Shoulder Dystocia

[September 2024 (replaces September 2021)]

Authors: Drs. Christina Davidson, Carey Eppes, and Efua Leke
Editor: Dr. Alex Vidaeff

Background

Shoulder dystocia is an obstetric emergency with a reported incidence ranging from 0.2% to 3% of vaginal deliveries and potential to significantly contribute to fetal and maternal morbidity.[1] Shoulder dystocia cannot be accurately predicted or prevented but some risk factors are known. Fetal macrosomia is thought to be the most important risk factor. Fetuses of diabetic mothers have larger shoulders relative to their biparietal diameter, creating potential for impaction. Precipitous labor and assisted deliveries can preclude spontaneous truncal rotation and therefore result in impaction as well.[1]

Although uncommon, both maternal and neonatal morbidity can result from the maneuvers employed to resolve shoulder dystocia. The most common neonatal complications are fractures of the humerus or clavicle, and brachial plexus injuries, which typically resolve without long term sequelae. Some studies have suggested rare events such as asphyxia or HIE are associated with longer time to delivery, although the interval to delivery cannot accurately predict the severity of any resulting injury. Maternal complications primarily include increased risk of postpartum hemorrhage and obstetric soft tissue lacerations including anal sphincter injuries. Hyperflexion during McRoberts maneuvers has been associated with subsequent neuropathy and symphyseal separation. More significant maternal morbidity can also ensue when measures like the Zavanelli maneuver are required for delivery.

Although most cases of shoulder dystocia occur in non-diabetic mothers with normal size fetuses, attempts to identify and appropriately manage at-risk patients should be made. An early study indicated that the presence of fetal macrosomia and maternal diabetes only accurately predicted 55% of shoulder dystocia cases.[2] Patients with increasing birth weight, history of shoulder dystocia and maternal diabetes remain at increased

risk of shoulder dystocia, and clinical considerations should be incorporated into their labor management. Labor patterns have been studied in relation to shoulder dystocia and are not known to be predictive of this outcome. Universal elective cesarean delivery is not recommended for patients with prior shoulder dystocia; however, the events and outcomes of the prior delivery should be taken into consideration in counseling and management.

Management of at-risk patients

Based on the available evidence:

1. Patients should be counseled on the risks of shoulder dystocia and be offered elective cesarean delivery if EFW $\geq$ 5000g (non-diabetic) and $\geq$ 4500g (diabetic).
2. People with a history of shoulder dystocia (recurrence risk of about 10%[3]) will be identified at time of admission, marked on the L&D board with an identifier ("SD"), and this information will be relayed to the care teams during all sign-out reports:
3. A pre-delivery briefing between the physician and nursing team will occur in 2nd stage of labor.
4. Two labor and delivery nurses will be assigned at delivery for at-risk patients.

This September 2024 guideline removes the recommendation to counsel patients about shoulder dystocia risk with EFW > 4000g

Shoulder dystocia maneuvers[3-5]

Once shoulder dystocia is diagnosed, the first step is to call for help. Gentle downward traction along with maternal expulsive efforts should be attempted.

An episiotomy may be cut at any time to facilitate completion of the maneuvers.

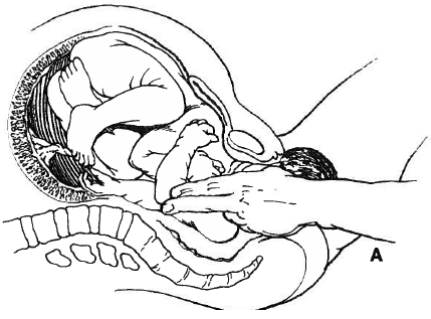
1. McRoberts maneuver and suprapubic pressure:

Exaggerated flexion of the patient's thighs is considered the primary technique to resolve shoulder dystocia.[5] Suprapubic pressure is typically employed as well, with an assistant applying suprapubic pressure directed at a 45 degree angle off of vertical to move the fetal shoulder downwards and laterally.

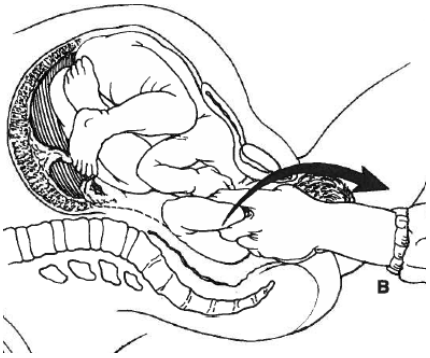
McRoberts's maneuver can also be used prophylactically in patients deemed to be at-risk for shoulder dystocia.

