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SAVING LIVES - REDUCING RISK

From The Editor

Shoulder dystocia presents as one of the most daunting clinical challenges obstetricians ever have to face.

Although there are risk factors for shoulder dystocia, they all lack sufficient sensitivity and specificity to be clinically definitive. When a shoulder dystocia does occur, the obstetrician must respond with the correct series of maneuvers in which he/she has been trained and resist the temptation to apply

inappropriate force that may injure a baby's brachial plexus, all in the midst of an intensive emergency situation. Such injuries can occur even in properly conducted shoulder dystocia deliveries - and the obstetrician is always blamed.

The following case presents the course and the outcome of the sort of patient that any obstetrician might encounter in his or her practice. As will be shown, there are features at every stage of the pregnancy and delivery that require consideration of the possibility of shoulder dystocia. These

must be addressed in order to comply with best practices and, more importantly, to maximize the outcome for mother and baby. ■



Shoulder Dystocia Case Presentation

New Obstetrical Visit

Ms. G was a 32-year-old G2P1 woman who was seen for a new obstetrical visit at 8 weeks gestation. Other than her weight of 190 pounds, she was in good health. Her only medical problem in her previous pregnancy was borderline gestational diabetes. She had an uncomplicated spontaneous vaginal delivery of an 8 lb 8 oz male infant who did well.

The early part of Ms. G's current pregnancy was uncomplicated. However,

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Great News

The American Board of Emergency Medicine (**ABEM**) has affirmed that the TSG **RSQ® Clinical Assessment** (EMRI Audit) can be used by ABEM certified physicians toward fulfillment of a current ABEM Maintenance of Certification of Practice Performance (APP) – Practice Improvement (PI) requirement.

“Physicians certified by the American Board of Emergency Medicine may satisfy one current Assessment of Practice Performance requirement by completing this activity.”

If you practice at one of the 400 EDs that currently use the **RSQ® Clinical Assessment** (EMRI Audit), please contact TSG or ABEM to learn more about how this activity meets the Assessment of Practice Performance Maintenance of Certification requirement.

If you are interested in implementing the **RSQ® Clinical Assessment** at your facility, please contact Brant Roth for more details.

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ABEM
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her oral glucose tolerance test at 28 weeks revealed a value of 161. She was then scheduled for a 3-hour oral glucose tolerance test; the following are the results:

Fasting	126
One Hour	224
Two Hours	191
Three Hours	185

Ms. G clearly had gestational diabetes and was diagnosed as such. She was sent for dietary consultation; she was followed simultaneously by her obstetrician and by the diabetes clinic at the hospital. Ms. G’s blood sugars responded well to diet control; she did not require insulin therapy during the remainder of her pregnancy.

Ms. G’s obstetrician’s standard practice for gestational diabetes was weekly fetal testing (biophysical profiles alternating with non-stress tests); this was begun at 36 weeks gestation. At 38 weeks, Ms. G’s obstetrician noted “?Macrosomia” in the prenatal record. Ms. G’s total weight gain during the pregnancy had been 55 pounds up to this point. Concerned about the size of the baby, Dr. G. recommended induction that week despite a relatively unfavorable cervix.

Labor and Delivery

Ms. G was admitted to L&D the night before the scheduled induction for cervical ripening with misoprostol. The following morning at 7:30 AM, Pitocin induction was started. By

1:00 PM, the patient had only mild contractions, but the cervix had effaced to 100% and dilated to 1-2 cm. A mildly bulging amniotic sac was palpated and ruptured with the production of a copious amount of clear amniotic fluid, after which labor progressed rapidly. At 4 cm dilatation, the patient requested and received an epidural anesthetic.

Between 4:00 PM and 6:00 PM, there was no change in cervical dilation and station; contraction frequency and strength diminished. However, after increasing the rate of Pitocin, the contractions once again became strong and regular and labor progressed. By 8:10 PM, Ms. G's cervix was fully dilated.

The nurse decided to let Ms. G "labor down" until she felt a more consistent urge to push. By 9:30 PM, with the vertex in LOA position and at zero station, she began pushing.

Only minimal progress was made over the next 2½ hours. Ms. G's obstetrician re-evaluated her at midnight. She recommended that Ms. G continue pushing for another 45 minutes to 1 hour to see if the head could be delivered spontaneously or at least brought down low enough for an easy "lift-out" vacuum-assisted vaginal delivery.

