. Define the 1st, 2nd and 3rd stages of labour.

There are three stages to labour.

1st Stage

The latent phase –the period taken for the cervix to efface and dilate to 3cm (in multipara can dilate before completely effacing).

The active phase – from 3 – 10cm (full dilatation). In primipara the expected dilatation is approx. 1cm/hr. Multipara: approx. 2cm/hr

2nd stage is from full dilatation to the delivery of the baby. It can be divided into a passive phase - allowing the head to descend through the pelvis and an active phase - maternal effort.

3rd stage is from delivery of the baby to the delivery of the placenta.

3. Powers, Passenger and Passage

Powers – strength of uterine contractions may be inadequate. Contractions may decrease in frequency or become in-coordinate with uterine exhaustion.

Passenger – position: OT and OP will present a larger diameter of Foetal head to the pelvis than OA. Baby too large, large head (macrosomia/hydrocephaly) for the pelvis. Also need to exclude abnormal presentations such as shoulder, face and brow.

Pelvis – may be inadequate: previous injuries/fractures, android shape (long and narrow) Assessment: amount of head above brim, station, presenting part related to ischial spines.

4. Management of a prolonged labour

1. Review mother and foetus – assess contractions, foetal heart rate, abdominal and vaginal examinations looking for abnormal presentations, descent of the foetal head, signs of obstruction (oedematous/ thickened cervix, poorly applied to head, oedema of scalp(caput), irreducible moulding of foetal skull bones – gauge pelvic size).
   Check mother afebrile with normal pulse rate, and normotensive. Check urine for ketosis.

2. Encourage ambulation if able.

3. Augmentation of labour – amniotomy (rupture of membranes if has not already occurred) is safe provided presenting part is engaged. Ensure adequate hydration and iv fluids if ketotic. In Primigravid labours review in 2-3 hours after amniotomy and if no progress ensure adequate pain relief and commence syntocinon.
   Syntocinon is an oxytocic analogue which increases strength and frequency of uterine contractions. Administration must be monitored and one minute resting tone must remain between contractions. Injudicious use can lead to foetal hypoxia or ruptured uterus.

4. Ensure adequate pain relief prior to syntocinon. Might need parenteral analgesia or epidural if exhausted.

5. Once uterine activity has been deemed to be satisfactory and progression of labour has not occurred, then a diagnosis of failure to progress secondary to CPD (cephalo-pelvic disproportion) can be made. In these circumstances, safe delivery of the foetus can only be made via a caesarean section (LSCS)
   Use of partogram – a useful tool to diagnose deviations from the expected norm.

5. Mechanisms of normal labour.

This refers to the steps or movements the presenting part (usually the head of the foetus but can equally be the bottom) undergoes to navigate its way through the pelvis and onto a vaginal delivery. (pp 256 Kovac and O'Connor).

i. Descent – head enters the pelvic brim from above (late in parous women)

ii. Engagement – maximum diameter of the head has passed through the pelvic brim – enters in the OT position (occipito transverse)

iii. Flexion – occurs throughout labour – the more flexed the smaller the diameter presenting to the pelvis.

iv. Internal rotation – rotation of the head occurring due to the natural shape of the pelvis - generally to the OA position, occasionally to the OP position (head twists in relation to the foetal shoulders)

v. Extension – When the head reaches the perineum, it "crowns" and extends to deliver (usually looking down at the floor in OA position)

vi. External rotation (restitution) – head returns to being perpendicular to the foetal shoulders – occipito transverse

vii. Lateral flexion – the anterior shoulder appears under the pubic symphysis and delivers and then usually followed by the posterior shoulder. The trunk is delivered by lateral flexion and the baby is lifted onto the mothers' abdomen. Wonderful stuff!

viii. Cord Clamping – the umbilical cord is divided

ix. Active management of 3rd stage: oxytocics with ant. Shoulder, observe signs of placental separation (cord lengthening, fundus rising up in abdomen, gush of blood) then steady gentle traction on cord with fundal "guarding". If excessive traction before separation risk uterine inversion.

6. Summary of routine observations in normal labour.

Usually done using a partogram with the following being the minimum:
Foetal heart rate, foetal head descent (abdominally), cervical dilatation, uterine contractions (frequency and duration), amniotic fluid (colour, blood, meconium etc.), maternal blood pressure, Pulse rate and temperature (PO), drugs administered and fluids in. This is recorded against the x axis which is time. (Figure 7.7 pp 262 Kovac and O'Connor)

7. **Episiotomy – indications**

Indicated when perineal tissue tight and not stretching, if delivery needs to be expedited for persistent foetal bradycardia, delivery in OP position and with assisted delivery.

Repair should be in layers with all efforts made to reduce any "dead space" so as to reduce infection. Haemostasis should be ensured for the same reasons.
An anal sphincter tear (3rd degree) or rectal tear (4^{th} degree) requires specialist surgical repair in theatre.