Shoulder Dystocia
Management and Documentation

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Disclosure

I have no relevant financial conflicts of interest to disclose
Objectives

- Identify risk factors for shoulder dystocia
- Review the management of shoulder dystocia
- Explain how simulation can reduce the incidence of poor outcomes in shoulder dystocia deliveries
- Identify the key components to appropriately document the events of a shoulder dystocia
Background

Incidence and Risk Factors
Shoulder Dystocia

DANGERS INCLUDE:
- Entrapment of cord
- Inability of child’s chest to expand properly
- Severe brain damage or death if child is not delivered within minutes
“Delivery that requires additional obstetric maneuvers following the failure of gentle downward traction on the fetal head to effect the delivery of the shoulders”
## Birth Weight Comparisons

<table>
<thead>
<tr>
<th>Anthropometric Measurements</th>
<th>&gt;4000g (n=202)</th>
<th>&lt;4000 g (n=100)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth weight (± 1 SD)</td>
<td>4247 g ± 471</td>
<td>3399 g ± 36</td>
<td></td>
</tr>
<tr>
<td>Gestational age</td>
<td>40.7 wks ± 1.3</td>
<td>39.6 wks ± 3.9</td>
<td>NS</td>
</tr>
<tr>
<td>Length</td>
<td>54.6 cm ± 2.8</td>
<td>51.7 cm ± 2.6</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Head circumference</td>
<td>36.3 cm ± 1.2</td>
<td>34.6 cm ± 1.3</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Chest circumference</td>
<td>36.2 cm ± 2.8</td>
<td>33.6 cm ± 1.8</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Chest-head</td>
<td>0.06 cm ± 1.6</td>
<td>-1.1 cm ± 1.5</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
## Shoulder Dystocia versus No Shoulder Dystocia

**Mean ± 1 SD**

<table>
<thead>
<tr>
<th>Anthropometric Measurements</th>
<th>Shoulder Dystocia (n=10)</th>
<th>No Shoulder Dystocia (n=130)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth weight</td>
<td>4416 g ± 294</td>
<td>4254 g ± 323</td>
<td>NS</td>
</tr>
<tr>
<td>Gestational age</td>
<td>41.2 wks ± 1.6</td>
<td>40.4 wks ± 3.6</td>
<td>NS</td>
</tr>
<tr>
<td>Length</td>
<td>54.5 cm ± 1.9</td>
<td>54.8 cm ± 2.3</td>
<td>NS</td>
</tr>
<tr>
<td>Head circum.</td>
<td>36.1 cm ± 1.6</td>
<td>36.2 cm ± 1.1</td>
<td>NS</td>
</tr>
<tr>
<td>Chest circum.</td>
<td>37.7 cm ± 1.5</td>
<td>36.0 cm ± 3.3</td>
<td>NS</td>
</tr>
<tr>
<td>Chest-head</td>
<td>1.6 cm ± 2.2</td>
<td>0.2 cm ± .8</td>
<td>&lt;.025</td>
</tr>
</tbody>
</table>
Proposed Risk Factors

Shoulder Dystocia

**Antepartum:**
- Fetal weight (*actual vs estimated*)
- Obesity
- Diabetes
- Prior shoulder dystocia
- Excessive weight gain
- Prior macrosomic infant
- >42 weeks

**Intrapartum:**
- Labor pattern
- Operative vaginal delivery
$13 million payout in malpractice case

Baby, mother injured in delivery 4 years ago

BY WARREN KING
Seattle Times medical reporter

A Lynnwood mother and her child have been awarded a $13 million out-of-court settlement after a botched delivery at Stevens Hospital in Edmonds left both severely injured.

The conclusion of the case, announced yesterday, is probably the largest out-of-court medical-malpractice settlement in state history, according to Jury Verdicts Northwest, a Seattle-area organization that tracks verdicts, settlements and other legal matters.

The baby, Chelsea Porter, was severely brain damaged in the delivery four years ago. Her mother, Tamara Porter, suffered torn tissue that still has

Chelsea Porter, 4, is held by her grandmother and caregiver, Barb Porter. Chelsea and her mother were injured during Chelsea's birth.
Shoulder Dystocia Lawsuit
Verdict of $56M Appealed by Hospital

- August 12, 2010    Written by: Staff Writers

- A New York hospital is attempting to overturn a $56 million verdict in a birth injury lawsuit won by a family last year after their son’s shoulder became stuck on the mother’s pelvic bone during delivery.

• Attendant-at-birth forces head downward to free shoulder

• Nerves in shoulder are stretched and damaged
Obstetric Brachial Plexus Palsy

Natural History

- The 2 studies of 7 which come closest to an ideal study show a tendency towards a 20–30% residual deficit in contrast to the optimistic view of over 90% complete or almost complete recovery.

