Instructor Guide

GROUP CASE STUDY DISCUSSION
LABOR DYSTOCIA

It is important to remember that you have only *40 minutes* to complete this case. Manage your time carefully so that the majority of group discussion is spent on these teaching points using a case-based approach:

- Apply the most recent recommendations and guidelines in the management of normal labor
- Describe how to diagnose and manage labor dystocia

Instructors please note: The answers to the questions in the slides as provided below do not necessarily cover all potential answers. They are being provided in this document to help you facilitate group discussion, but are not necessarily all encompassing.

CASE #1 DISCUSSION BEGINS

(Slide 4-History: Case #1) You are the physician on call. At approximately 03:00 am, a 22-year-old G1P0 with a reportedly uncomplicated pregnancy calls you. She states she is 40 weeks and 1 day estimated gestational age by her last menstrual period. The patient complains of having had irregular contractions off and on for 2 days. But now contractions are more regular and occurring every 7 minutes regularly. She also reports "possibly" leaking clear fluid. You ask her to proceed to Labor and Delivery (L&D) for further assessment.

(Slide 5-Group Discussion) What other data would be helpful at this point in your assessment of the patient?

- *Prenatal records*
- *Ultrasound reports*
- *Last cervical exam/dilation*
- *When did she start leaking fluid?*

(Slide 6 -Case #1 Continues: One Hour Later) At approximately 04:00 am, the patient arrives on L&D at 04:00 a.m. Her vital signs are stable. You perform a speculum exam and find that she is negative for ferning, pooling, and nitrazine. As you are examining her abdomen, you palpate active fetal movement. Electronic fetal monitoring (EFM) indicates a Category I tracing. You perform a sterile vaginal exam (SVE) and find that she is dilated to 3 cm, 70% effaced, -3 station, and the baby's head is palpable.

(Slide 7-Group Discussion) What would you do now?

- Allow the patient to walk for an hour after a Category 1 FHR tracing is obtained.
- Recheck for cervical change after one hour.
- If no change, then discharge to home.

(Slide 8-Group Discussion) Based on your initial assessment, is this patient in labor?

- No. She is only dilated to 3 cm and contracting every seven minutes.

(Slide 9-Group Discussion) What are the characteristics of latent labor?

- *Begins at the point at which the patient perceives regular uterine contractions*

- *Cervical change is slow and contractions may disappear*

(Slide 10-Group Discussion) What is the definition of active labor?

- *Regular, painful contractions*
- *New definition: Starts at 6 cm dilation*
- *The point beyond which more rapid dilation and delivery may be expected*

(Slide 11-Group Discussion) What is the best place of care for women in latent labor?

- *Home if adequate support (must take into account if multiparous and distance to maternity center)*
- *Antepartum Unit-under observation*
- *Admission to L&D if pharmacological measures are needed for pain control*

(Slide 12-Case #1 Continues: Two Hours Later) At 06:00 am, you determine the patient is not yet in active labor based on her assessment. So you discharge her to home, encourage non-pharmacologic measures for pain relief, and suggest the use of diphenhydramine to assist her in getting some rest.

(Slide 13-Case #1 Continues: Two Hours Later) At 08:00 am, two hours after you discharged the patient to home, the patient returns to the hospital. She states that her contractions are now more painful and regular. She reports she has been timing them, and they are now occurring every 4-5 minutes. You perform a repeat cervical examination, and discover the patient is now dilated to 5 cm, 100% effaced, and -2 station.

(Slide 14-Group Discussion) With your reassessment, do you believe the patient is now in active labor? Why or why not?

- *No. The patient's cervical exam has not yet reached 6 cm with regular contractions.*

(Slide 15-Group Discussion) What would you do at this time?

- *Admit the patient for observation.*

(Slide 16-Case #1 Continues) Rationale

- *Given the patient's quickly progressing cervical exam (2 cm in just the past 2 hours), observing a bit longer for further dilation would be warranted.*

(Slide 17-Teaching Point: Variations on the Stages of Labor)

Review Chart Graphic

(Slide 18-Case #1 Continues: One Hour Later) The patient now appears to be more visibly uncomfortable with her contractions. She is now breathing heavily through her contractions and wincing in pain. She requests for you to explain to her what all of her options for pain relief might be at this time.