At that point, Ms. G's obstetrician became involved in another patient's cesarean sec-

tion. She came back at 1:30 AM to reevaluate Ms. G. By this time, the vertex was at +2 station with significant caput. The fetal heart rate tracing had been excellent up until this point, but the fetus now began to show signs of decreased reserve: increasingly deep variable decelerations with each push with an increasingly slow return to baseline. The obstetrician decided to move ahead with a vacuum delivery in order to deliver the baby in the most expeditious fashion.

A much-molded head was delivered over 3 contractions and with 1 pop-off. The head immediately retracted back against the mother's perineum and the neonate's



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cheeks were bulging; this is the famous “turtle sign.” Recognizing that she was facing a shoulder dystocia, the obstetrician instructed the nurses to push the mother’s legs back into McRoberts position. Then the mother was asked to push while the obstetrician exerted moderate downward traction on the fetal head. The anterior shoulder did not emerge.

Recognizing the seriousness of the situation for the fetus and fighting her own fatigue from a busy night, the obstetrician gradually increased the forcefulness with which she attempted to pull the baby’s shoulder out from under the mother’s pubic bone. Frustrated that the shoulder just wouldn’t quite come out, the obstetrician asked one of the nurses to push on the top of the uterus to help squeeze the baby out the last couple of centimeters needed for delivery.

The charge nurse paged a more senior obstetrician who was in-house for help. Three and one half minutes into the shoulder dystocia, with the primary obstetrician still pulling on the baby’s head in an attempt to deliver the shoulder, the senior obstetrician entered the room. She quietly but firmly asked if she could assist and took over management from her pale, shaking younger colleague.

The senior obstetrician instructed the nurses to apply suprapubic pressure just above the

mother’s pubic bone; she watched carefully to make sure that the force was applied there and not at the top of the uterus. When this did not result in the delivery of the anterior shoulder, she began internal rotational maneuvers. She first tried to deliver the posterior arm. When this was unsuccessful, she

RSQ® OB e-Learning Topics

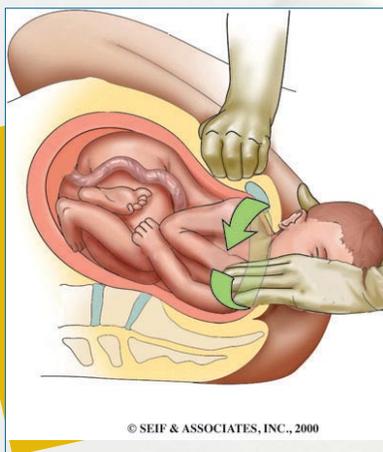
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- Anatomy of a Medical Negligence Lawsuit
 - Appendicitis
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 - Cognitive Errors Part 2
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 - Medical Assault & Battery
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 - Postpartum Hemorrhage Part 2
 - Pulmonary Embolism Part 1
 - Pulmonary Embolism Part 2
 - Sepsis
 - Shoulder Dystocia

Click on course name to see course description.

placed her finger in the posterior vagina, found the posterior aspect of the baby's posterior shoulder, and pushed against it in screw-like fashion. This finally displaced the baby's anterior shoulder and allowed it to slide under the mother's pubic bone; the rest of the baby delivered immediately thereafter.

At birth the baby was floppy and initially required bag-and-mask respirations. Chest compressions were begun as well due to the low heart rate. Spontaneous respirations and a heart rate of over 100 were noted at the two-minute post-delivery mark. The neonatal team, which was not called until after the senior obstetrician arrived in the room, arrived at this time.

The placenta was delivered without incident, and the primary obstetrician repaired the multiple lacerations of the distal vagina and perineum. However, the baby did not do well. The total head-to-body delivery interval was 4½ minutes. The baby's Apgar scores were 1 at one minute, 4 at five minutes, and 6 at ten minutes. Moreover, the baby's right arm was floppy and immobile.



The next day, the baby was diagnosed as having Erb's palsy, a brachial plexus injury of the nerve roots C5 through C7. It could not be determined at this time if the injury would be permanent. The baby stayed in the intensive care nursery for five days prior to being released. During this time, serial imaging studies of the baby's brain indicated minimal areas of bleeding. It was too early for the pediatric neurologists to say whether the baby would have residual neurologic effects.

Two years following this delivery, a lawsuit was filed against both obstetricians claiming mishandling of Ms. G's pregnancy and delivery.

Case Discussion

There are several areas of interest in reviewing the management of this case. Let's begin by taking a look at Ms. G's prenatal care to determine what if anything might have been done to improve her baby's outcome or to have more closely complied with the standard of care.