- Physicians should exercise caution in predicting excellent recovery shortly after birth.

High Birth Weight

High (4001-4500g) OR = 2.41
95% C.I. (1.20, 4.85)

Very High (>4501g) OR = 20.99
95% C.I. (9.46, 46.57)
Mid-Forceps

OR = 18.35

95% CI (5.67, 59.32)
Vacuum Extraction

OR = 17.18

95% CI (5.08, 56.17)
BRACHIAL PLEXUS INJURY

Deliveries

<table>
<thead>
<tr>
<th>Method of Delivery</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/S</td>
<td>1/7000</td>
</tr>
<tr>
<td>Spont.</td>
<td>1/3000</td>
</tr>
<tr>
<td>Low Forceps</td>
<td>1/788</td>
</tr>
<tr>
<td>Vacuum</td>
<td>1/286</td>
</tr>
<tr>
<td>Mid Forceps</td>
<td>1/225</td>
</tr>
</tbody>
</table>
Shoulder Dystocia Algorithm

- Call for Help: RN, Pediatrics, OB, Anesthesiology
- Discourage forceful pushing
- McRobert’s Maneuver (Thighs to Abdomen)
- Suprapubic Pressure-> routine delivery traction
- Episiotomy if necessary to do internal maneuvers
- Deliver Posterior Arm OR
- Internal Rotational Maneuvers
- All Fours Position and Delivery of Posterior Shoulder
- Cephalic Replacement and Cesarean Section

Before McRoberts Positioning

- Diagonal orientation of symphysis makes shoulder delivery difficult

McRoberts Position

- Pelvis tilts, orienting symphysis more horizontally to facilitate shoulder delivery
Suprapubic Pressure
Wood’s Maneuver
Rubin’s Maneuver
Delivery of Posterior Arm (1/3)
Delivery of Posterior Arm (2/3)
Delivery of Posterior Arm (3/3)
Effect of Barnum Maneuver
(reducing obstructing part of fetal shoulder)
Zavanelli Maneuver (1/2)
Zavanelli Maneuver (2/2)
Gaskin Maneuver
Fig. 1. Difficulties gaining vaginal access. A. Attempting to gain anterior access. B. Attempting to gain lateral access. C. Entering with two fingers as if performing a routine vaginal examination. D. Leaving the thumb out.

Crofts, Joanna F.; Fox, Robert; Ellis, Denise; Winter, Catherine; Hinshaw, Kim; Draycott, Timothy J.


doi: 10.1097/AOG.0b013e3181865f55
Fig. 2

Observations From 450 Shoulder Dystocia Simulations: Lessons for Skills Training

Crofts, Joanna F.; Fox, Robert; Ellis, Denise; Winter, Catherine; Hinshaw, Kim; Draycott, Timothy J.


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Fig. 2. Facilitation of vaginal access. Posterior vaginal access with whole hand. Crofts. Lessons for Shoulder Dystocia Training. Obstet Gynecol 2008.
Fig. 3

Observations From 450 Shoulder Dystocia Simulations: Lessons for Skills Training

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1. Performing a manual removal of a placenta

2. Putting on a tight bracelet

3. Removing the last potato chip in the tube!

Fig. 1

Draycott, Timothy J.; Crofts, Joanna F.; Ash, Jonathan P.; Wilson, Louise V.; Yard, Elaine; Sibanda, Thabani; Whitelaw, Andrew


doi: 10.1097/AOG.0b013e31817bbc61


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Shoulder Dystocia Protocol

**OB Provider**
- Announce Shoulder Dystocia
- Communicate with patient / family
- Direct Nurses to perform maneuvers, as appropriate
  - McRoberts
  - Suprapubic pressure
- Perform secondary maneuvers, as necessary
  - Rotational
  - Deliver posterior arm

**Triggers**
RN response

**L&D Nurses**
- Nurse announces her “lead”
- Employ **TEAM** approach:
  - **Time**
    - Note delivery of head using fetal monitor event marker
    - Call out 30 second intervals
  - **Emergency** call light button
    - “We have a shoulder in LDR # and need a nurse and a resident to assist.”
    - Activate shoulder dystocia page
  - Perform **Maneuvers**
- Upon arrival, 3rd Nurse retrieves worksheet and acts as Documenter:
  - Observe & record key information
Concerns Regarding Management of Shoulder Dystocia and Solutions Embedded Within the Shoulder Dystocia Protocol