(Slide 19-Group Discussion) What are all of her options for pain management?

- *Water immersion/hydrotherapy*
- *Labor support (doula)-someone specifically trained to assist the mother in breathing through her contractions.*
- *Frequent position changes*
- *Massage/counter-pressure*
- *IV pain medication*
- *Epidural anesthesia*
- *Nitrous oxide (if facility is equipped)*

(Slide 20-Group Discussion) Which options for pain management might slow down her labor progress?

- *Epidurals may provide good pain relief but are associated with a longer first and second stage of labor.*

(Slide 21-Non-Pharmacologic Options)

Review Chart Graphic

(Slide 22-Pharmacologic Options)

Review Chart Graphic

(Slide 23-Case #1 Continues) At Approximately 09:00 a.m., after explaining to the patient all of her pain management options, the patient opts to first take a warm shower in an attempt to help alleviate some of her contraction pain. Her family is present and supportive at the bedside.

(Slide 24-Case #1 Continues: One Hour Later) At 10:00 a.m., the patient's nurse called to notify you that after the patient took a warm shower, she is complaining that her contraction pain has worsened, and she is now requesting IV pain medication. The RN states she performed a repeat cervical examination just prior to calling you, and the patient is unchanged from the last exam two hours ago (when she was 5/100/-2). You prescribe IV fentanyl for the patient's contraction pain.

(Slide 25-Group Discussion) Considering where this patient is at on the labor curve, is her labor considered protracted at this point?

- *No, it is not. It has only been 2 hours since her last cervical exam.*

(Slide 26-Case #1 Continues: Two Hours Later) Around noon, you check on the patient and find that she did receive some temporary pain relief after the IV Fentanyl was administered, but the IV pain meds have already worn off and other measures of pain relief are no longer working. She has an epidural placed and is resting comfortably shortly thereafter. You perform a cervical exam just after epidural placement and find that the patient is now dilated to 6/100/-2.

(Slide 27-Case #1 Continues: Two Hours Post-Epidural) At 2:00 p.m., the toco transducer shows that the patient is contracting every occurring every 3-4 minutes. You repeat another cervical examination. The patient is now 6/100/0 station.

(Slide 28-Group Discussion) Are the patient's contractions adequate?

- *Technically, unable to ascertain without placing an IUPC to measure MVU's*
- *It has only been 2 hours since her last cervical exam, and the fetal head has made some descent.*

(Slide 29-Group Discussion) Should you augment her labor?

- *No, not until she meets the criteria for labor dystocia. It has only been 2 hours since her last cervical exam.*

(Slide 30-Group Discussion) What are some of the risk factors for labor dystocia?

- *Induction of labor*
- *Chorioamnionitis*
- *Elevated body mass index*
- *Epidural anesthesia*
- *Fetal malposition*

- *Fetal malpresentation*
- *Cephalopelvic disproportion*

(Slide 31-Group Discussion) What is the treatment for labor dystocia?

- *Hydration*
- *Position changes*
- *Amniotomy*
- *Oxytocin*

(Slide 32-Group Discussion) What are the risks associated with oxytocin administration?

- *Overstimulation of the uterus (tachysystole)*
- *Rupture of the uterus*
- *Drop in fetal heart rate/fetal distress (possibly even fetal death)*
- *Increased risk of cesarean*

(Slide 33-Group Discussion) What are the risks of performing an amniotomy?

- *Cord Prolapse*
- *Infection/Chorioamnionitis*
- *Abruption*
- *FHR decelerations (particularly variables)*

(Slide 34-Case #1 Continues: Decision to Treat) At 2:00 p.m., just after the cervical exam where the cervical exam where the patient was found to be 6/100/0 (no change from the previous exam with exception of the fetal head descending from -2 station to 0 station), you make a decision to perform an amniotomy and begin oxytocin augmentation per your hospital protocol.

