

***Assisted Vaginal Delivery via Vacuum Extraction***

Practical Session B CASE STUDY *– Answer key*

Mrs. Z is an 18-year-old primigravida. She was brought to the health center at 10:00 am having felt labor pains since the early hours of the morning. When she arrived at 10:00 am, the fetal head was palpable at 4/5 above the symphysis pubis; the cervix was 2 cm dilated and not fully effaced; and contractions were two in 10 minutes, each lasting 25 seconds. Membranes ruptured spontaneously at 2:00 pm, and amniotic fluid was clear. It is now 6:00 pm, and the fetal head is 3/5 palpable above the symphysis pubis; the cervix is 4 cm dilated; there is minimum caput and molding (+ only); and contractions continue at a rate of two in 10 minutes, lasting now for 40 seconds.

ASSESSMENT (HISTORY, PHYSICAL EXAMINATION, SCREENING PROCEDURES/LABORATORY TESTS)

1. What will you include in your initial assessment of Mrs. Z, and why?

* Mrs. A should be told what is going to be done and listened to carefully. In addition, her questions should be answered in a calm and reassuring manner.

1. Based upon the initial presentation at 10:00 am, where is Mrs. Z in the process of labor at 10:00 am. What is the plan of management?
   * Mrs. Z is either in the latent phase of the first stage of labor or she is having an episode of spurious labor.
   * She needs to be checked again in about 8 hours to determine whether she is in true labor (or earlier if spontaneous rupture of membranes occurs) or there is any concern for mother or the baby.
2. At 2:00 pm, Mrs. Z is checked again because her membranes have ruptured; what is the reason that she requires another vaginal assessment at this point? What is the plan of management?
   * Another vaginal assessment is required to exclude cord prolapse and determine whether Mrs. Z has progressed in labor.
   * Mrs. Z has now transitioned into the active phase and so far she is normal; the clear liquor indicates that the fetus is well.
   * The plan of management is to continue regular observations of mother (vitals and contractions etc.) and fetus (pad checks and fetal heart auscultation).
3. What is your assessment of the clinical situation now at 6:00 pm? (She has crossed the action line on the partogram.)
   * An assessment should be made to rule out cephalopelvic disproportion (secondary arrest of cervical dilation and descent of presenting part in the presence of good contractions) and obstruction (secondary arrest of cervical dilation and descent of presenting part with large caput, third degree molding, cervix poorly applied to the presenting part, edematous cervix, ballooning of lower uterine segment, formation of retraction band, and maternal and fetal distress).
   * Mrs. Z’s emotional response to labor should also be assessed to determine her level of anxiety and tolerance of pain.
   * Her temperature, pulse, respiration rate, and blood pressure should be recorded.
   * The fetal heart rate should also be recorded.
4. What particular aspects of Mrs. Z’s physical examination will help you make a diagnosis or identify her problems/needs, and why?
   * Abdominal and vaginal examinations should be done to rule out cephalopelvic disproportion, as described above, and effectiveness of contractions should be assessed.
5. When is the next vaginal assessment due?
   * After 4 hours of good contractions: this will be at about 10:00-11:00 pm (i.e. when the oxytocin infusion has been producing good contractions for 4 hours).

DIAGNOSIS (IDENTIFICATION OF PROBLEMS/NEEDS)

You have completed your assessment of Mrs. Z and your main findings include the following:

* Mrs. Z has no symptoms or signs of cephalopelvic disproportion or obstruction.
* Her vital signs are within normal range, as is the fetal heart rate.
* She is not dehydrated.
* She has a high level of anxiety, however, and is finding it difficult to relax between contractions.
* On assessment, the cervix is found to be still 4 cms dilated (at 6:00 pm).

1. Based on these findings, what is Mrs. Z’s diagnosis, and why?
   * Mrs. Z’s symptoms and signs (i.e. less than three contractions in 10 minutes, each lasting less than 45 seconds) are consistent with **inadequate uterine activity** (uterine inertia).
   * In addition, Mrs. Z has a high level of anxiety, making it difficult for her to relax between contractions.

CARE PROVISION (PLANNING AND INTERVENTION)

The following interventions MUST ONLY be undertaken in a health facility where a cesarean section can be performed. IV oxytocin infusion to induce or augment labor must NEVER be used in a basic health center without access to a first referral level facility. If unsatisfactory progress in labor is diagnosed, the woman should be referred to a facility where augmentation of labor and cesarean section, if necessary, can be performed.

1. Based on your diagnosis, what is your plan of care for Mrs. Z, and why?
   * Augmentation of labor should be started, because contractions are inadequate and there is no evidence of cephalopelvic disproportion. An oxytocin infusion should be used for augmentation as follows:
   * An IV infusion of normal saline should be started and oxytocin 2.5 units in 500 mL (or 5iu/l in one liter). Normal saline should be infused at 10 drops/minute.
   * The rate of infusion should be increased by 10 drops/minute every 30 minutes (up to a maximum of 60 drops/minute) until there are three contractions in 10 minutes, each lasting for at least 45 seconds. This rate should be maintained while there is continuing progress or until the birth is completed. However, it is unwise to use oxytocin infusion for the augmentation of labor for more than 8 hours.
   * Mrs. Z should not be left alone during augmentation of labor. She should be made as comfortable as possible, and a supportive, encouraging atmosphere, respectful of her wishes, should be provided.
   * Ongoing observations should include: maternal pulse, fetal heart rate and contractions half hourly, blood pressure and temperature every 4 hours, urine for protein and acetone every 2–4 hours, vaginal examination every 4 hours (cervical dilation, descent of presenting part, amniotic fluid, and molding), preceded by abdominal examination (descent of presenting part).
   * Observations should be recorded on the partogram.

EVALUATION

* At 10:00 pm, Mrs. Z is having three contractions in 10 minutes, each lasting for 50 seconds.
* Her partogram recordings show that her vital signs are normal, the fetal heart rate is within normal range, the cervix is 9 cm dilated, and the fetal head is 1/5 above the symphysis pubis.

1. Based on these findings, what is your continuing plan of care for Mrs. Z, and why?
   * Oxytocin infusion and close observation should continue (because so far there has been adequate progress) to ensure that Mrs. Z’s labor continues to progress to full dilation of the cervix with continuing descent of the fetal head. The aim should be to avoid crossing the action line on the partogram. Arrangements should be in place for immediate intervention (cesarean section) should this happen. In Mrs. Z’s case, this would mean allowing sufficient time for transfer from the health center to the district hospital.
   * Mrs. Z should be encouraged to adopt her position of choice during labor and for childbirth when she reaches late (expulsive) second stage.
   * When the head is visible, she should be encouraged to follow her own tendency to push. She should be given praise, encouragement, and reassurance regarding her progress.
   * If the expulsive phase is prolonged, vacuum extraction or forceps should be used to deliver the baby.
   * Active management of the third stage should be carried out to reduce postpartum blood loss.
   * Immediate postpartum care should be provided for Mrs. Z, including continuing emotional support and reassurance.
   * If her newborn requires special care, this should be provided. Otherwise, routine newborn care should be provided, including leaving the newborn in skin-to-skin contact with Mrs. Z and encouraging her to breastfeed her newborn as soon as she feels able to, when the newborn shows interest.

REFERENCES

*Managing Complications in Pregnancy and Childbirth*: pages S-57; S-64 to S-67

**NOTE:** Community midwives should NOT use oxytocin to augment labor unless they are working in a district hospital.