Shoulder Dystocia Workshop
for Family Physicians
FMCH Retreat

May 11, 2023
Objectives

After this session participants will be able to:

- Summarize team preparation for shoulder dystocia
- Document critical elements in the medical record
- Coordinate timely multidisciplinary care of the affected neonate
- Cite evidence for best practices in subsequent pregnancy management
- Demonstrate techniques for management of shoulder dystocia
Sharing

What makes you most nervous about shoulder dystocia?
What goes well? What would you do differently?

https://globalhealthmedia.org/videos/stuck-shoulders/
What is Shoulder Dystocia?

- “Stuck”
- Time > 60 seconds head to body interval
- Additional maneuvers

Complications

- Maternal injury
- Neonatal injury

Note: not all brachial plexus injury is from SD
### Risk Factors for Shoulder Dystocia

<table>
<thead>
<tr>
<th>Antenatal Risk Factors</th>
<th>Fetal</th>
<th>Labor Risk Factors</th>
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<tbody>
<tr>
<td>Maternal</td>
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<tr>
<td>Prior delivery with a</td>
<td>Macrosomia</td>
<td>Assisted vaginal delivery with vacuum or forceps</td>
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<tr>
<td>shoulder dystocia</td>
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<td>Gestational or preexisting diabetes</td>
<td>Male gender</td>
<td>Labor dystocia/arrest disorders</td>
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<td>Maternal obesity</td>
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<td>Prolonged second stage</td>
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<td>Postdates pregnancy</td>
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<td>Abnormal pelvic anatomy</td>
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<td>Short stature (&lt;5 ft or 0.5 m)</td>
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Prevention of Shoulder Dystocia

- “Shoulder dystocia cannot be accurately predicted or prevented” ready
- Most shoulder dystocias occur in women with NO risk factors
- Ultrasound-derived fetal abdominal diameter–biparietal diameter difference not been found to be clinically useful
Suspected Macrosomia

- Meta-analysis showed reduction in SD if IOL at 37-38wks (no change in brachial plexus injury)
- ACOG recommends avoiding IOL before 39wks
- Diabetes or not?
  - If EFW >4500g AND diabetes, elective C/S NNT is 443 to prevent one permanent brachial plexus injury
  - If EFW >5000g for non diabetic women
The “Push Back” Maneuver

- 2018 RCT in France
- About 900 women randomized
- Those with “push back” had lower risk of SD
  - OR, 0.36; 95% CI, 0.14 to 0.92; P = 0.03

https://ars.els-cdn.com/content/image/1-s2.0-S0301211518302781-mmc3.mp4

https://ars.els-cdn.com/content/image/1-s2.0-S0301211518302781-mmc4.mp4
If Anticipating SD

- **Prepare** for SD (have step in room, talk out loud about risk and mnemonic, have appropriate personnel - nursing for mom and baby, NICU if high risk)
- **Do not pull** on the head, encourage vigorous pushing
- McRoberts’ POSITION vs MANEUVER, **move on quickly**
  - Woods’ Screw and Reverse Woods’ Screw
  - Removal of posterior arm
  - Posterior axillary sling: Menticoglou maneuver
Call for Help!

Evaluate and Explain the clinical situation

Legs — McRoberts maneuver

Suprapubic Pressure

Enter the birth canal posteriorly and assess the need for an Episiotomy

Remove the posterior arm
Rotational maneuvers
Roll the patient to hands and knees
Repeat
What Is Gentle Traction?

Studies of the force we apply....

(ALSO video)

- “threshold of force” thru sensor on provider
  - 99.89 N resulted in transient brachial plexus injury
- Simulation: mean force 47N “normal”, 67N if SD
- Case report: we don’t estimate well, and we over-estimate if stressful environment
- UK: 2/3 of simulations used >100N
- US: 40% pulled at least 100N, 15% > 100N
  - Not related to provider gender, ht, wt, BMI
External Maneuvers

- Bring patient to end of space
- McRobert’s
  - “simple, logical and effective” (ACOG)
  - “Heels to ears”
  - Displaces pubic symphysis superiorly 1-2cm
  - Sacral extension—flattens promontory
  - How far back is necessary?
  - Simple flexion, or abduction also?
Suprapubic Pressure

- Lateral vs straight down
- NOT FUNDAL
- “CPR” hand position
- Continuous vs rocking
- Posterior side of baby’s shoulder, switch if ineffective

communicate with nursing
Internal Maneuvers: Which First?