(Slide 35-Group Discussion) What is your rationale for treating this patient with both an amniotomy and oxytocin augmentation?

- *Amniotomy is more effective when combined with oxytocin augmentation.*

(Slide 36-Case #1 Continues: Two Hours Later) At 4:00 p.m., it has been two hours after you performed the amniotomy and oxytocin was simultaneously started per your hospital protocol for augmentation of labor. Her contractions are now occurring every 2-3 minutes lasting 45-60 seconds in duration. You perform another cervical exam and find that the patient continues to be 6/100/0 station, which is unchanged from two hours ago.

(Slide 37-Group Discussion) What other interventions might you now consider?

- *Place intrauterine pressure catheter (IUPC) to measure actual strength of the contractions internally.*

Placement of an IUPC results in no difference in labor duration or cesarean delivery rates with IUPC placement but does allow for calculation of the amount of pressure within the uterus (calculated in mm Hg) that is occurring internally through measurement of Montevideo Units (MVUs).

(Slide 38-Group Discussion) You decide to place an IUPC. How are MVU's calculated?

Review Fetal Monitoring Strip Graphic

- *MVUs are calculated by adding up the amount of pressure (mm Hg) from the baseline to the peak in EACH contraction occurring in a 10 minute time period, then adding up the sum of those values to come to your total MVU calculation.*

- *Contractions are considered adequate when MVU calculation is >200 mm Hg.*

(Slide 39-Case #1 Continues: Two Hours Later) At 6:00 p.m. her cervical examination is unchanged from two hours ago. You have placed an IUPC, and find the following uterine contraction pattern:

Review Fetal Monitoring Strip Graphic

(Slide 40-Group Discussion) What is your assessment of the situation?

- *Contractions can now be considered adequate since an IUPC has been placed and MVU's are greater than 200 mm Hg.*
- *However, it has only been 2 hours since you placed the IUPC and can adequately diagnose the contraction pattern as officially being adequate.*

(Slide 41-Group Discussion) What would be the appropriate plan at this time?

- *Continue with plan of care.*
- *Allow the patient to labor at least two more hours, then reassess.*

(Slide 42-Group Discussion) In a patient with adequate contractions (determined by calculating MVU's) with no cervical progress, what is the minimum amount of time that should pass before making a decision to move towards cesarean delivery (as long as the FHR remains within normal limits)?

- *4 hours*

(Slide 43-Teaching Point: Patience with Progress)

Review Fetal Monitoring Strip Graphic

- *This graphic shows that if clinicians would just give laboring patients a little bit more time to make cervical change, the cesarean rate can be drastically reduced.*
- *Studies show that 80% percent of those not progressing after 2 hours of adequate contractions had a vaginal delivery when allowed to labor instead for a total of 4 hours with adequate contractions before a decision was made to move to cesarean delivery.*
- *The recommendation is that clinicians wait <u>at least</u> 4 hours after adequate contractions with no progress (instead of 2 hours) before making the decision for cesarean delivery (as long as FHR tracing remains category 1 and laboring patient continues to be stable).*

(Slide 44-Case #1 Continues: Two Hours Later) At 8:00 p.m., nearly two hours after your last assessment, the patient pushes her call light and states she feels the urge to push. You perform a cervical exam and find that she is now 10 cm/100% effaced/0 station. You determine the fetal head position to be right occiput posterior (ROP)**.**

(Slide 45-Group Discussion) What are your options for managing the patient's care during the second stage of labor?

- *For fetal malposition consider manual rotation*
- *Frequent position changes and movement*
- *For inadequate contractions in the second stage consider augmenting with oxytocin*
- *Allow pushing in an upright, lateral, or hands-knees position.*
- *Push with every other contraction or allow periods of rest if laboring patient exhaustion is present.*

(Slide 46-Group Discussion) For a laboring patient during the second stage of labor WITH an epidural, after how many hours with no progress (descent or rotation) would the definition of labor dystocia be met?