2. Posterior shoulder delivery:

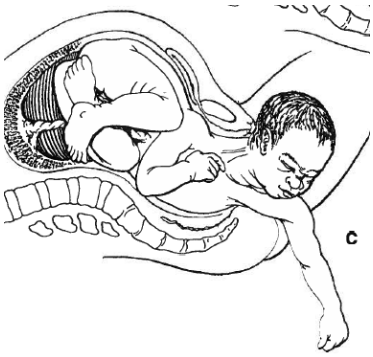
According to a 2011 report, delivery of the posterior shoulder showed the highest overall rate of success in comparison with other maneuvers and is therefore suggested as the next best maneuver if McRoberts and suprapubic pressure fail.[4]



The operator's hand is introduced into the vagina: if the fetal back is toward the right, the right hand is used; if the back of the fetus is toward the left, the left hand is used.



The fingers of the operator follow along the humerus to the antecubital fossa. Pressure is applied in the antecubital fossa.



As the fetal arm flexes, the index finger grasps the forearm of the infant and gently sweeps it across the chest and face of the fetus and out of the vagina.

3. Modification of the posterior shoulder delivery

It involves delivering the posterior shoulder before the posterior arm, using the operator's two middle fingers placed in the posterior axilla and creating outward and downward traction to deliver the posterior shoulder before the arm is then delivered from the pelvis.

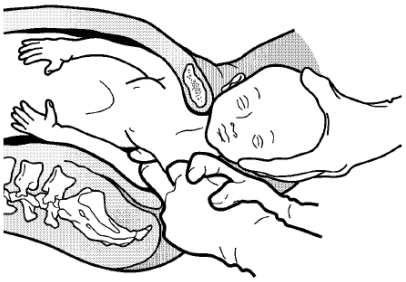
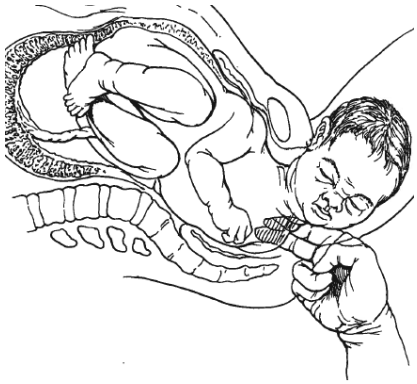


Fig. 1. The head is gently held upward by an assistant. The operator has the 4th and 5th fingers of each hand flexed and pressed against the woman's perineal area. The middle fingers are both placed into the fetus's posterior axilla, one from the fetus's front and the other from the fetus's back. The fingers overlap each other. By using both fingers, traction is used to pull the posterior shoulder downward and outward along the curve of the sacrum.
Menticoglou. Severe Shoulder Dystocia. Obstet Gynecol 2006.

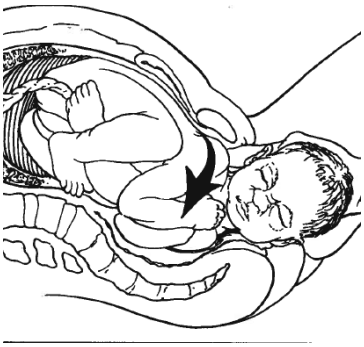


4. Modified Woods maneuver

The operator's hand is placed on the posterior aspect of the posterior shoulder, which is rotated like a screw in a clockwise direction, thus releasing the anterior shoulder.

5. Rubin’s Maneuvers

Two maneuvers that involve rocking the anterior shoulder trans- abdominally to disimpact it and manually adducting the most accessible shoulder to reduce the overall transverse diameter.



6. Deliberate fracture of the clavicle

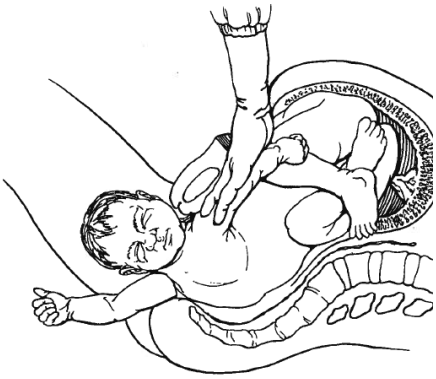
This can be performed to reduce this diameter by placing upward pressure on its midportion in order to avoid subclavian vascular injury.

