Shoulder Dystocia Simulation

1.0 Example Case Scenarios

CLINICAL SCENARIO
Mrs. Macro is a 32y/o G4P2012 at 41+0 weeks gestation. Her prenatal course has been complicated by hypothyroidism and diet-controlled gestational diabetes. She presented in active labor and has progressed over the past 8 hours. She has been pushing for approximately 60 minutes with a category 1 FHRT and was C/C/+2 at her last check. The nurse has requested that you come and check the patient and prepare for delivery.

CLINICAL SCENARIO
The patient, Mrs. McRoberts is a 26 y/o G1P0 at 37+2 weeks gestation. Her prenatal course was complicated by maternal obesity (BMI = 40). Her 1-hour glucola was normal and she is GBS positive. She presented with PROM of clear fluid approximately 8 hours ago and was noted to have irregular contractions. She was placed on ampicillin for GBS prophylaxis and oxytocin and has progressed to C/C/0 and just started pushing about 10 minutes ago. The fetal heart rate tracing has been overall reassuring and the nurse is requesting that you come and check the patient at this time.
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2.0 Pre-Simulation Briefing/Orientation

- Do a thorough orientation to the room, equipment and mannequins. This should take approximately 5 minutes.

- Explain that if you are using staff as actors for the patient’s partner/family or nurses, that they will respond to requests but will not initiate actions

- Set the stage for the simulation by doing the following:
  - Discuss what the learning objectives are for the day i.e. closed loop, leadership in a crisis.
  - Review the Shoulder Dystocia Clinical Checklist

- Read these basic instructions to all participants

  You will be briefed by the simulation staff and then come to the room when requested.

  You may ask questions if you have them, and please remember to:

  1. Treat the scenario as real as possible
  2. Use personal protection equipment (gloves, etc.) as needed
  3. Request assistance if needed
  4. Please do not cut the perineum, but indicate if you would make an episiotomy
  5. Ask for medications if you feel that you require them
  6. You may request to move the patient to the OR if you feel this is necessary
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3.0 Simulation Setup

Simulators to be used: The simulator that will be utilized for this will be a birthing mannequin with the ability to simulate a shoulder dystocia. The most common simulators used for this are either the NOELLE or PROMPT birthing mannequins.

For most simulators, a staff member will push the fetal head out and then holding it in during the actual dystocia.

Some of the higher fidelity simulators actually have software that will keep the baby attached and not release it until the instructor allows it to deliver.

Room Setup

The room should be set up similar to a delivery room.

The simulator is on an examination table, gurney, or bed with the lower torso draped.

A delivery table should be available with the basic equipment as listed below.

Figures 1 & 2: Birthing Simulators

Figure 1: NOELLE birthing mannequin (Gaumard Scientific, FL)
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PROMPT birthing trainer (Bristol, UK)

Additional Equipment needed

- Chronograph (may use watch with timer or a second hand)

Optional Equipment

- Fetal Monitoring: The fetal heart rate monitors are used to demonstrate a terminal bradycardia during the shoulder dystocia. Incorporating this into the training to produce a fetal bradycardia as the fetal head delivers helps add to the realism of the scenario.

- Programmable fetal monitoring simulators are also commercially available.

If you do not have a fetal heart rate simulator other effective options include:

  o Verbalize the FHR to the provider/team during the scenario

  o Use your own fetal monitor and tap on the ultrasound (the one used to detect fetal heart tones) to recreate a bradycardia (be sure to place gel on the ultrasound monitor to enhance the sound)

  o Use a metronome app from a smart phone to reproduce the fetal heart sounds

Personnel needed

- Staff to control fetus and maternal mannequin (1)

- Staff to play role of the Nurse (1-2) (if there are not any in the class)
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- Staff to create fetal heart tones (if no fetal heart rate simulator is available)

  Optional

- Staff to play role of patient's family (mother, sister or husband) (1-2)

4.0 Basic Scenario Tips

- Use plenty of lubrication for the fetus. The mannequins generally come with some silicone lubricant that may work well. Other options: ultrasound gel or commercial vaginal lubrication. Remember that the fetus will not deliver without this and will tear the perineum.

- Make sure and tell the providers to only simulate an episiotomy if they feel that one is necessary and NOT to actually cut the mannequin! (Some mannequins come with a precut episiotomy.)

- The staff playing the nurse or family member role can help to increase the realism of the scenario by making comments like “the baby looks really blue” or “why won’t the baby come out”.

- Some providers can pull very, very hard, so make sure that you have a good grip on the harness.