1. High-Risk Patient

Ms. G clearly should have been identified as a high-risk patient for shoulder dystocia. She was obese, she had gestational diabetes, and her baby was suspected of being macrosomic. Given these facts, what should her obstetrician have done differently?



The first thing would have been to evaluate what this patient's best mode of delivery should be. It is clear from the medical literature that it is extremely difficult to predict when a shoulder dystocia will occur based on the various clinical elements present. Nevertheless, there are generally accepted standards for evaluating the risk of shoulder dystocia to which obstetricians should comply.

- Evaluate the patient for risk factors. As noted, Ms. G had several. The standard of care dictates that in this situation, the obstetrician should discuss the risk of shoulder dystocia with the patient and review options for avoiding such risk, such as delivery via cesarean section.
- This evaluation and discussion must be clearly documented in the medical record.

Neither of these actions was taken in this case. **It will be especially difficult for the obstetrician to defend the fact that she documented that she suspected macrosomia; she noted the risk factor, but took no action!**

When is an obstetrician obliged to discuss with a patient options for delivery to avoid potential shoulder dystocia? According to the American College of Obstetricians and Gynecologists, prophylactic cesarean section "may be considered" when fetal weight is estimated to be 5,000 g in a nondiabetic patient and 4,500 g in a diabetic patient; some authors lower each of these weight categories by 500 g. Furthermore, when a patient has gestational diabetes, the obstetrician should consider the risk of shoulder dystocia; obtain an estimation of fetal weight; and note in the prenatal record that this evaluation has taken place.



Of all the CME I have done, I feel that The Sullivan Group CME is most helpful in terms of supporting my mission to be a "safe practitioner."

Dr. Marcus Gitterle
McKenna Hospital

Plaintiff attorneys will always claim that the obstetrician should have "warned" the patient about the risk of shoulder dystocia if she had gestational diabetes or "macrosomia" (very loosely defined). There is no way to tell if this would have resulted in the patient requesting a cesarean section. However, by documenting that the risk of shoulder dystocia was considered and discussed with the patient, an obstetrician not

only serves his/her patient well, but also avoids the claim of inadequate counseling.

2. Management of the Labor

There are two aspects of the management of this labor that are of note.

- First, there was an arrest not only of the active phase of labor, but also of the second stage. Given the suspected macrosomia and this patient's gestational diabetes, this was a red flag for potential complications with delivery.
- Secondly, instrumental assistance at delivery is associated with a significant increase in the risk of shoulder dystocia. The obstetrician must think very carefully before applying forceps or a vacuum to the head of a fetus who is at increased risk for shoulder dystocia.



3. Management of the Shoulder Dystocia

- Although a shoulder dystocia is always a frightening situation to encounter, a qualified obstetrician should know the specific steps to take when it does occur: McRoberts maneuver, suprapubic pressure, rotational maneuvers, delivery of the posterior arm. While the order in which the standard shoulder dystocia resolution maneuvers are used does not matter, there should be a deliberate progression of maneuvers from one to the next when the prior maneuver has not succeeded in resolving the dystocia.
- An obstetrician should also know what not to do.
 - It is a cardinal rule of the management of shoulder dystocia not to apply fundal pressure. Doing so only serves to drive the stuck shoulder more firmly against the synthesis pubis and does not result in freeing up the shoulder.
 - Do not use inappropriate traction. Continued pulling on the baby's head when the shoulder remains stuck will only further stretch and perhaps permanently damage the infant's brachial plexus.

"It is a cardinal rule of the management of shoulder dystocia not to apply fundal pressure".

Summary

Ms. G's care would have been much improved if:

1. Her obstetrician had made a more formal assessment of the patient's risk for shoulder dystocia during the late prenatal period, discussed her recommendations with her patient, and documented both the evaluation and the discussion in the medical record.
2. Given the high risk for shoulder dystocia in this patient based on prena-

tal factors and the course of her labor, her obstetrician had not employed instrumentation for delivery, but rather had awaited spontaneous vaginal delivery or had proceeded with a cesarean section (the better option).

3. Her obstetrician had moved through the appropriate series of shoulder dystocia resolution maneuvers one by one after the shoulder dystocia was encountered, stopping after each maneuver to test whether the shoulder had been freed by simultaneous moderate traction and maternal pushing. ■

The legal aspects of the defense of shoulder dystocia lawsuits and the various theories of brachial plexus injury causation will be explored in upcoming TSG newsletters.



We look forward to seeing you at ASHRM!

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