7. All fours maneuver

This involves placing the patient on her hands and knees to allow rotation of the maternal pelvis with the aim to disimpact the anterior shoulder under the symphysis

8. Abdominal rescue:

Last resort effort in delivery, whereby a low transverse hysterotomy is performed and the fetal shoulder is assisted below the symphysis pubis, followed by vaginal delivery of the infant.



Ben Taub Shoulder Dystocia Protocol

In the event a shoulder dystocia is diagnosed, the below protocol should be initiated and followed until resolution of this obstetrical emergency:

Ben Taub Shoulder Dystocia Protocol

Labor Nurse	First Responder nurse (charge)	Second responder nurse
• Note time the shoulder dystocia is announced • Initiate OB LOCAL Alert system • Place patient in McRoberts • Apply suprapubic pressure and be aware of the correct direction based on instruction from the delivering physician • Relay relevant information to arriving team members (including Neo team) • Obtain cord gases • Close the loop on all communications	• Identify your role • Activate OB Emergency system 37800 “OB emergency room x” • Holds second leg for McRoberts • Close the loop on all communications	• Identify your role • Announce time in 30 second increments • Initiate overhead page • Call Neo • Start time keeping and note taking with checklist • Crowd control and explain to family what is occurring
OB First/second Physician	**OB Attending physician**	**Anesthesia**
• Shoulder dystocia recognized and announced • Ask for time recording to begin and to activate OB emergency system • Close the loop on all communications • Ask patient to be placed in McRoberts position • Ask for and indicate direction for suprapubic pressure • Explain to patient what is occurring • Begin shoulder dystocia maneuvers: • Delivery of posterior arm • Rubins/Woods maneuvers • Gaskin • Episiotomy • Give OB team report • Debrief with patient and family with attending physician	• Repeat maneuvers : ○ Delivery of posterior arm ○ Rubins/Woods maneuvers ○ Gaskin ○ Episiotomy • Consider extreme maneuvers: ○ 4th degree episiotomy ○ ○ Zavenelli ○ Abdominal Rescue • If proceeding to OR: state to team what will be done in the OR • Debrief with patient and family	• Ensure proper IV access • Assess analgesia/anesthesia (may need emergent operative delivery) • Be aware of patients baseline H/H and NPO status

Shoulder dystocia maneuvers table

Maneuver	Order (ex: 1, 6)	Time
McRoberts		
Suprapubic		
Posterior Arm		
Anterior Rubin		
Posterior Rubin		
Woods Screw		
Gaskin		
Episiotomy		
Zavenelli		
Symphysiotomy		
Abdominal Rescue		

Additional Resources:

An epic smartphrase has been developed for use at Ben Taub in the event of any shoulder dystocia to create uniformity in the documentation process. This smart phrase should be routinely used in these cases, and can be accessed by culling from an existing user:".deliveryshoulderdystocia."

The AHRQ has a link to a shoulder dystocia checklist that can be accessed: https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/hais/tools/perinatal-care/modules/strategies/labor-delivery-unit/tool_shoulder-dystocia.docx

References

References

1. Practice Bulletin No 178: Shoulder Dystocia. *Obstet Gynecol*. 2017;129(5):e123-e133. doi:10.1097/aog.0000000000002043
2. Acker DB, Sachs BP, Friedman EA. Risk factors for shoulder dystocia. *Obstet Gynecol*. Dec 1985;66(6):762-8.
3. Gherman RB, Chauhan S, Ouzounian JG, Lerner H, Gonik B, Goodwin TM. Shoulder dystocia: the unpreventable obstetric emergency with empiric management guidelines. *Am J Obstet Gynecol*. Sep 2006;195(3):657-72. doi:10.1016/j.ajog.2005.09.007
4. Hoffman MK, Bailit JL, Branch DW, et al. A comparison of obstetric maneuvers for the acute management of shoulder dystocia. *Obstet Gynecol*. Jun 2011;117(6):1272-1278. doi:10.1097/AOG.0b013e31821a12c9
5. Resnik R. Management of shoulder girdle dystocia. *Clin Obstet Gynecol*. Jun 1980;23(2):559-64. doi:10.1097/00003081-198006000-00024