Simulation:  Shoulder Dystocia

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Target Audience:  OB/GYN, FM Residents

ACGME Competencies Addressed:

- Patient Care
- Medical Knowledge
- Interpersonal and Communication Skills

Learning Objectives*:

- Understand the risk factors for Shoulder Dystocia
- Be able to communicate the critical tasks that should be performed when this complication occurs
- Demonstrate the proper technique for basic maneuvers to relieve a shoulder dystocia
- Be able to communicate effectively during a delivery complicated by shoulder dystocia

*See ACOG Shoulder Dystocia Simulation Learning Objectives for complete list.
1.0 Example Case Scenarios

CLINICAL SCENARIO

The patient is a 40 y/o G3P1011 at 41+3 weeks gestation. Her prenatal course has been complicated by AMA and diet-controlled gestational diabetes. She presented in active labor and has progressed well. She was C/C/+2 at her last check and has been pushing for approximately 80 minutes with a category 1 fetal heart rate tracing. The nurse has requested that you come and check the patient.

CLINICAL SCENARIO

The patient is a 21 y/o G1P0 at 37+4 weeks gestation. Her prenatal course was complicated by maternal obesity (BMI = 35). Her 1-hour glucola was normal and she is GBS negative. She presented with SROM of clear fluid approximately 8 hours ago and was noted to have irregular contractions. She was placed on oxytocin and has progressed to C/C/+2 and has just started pushing. The fetal heart rate tracing has been overall reassuring and the nurse is requesting that you come and check the patient at this time.
2.0 Pre-Simulation Briefing/Orientation:

- Do a thorough orientation to the room, equipment and mannequins. This should take approximately 20 minutes.

- *Explain that, if you are using staff actors as nurses, they will respond to requests but will not initiate actions.

  *If you are conducting a multidisciplinary simulation, then the providers will work in their normal roles and you will not need staff actors.

- 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.
  - Explain basic Crisis Resource Management or TeamSTEPPS principles

- 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
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.

If videotaping is going to be done, then either a staff member will hold this or set up a tripod to the side of the bed. Any commercial camcorder can be used.

Figures 1 & 2: Birthing Simulators:

Figure 1: NOELLE birthing mannequin (Gaumard Scientific, FL)
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 residents/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) (unless doing multidisciplinary training)
- Staff to create fetal heart tones (if no fetal heart rate simulator is available)

**Optional**

- Staff to video record (1)
- Staff to play role of patient’s family (mother, sister or husband) (1-2)
- Staff to play pediatrician (*unless you are doing a multidisciplinary simulation)

### 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!
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 resident) on the clinical scenario

Resident or Nurse enters room

The assistant playing the role of the spouse/family informs the resident 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)*

Resident should recognize shoulder dystocia and begin maneuvers.

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

If/when the resident 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)
6.0 Post-Simulation:

- Have the resident (and nursing staff if participating) write their delivery notes/documentation.
- You may use the Shoulder Dystocia Evaluation Form (see Section 7.0)
- Gather the resident and/or team together to debrief and review performance.
7.0 Shoulder Dystocia Evaluation Form

1. Assess actual performance during shoulder dystocia drill:

INITIAL TASKS:

1) Verbalizes diagnosis of a shoulder dystocia
   - Yes
   - No

2) Asks assistant to mark/keep time of head to delivery interval
   - Yes
   - No

3) Calls for additional help (Nursing or Physician) within 60 seconds of diagnosis of dystocia
   - Yes
   - No

4) Calls for personnel to assist in resuscitation of infant (may be pediatrics, nursing, other provider)
   - Yes
   - No

5) Appears to apply gentle traction to attempt delivery
   - Yes
   - No

6) Utilizes McRoberts maneuver
   - Yes
   - No

7) Utilizes Suprapubic pressure in correct direction
   - Yes
   - No

ADDITIONAL TASKS:

1) Evaluates need for and/or performs episiotomy
   - Yes
   - No

2) Attempts additional appropriate maneuver to delivery fetus (circle all that apply):
   - Posterior arm delivery
   - Oblique maneuver (Woodscrew/Rubin)
   - Gaskins/All-fours maneuver