- *Nulliparous: Four hours or more*
- *Multiparous: Three hours or more*

(Slide 47-Group Discussion) For a laboring patient during the second stage of labor WITHOUT an epidural, after how many hours with no progress (descent or rotation) would the definition of labor dystocia be met?

- *Nulliparous: Three hours or more*
- *Multiparous: Two hours or more*

(Slide 48-Group Discussion) What should be taken under consideration during a prolonged second stage of labor?

- *Assess fetal tolerance of ongoing labor and active pushing.*
- *Avoid prolonged dorsal lithotomy position.*
- *Allow rest between pushing.*
- *Expedite delivery for concerning fetal monitoring.*
- *May perform an assisted vaginal delivery if fetal station +2 or greater.*
- *Consider performing a cesarean delivery.*

(Slide 49-Group Discussion) If the patient would have had a pre-pregnancy body mass index (BMI) of 35 or higher, what should you have considered both prior to and during her labor to improve her chance of a vaginal delivery?

- *Prenatal dietary counseling to limit weight gain*
- *Misoprostol may work better than dinoprostone in cervical ripening for obese patients.*
- *Obese patients may need higher oxytocin doses for induction/augmentation.*
- *Understand that overweight/obese nulliparas have significantly longer latent and active phases of labor and may need to allow them to labor for a longer period of time to make adequate progress (if laboring patient/fetus are stable).*

(Slide 50-Case #1 Concludes: Delivery) At midnight, four hours after having reached complete dilation, the patient delivers via spontaneous vaginal delivery over an intact perineum. She delivered a 3,700 gram male infant with Apgars of 8 and 9. Mom and newborn were discharged from the hospital on postpartum day #2 with no complications.

CASE #2 DISCUSSION BEGINS

(Slide 52-History: Case #2) At 09:00 a.m., a patient presents to your unit for an induction of labor today related to being newly diagnosed today with oligohydramnios. She is a 17 year-old, gravida 1, para 0 at 41/1 weeks' gestational age by LMP and confirmed with early ultrasound. During the ultrasound portion of her biophysical profile (BPP) this morning for post-dates, her amniotic fluid index (AFI) was found to be 4.0.

(Slide 53-Group Discussion) What other data would be helpful at this point in your assessment of the patient?

- *Prenatal records*
- *Ultrasound reports*
- *Last cervical exam/dilation*
- *Any leakage of fluid?*
- *FHR assessment*

(Slide 54-Case #2 Patient Data) Vital signs are stable. Negative for ferning with no evidence of spontaneous rupture of membranes (SROM). Cervical exam indicates her cervix is soft, located midposition, and her cervix is closed (0 cm), 20% effaced, and very high-with a ballotable presenting part. Continuous external fetal monitoring indicates a Category I tracing. Rare contractions are present per toco transducer, but not felt per the patient's report.

(Slide 55-Group Discussion) Based on the assessment information provided, what is the patient's Bishop Score and what does her score indicate?

Review Bishop Scoring Graphic

- *Her Bishop score is 3*
- *Indicates her cervix is unfavorable for induction of labor with oxytocin.*
- *This low score may result in a 2-3 fold increase in her risk for cesarean delivery (since she is nulliparous). However, this is a medically indicated induction and delivery must be achieved.*

(Slide 56-Group Discussion) What plan of care would you recommend?

- *Cervical ripening until a favorable Bishop score is achieved, then proceed with other methods of induction such as oxytocin and/or AROM*
- *Cervical ripening options might include misoprostol, prostaglandin insert, or mechanical methods.*

(Slide 57-Choices for Ripening and Labor Outcomes)

Review Graphic

(Slide 58-Group Discussion) If the patient had SROM, would this change your recommended plan of care?

- *Yes, consider oxytocin.*

(Slide 59-Case #2 Continues: 2 Hours Later) At 11:00 a.m., the patient has prostaglandin inserted vaginally for cervical ripening. After 12 hours of insertion, the prostaglandin agent is removed and a cervical exam is performed.