- The anterior fetal shoulder may appear that it is delivering if they are pulling very hard. If this occurs, simply pull the baby back further into the pelvis. Be sure to practice this a few times before your course. Holding the baby in is harder than you think!
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5.0 Case Flow/Algorithm with branch point and completion criteria

1) Setup the delivery simulator as described above

2) Brief the initial provider (nurse or provider) on the clinical scenario

Provider or Nurse enters room

The assistant playing the role of the spouse/family informs the provider that the patient is having a contraction and she feels that she has to push.

The fetal head will deliver and then restitute such that one fetal shoulder is anterior. The birthing mechanism will not release and a shoulder dystocia will occur.

*(At this time, begin the timer to measure the head-to-body delivery interval)*

Provider should recognize shoulder dystocia and begin maneuvers.

Respond to maneuvers with feedback if they ask if the shoulder is delivering.

| If/when the provider delivers the posterior arm, allow the fetus to deliver.* (If they do not attempt to deliver the posterior arm, then proceed until they do a Zavenelli or until 5 minutes have gone by.) |

After the scenario ends (either posterior arm delivery/Zavenelli/gives up), **State clearly that the simulation is over,** stop the timer and conduct the debriefing.

*Examples of different endpoints you may also use:
  - Rotational maneuvers followed by posterior arm
  - Rotational maneuvers x2
  - Zavenelli (for the advanced learner)
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6.0 Post-Simulation

- Gather the individual and team together to debrief and review performance
- Use the Shoulder Dystocia Evaluation/Debriefing Form
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7.0 Shoulder Dystocia Evaluation Form

Shoulder Dystocia Checklist

☐ Announce that you have a Shoulder Dystocia
  - Quickly counsel patient/family on situation

☐ Call for additional assistance
  - Staff Physician
  - Additional nursing staff as needed
  - Anesthesia support
  - Pediatric/Personnel to resuscitate fetus after delivery

Maintain Calm Environment/Assemble Care Team

☐ Determine the position of the fetal back/shoulders
  - Evaluate need for episiotomy*
  - Mark time of fetal head delivery

☐ McRoberts Position and Apply Suprapubic Pressure
  - Gentle downwards traction

☐ Attempt rotational maneuvers (Woods screw/Rubins)
  OR
  Posterior arm delivery

☐ Consider additional maneuvers
  - Gaskins (All-Fours) maneuver
  - May repeat previous maneuvers

☐ Perform Zavenelli maneuver and move to Cesarean

☐ Cesarean Prep
  - Insert Foley catheter
  - Prep abdomen
  - Count instruments (if time allows)
  - Brief surgical timeout (if time allows)

* Notes:
1) "Evaluate for episiotomy" does not mean that this is necessary for every shoulder dystocia delivery. In most cases, this will NOT be necessary. It is included in the clinical checklist only as something that should be considered if additional room is needed in order to perform maneuvers.

2) When this emergency occurs, several actions may occur simultaneously (i.e. calling for assistance/counseling the patient). This checklist is meant to be used to help ensure critical tasks are completed. The use of clinical judgment appropriate for the specific situation is always required.
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DEBRIEFING INSTRUCTIONS

- After the simulation is completed, clearly state that it is over and gather all team members together for a debriefing
- Review Basic Assumption and go through the evaluation form
- At the end of debriefing, ask the team if there are any additional comments
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8.0 Debriefing / Feedback:

- Instructors should meet after the scenario before the debrief for a few minutes to discuss what deficits (if any) were noted that need to be emphasized in the debrief. It may help to make a short list of the most important teaching points that you want to cover.

For Shoulder Dystocia, critical teaching points that should be emphasized include the following:

1) Communication/Teamwork
   - Verbalizing that there is a shoulder dystocia and calling for help in a timely manner
   - Directed communication with Check-backs
   - Appropriate use of assistants
   - Keeping the patient/family informed of what is going on in a calm and appropriate manner

2) Medical Care/Technique/Documentation
   - Knowledge of standard maneuvers required for shoulder dystocia
   - Avoidance of improper maneuvers (i.e. fundal pressure)
   - Appropriate progression through maneuvers if initial ones do not result in delivery
   - Calling for pediatrics in time for them to be present when delivery occurs
   - Documentation after the event
   - How would you discuss this complication with the patient?
   - What are important things to discuss with regards to risks for subsequent deliveries?

3) Debriefing/Providing Feedback
   - Start by asking for a quick summary from the participants, allowing them to vent about the simulation (they will often note their own deficits at this time).
   - Add factual/didactic information as needed but make sure to include a discussion of teamwork and communication
   - Utilize the Shoulder Dystocia Delivery Evaluation Form (Section 7.0) as a guide to discuss the technical parts of the procedure and performance.
   - If you have time or want to, you may allow the provider to practice maneuvers and/or go through the delivery again after the debriefing.