INAPPROPRIATE ACTIONS:

1) Asks for and/or applies fundal pressure
   - Yes

2) Appears to apply excessive force while attempting delivery
   - Yes

3) No diagnosis of shoulder dystocia within 3 minutes of delivery of fetal head
   - Yes

4) Attempts potential morbid maneuvers (Zavenelli/ Fracture of clavicle/Symphisiotomy) prior to exhausting other maneuvers
   - Yes

POST-DELIVERY ACTIONS:

1) Discusses complication and interventions with patient
   - Yes
   - No

2) States would send for cord gases
   - Yes
   - No

ACTUAL HEAD-TO-BODY DELIVERY TIME: _______ (seconds)
**SCORING SHEET FOR SHOULDER DYSTOCIA DELIVERY NOTE**

**KEY COMPONENTS OF DELIVERY NOTE**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Writes date of occurrence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Writes time of note</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Writes what providers were present at delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Classifies complication as shoulder dystocia</td>
<td></td>
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</tr>
<tr>
<td>5.</td>
<td>Correctly notes which shoulder was anterior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Notes head delivery to body delivery interval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Notes the infant’s birthweight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Notes if cord gases were sent (and results if sent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Notes if the infant was moving arms normally post-delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Includes all maneuvers performed</td>
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<tr>
<td>11.</td>
<td>Includes correct order maneuvers performed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Includes estimated blood loss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Notes that personnel to assist in resuscitation of infant were called or present (or if not, explains why)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Notes infants Apgars</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Notes if patient had epidural</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: If your institution has a template used for documentation, then you may use that to evaluate the completeness of the delivery note.

**REFERENCES:**


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?

- Start by asking for a quick summary allowing them to ventilate about the experience (they will often note their own deficits at this time)

- Add factual/didactic information at the end so as not to interrupt the CRM/team issues discussion.

- At the end of the debriefing, make sure to ask for and emphasize key learning points and important take home lessons.

- Be sure to include everyone in the debrief not just the primary responder

- After debriefing the group, you may keep the resident and demonstrate and/or allow the resident to practice specific maneuvers if desired
• Use video if desired. Showing the video all the way through is usually not necessary. Instead, choose what scenes you want to use from the video, i.e. things done well and things that need improvement.

• Consider having 2 debriefers allowing them to trade off

• See Section 9.0 for more on Debriefing and for sample debriefing questions.

9.0 Hypothesis of multidisciplinary debriefing with adult learners:

The creation of a confidential, non-judgmental "safe zone" – an environment where learners feel “safe” both from causing patient harm and from experiencing personal condemnation during the training course or afterwards – may allow for a more thorough and dispassionate review of errors committed.

The risk of using a more aggressive or confrontational debriefing style is if a learner feels threatened or embarrassed, they may “shut down” or become “closed” to the acquisition of new cognitive, technical, or behavioral information.

Sample debriefing questions/techniques:

• What was the first thing you noticed?

• As things started going wrong what were you thinking?

• Do you think you called early enough for help?

• What did you need the help to do for you?

• At different points in the scenario, stop the tape and ask what is your differential diagnosis right now?

• Review the communication as help came in the room:
  a. Ask the secondary responders: "As you entered the room, did you feel you got enough information

  b. What are the best ways to make sure you communicate effectively? (examples: use names, have them repeat your orders back, use firm tone and intonation)

• What can you do when a conflict arises during a crisis?

• Review the difficulty with multitasking
ACOG SHOULDER DYSTOCIA SIMULATION - FORMATIVE EVAL

- Separate medical issues i.e. what meds to give, versus system issues
- How did you make that decision? What are the pros and cons of the action?

Additional Teamwork/Communication Questions

1) How well did the team orient new members to the situation as they arrived? (Situation / Background / Assessment / Recommendation)

2) Did the team use Directed Communication (using names) during the scenario?

3) Did the team have a Shared Mental Model (all members of the team understood what was going on and what should happen next)?

4) Give examples of where the team used Closed Loop Communication.

5) Did the team use Patient Friendly Language and Tone during the simulation?