(Slide 60- Case #2 Continues: 12 Hours Later) At 11:00 p.m. when you remove her prostaglandin insert, your cervical exam indicates she is now dilated to 1/50/-3. Contractions are now occurring per the toco every 4-6

minutes-although the patient reports not feeling any painful contractions, and her fetal heart rate tracing shows an overall Category I tracing.

(Slide 61-Group Discussion) Are the patient's contractions adequate, or is she having protracted labor at this time?

- *Although she has made some cervical change, the patient is not in labor yet by definition.*

Note: It is important to keep in mind that induced labor takes longer than spontaneous labor, particularly for nulliparous women before 6 cm of dilation. Other methods of cervical ripening may be needed in succession (if pregnant patient and infant are stable) to increase a successful the outcome of a vaginal delivery.

(Slide 62-Case #2 Continues: Patient Data) At 11:00 p.m. soon after removing the prostaglandin insert and performing a cervical exam, you chose to place a transcervical Cook catheter.

(Slide 63-Case #2 Continues: 4 Hours Later) It is now 03:00 a.m., the nurse calls to inform you that the transcervical Cook catheter balloon has fallen out and the patient's cervical exam is 3/75/-3. The patient is having contractions every 5 minutes per the toco and describes them as "mild tightening." The continuous external fetal monitor continues to indicate a Category I tracing.

(Slide 64-Group Discussion) How would you proceed?

- *Do not perform AROM, as fetal head is not yet engaged.*
- *Augment with oxytocin*

(Slide 65-Case #2 Continues: Patient Data) After the nurse's cervical exam at 03:00 a.m., oxytocin is started per hospital protocol in an effort to augment the patient's labor.

(Slide 66-Group Discussion) At 07:00 a.m., after 4 hours of oxytocin administration, cervical exam is repeated. The patient is still 3 cm, 75% effaced, -3 station (unchanged). Contractions are occurring per toco every 4 to 5 minutes. Continuous external fetal monitor continues to indicate a Category I tracing.

(Slide 67-Group Discussion) Would these circumstances be considered a failed induction? Explain your rationale?

- *No. Induction efforts should not be considered as having failed in the latent phase, until there has been failure to generate regular contractions (every 3 minutes) and have cervical change after membrane rupture (if feasible) with at least 24 hours of oxytocin administration.*

(Slide 68-Group Discussion) How would you proceed?

- *Continue patiently with augmentation, as long as pregnant patient and fetus are stable.*

(Slide 69-Case #2 Continues: 5 Hours Later) You have allowed the augmentation with oxytocin to continue 5 more hours and it is now 12:00 noon. You re-examine the patient and find that she is now dilated to 7/90/-1. Contractions per toco transducer are occurring regularly every 3 minutes. Continuous external fetal monitoring continues to indicate a Category I tracing.

(Slide 70-Group Discussion) What would have been some things to consider if this patient had a prior history of cesarean section?

- *Labor induction increases the rate of uterine rupture by approximately 200% in those with a prior cesarean section attempting a trial of labor after cesarean (TOLAC).*
- *Misoprostol and dinoprostone are contraindicated.*

(Slide 71-Case #2 Concludes: Delivery) At 2:22 p.m., the patient delivers a male infant weighing 3,265 grams via spontaneous vaginal delivery over an intact perineum. Apgars are 8 and 9. Mom and newborn are discharged from the hospital on postpartum day #2 with no complications.

(Slide 72-Summary) Labor dystocia is currently the most common indication for cesarean delivery. Non-pharmacologic approaches are an important part of prevention and treatment. Cesarean for labor dystocia can be decreased by avoiding early admission and induction efforts. Clinicians should keep in mind that the criteria has changed for the definition of active labor. It is now defined as being dilated to greater than or equal to 6 cm. Clinicians should also allow **at least** 4 hours of adequate contractions to occur in order to assess if cervical change is going to be made in active labor. And allowing longer periods of time for pregnant patients to push in the second stage can also aid in lowering the rate of cesarean sections.