<table>
<thead>
<tr>
<th>Concern</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of common understanding that a shoulder dystocia had occurred</td>
<td>Unambiguous statement by delivering provider once a shoulder dystocia is diagnosed</td>
</tr>
<tr>
<td>Difficulty summoning desired staff</td>
<td>Single page number created and implemented in the hospital paging system that simultaneously notifies desired individuals</td>
</tr>
<tr>
<td>Lack of role clarity</td>
<td>Institution of protocol with delineation of roles</td>
</tr>
<tr>
<td>Reduced situational awareness for delivering provider</td>
<td>Duration of shoulder dystocia announced at standard intervals; implementation of protocol that does not require him or her to direct all actions</td>
</tr>
<tr>
<td>Variability of documentation</td>
<td>Standard worksheet completed by designated nurse</td>
</tr>
</tbody>
</table>
# Shoulder Dystocia Documentation Worksheet

<table>
<thead>
<tr>
<th>EVENTS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time head delivered</td>
<td></td>
</tr>
<tr>
<td>Time infant delivered</td>
<td>LOT</td>
</tr>
<tr>
<td>Duration of shoulder dystocia</td>
<td></td>
</tr>
<tr>
<td>Position of fetal head at restitution</td>
<td>LOT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MANEUVERS</th>
<th>CHECK IF PERFORMED</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>McRoberts’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suprapubic pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woods’ screw</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubin’s maneuver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other type of rotational maneuver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivery of posterior arm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zavanelli</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SHOLDER TEAM PRESENT IN DELIVERY ROOM**

<table>
<thead>
<tr>
<th>NAMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>OB Attending/CNM</td>
</tr>
<tr>
<td>OB Resident/Fellow</td>
</tr>
<tr>
<td>RN#1</td>
</tr>
<tr>
<td>RN#2</td>
</tr>
<tr>
<td>RN Documenter</td>
</tr>
<tr>
<td>Anesthesiologist</td>
</tr>
<tr>
<td>Pediatrician</td>
</tr>
<tr>
<td>Others</td>
</tr>
</tbody>
</table>
ACOG Documentation Worksheet

Date_________________ Patient________________________________________Date of birth________
MR #______________Physician or certified nurse–midwife__________________________
Gravidity/Parity________________
Timing: Onset of active labor__________ Start of second stage_____
Delivery of head___________ Time shoulder dystocia recognized and help called________
Delivery of posterior shoulder_________Delivery of infant_________

Antepartum documentation:
☐ Assessment of pelvis
☐ History of prior cesarean delivery: Indication for cesarean delivery:
☐ History of prior shoulder dystocia
☐ History of gestational diabetes
☐ Largest prior newborn birth weight
☐ Estimated fetal weight
☐ Cesarean delivery offered if estimated fetal weight greater than 4,500 g (if the patient has diabetes mellitus) or greater than 5,000 g (if patient does not have diabetes mellitus)

http://www.acog.org/-/media/Patient-Safety-Checklists/psc006.pdf?dmc=1&ts=20150209T1606083475
Intrapartum documentation:

- Mode of delivery of vertex:
  - Spontaneous

- Operative delivery: Indication:
  - Vacuum
  - Forceps

- Anterior shoulder: 
  - Right
  - Left

- Traction on vertex: 
  - None
  - Standard

- No fundal pressure applied

- Maneuvers utilized:
  - Hip flexion (McRoberts maneuver)
  - Suprapubic pressure
  - Delivery of posterior arm
  - All fours (Gaskin maneuver)
  - Posterior scapula (Woods maneuver)
  - Anterior scapula (Rubin)
  - Abdominal delivery
  - Zavanelli maneuver

- Episiotomy:
  - None
  - Median
  - Mediolateral
  - Proctoepisiotomy

- Extension of episiotomy:
  - None
  - Third degree
  - Fourth degree

- Laceration:
  - Third degree
  - Fourth degree

- Cord blood gases sent to the laboratory:
  - Yes: Results:_____________________________
  - No
Status of neonate prior to leaving delivery room or operating room:

- Apgar scores
- Evidence of injury
- Birth weight (if available)

Status of neonate prior to leaving delivery room or operating room:

- Staff present
- Family members present
- Patient and family counseled
- Debriefing with appropriate personnel

Postpartum/neonatal documentation:

- Delivery discussed with family
- Perineal assessment if third or fourth degree laceration
- Monitored for postpartum hemorrhage:
  - Yes: Results
  - No
- Communication with pediatrics department if there is evidence of injury or asphyxia
- Coordination of follow-up care for mother and baby
- Monitored for postpartum depression:
  - Yes: Results
  - No
Summary

• The chest to head circumference ratio plays an important roll in shoulder dystocia

• Exercise caution in predicting excellent recovery of a brachial plexus injury shortly after birth

• Have a protocol to manage shoulder dystocia

• Practice the maneuvers required to relieve a shoulder dystocia with simulation
  • Preferably in a multi-team scenario

• Have a designated person in the room to document the timeline and events

• Document, document, document
References