- One study: only time to delivery predicted severity, **use whatever maneuver works fastest**
- Another: **removal of posterior arm** “accomplishes delivery” most often, with least injury
- Equally, if not more important than the maneuver chosen, is the development of skilled teams who are practiced in the systematic approach to shoulder dystocia
Gaskin Maneuver

- Rolling over to 'all fours' position
  - Gaskin maneuver
  - Increases pelvic dimensions and may allow fetal position to shift, freeing the impacted shoulder

Provider needs to re-orient—formerly “posterior” shoulder is now anterior

May be difficult if dense epidural or broken bed

Consider practicing this position during labor
Posterior Axillary Sling ("Menticoglou")

Posterior Sling

- Head is gently held upward by an assistant
- Flex fourth and fifth fingers of each hand and press against the woman’s perineum at the 6 o’clock position
- Both middle fingers are both placed into the axilla
- The fingers overlap each other
- Traction downward and outward along the curve of the sacrum
“Last Resort”

Zavanelli
- Manual return of the fetus to the vagina, with subsequent cesarean
- First described in 1985
- Case series 1999

Abdominal Rescue
- Small series
- GA with hysterotomy
- Rotate infant transabdominally (screw)
- Delivery vaginally

Symphysiotomy
- Incision of symphysis
- Limited data
- Low resource countries
Quality Documentation

**Time**
- Manoeuvres
- Anterior Shoulder

**Maternal Condition**
- Chord pH

**Team Members present**
- Quality Documentation
Contemporaneous documentation of the management of shoulder dystocia is recommended

- record significant facts, findings, and observations about the shoulder dystocia event and its sequelae.

This information is critical for accurately informing patients and future health care providers regarding the delivery events and counseling patients about future risks.

Checklists or standardized documentation forms have been suggested as tools to help ensure that critical information is noted at the time of the delivery.
Documentation in Epic

Note: time is only in hour/minute? Unclear how to document seconds
### Shoulder Dystocia

**Shoulder dystocia present?**
- Yes  
- No

**Anterior shoulder:**
- Right
- Left

**Time recognized:**
- Now

**Time help called:**
- Now

**Physician/Provider arrived:**
- Now

**NICU arrived:**
- Now

**Gentle attempt at traction, assisted by maternal expulsive forces:**
- Yes  
- No

**First maneuver:**
- McRoberts maneuver
- Suprapubic pressure
- Delivery of posterior arm
- Woods screw maneuver
- Rubin maneuver
- Gaskin maneuver
- Fetal clavicular fracture

**Time performed:**
- Now

**Performed by:**

**Second maneuver:**
- McRoberts maneuver
- Suprapubic pressure
- Delivery of posterior arm
- Woods screw maneuver
- Rubin maneuver
- Gaskin maneuver
- Fetal clavicular fracture

**Time performed:**
- Now

**Performed by:**

**Third maneuver:**
- McRoberts maneuver
- Suprapubic pressure
- Delivery of posterior arm
- Woods screw maneuver
- Rubin maneuver
- Gaskin maneuver
- Fetal clavicular fracture

**Time performed:**
- Now

**Performed by:**

**Fourth maneuver:**
- McRoberts maneuver
- Suprapubic pressure
- Delivery of posterior arm
- Woods screw maneuver
- Rubin maneuver
- Gaskin maneuver
- Fetal clavicular fracture

**Time performed:**
- Now

**Performed by:**

*Add Fifth Maneuver*
Delivery Summary Documentation

Hector, Pending [2016081]

Labor Events
Labor/Delivery complications: Shoulder Dystocia

Shoulder Dystocia
Shoulder dystocia present?: Yes
Anterior shoulder: right
Time recognized: 4/10/2019 12:09:00
Time help called: 4/10/2019 12:09:00
Physician/Provider arrived: 4/10/2019 12:10:00
Additional staff arrived: 4/10/2019 12:11:00
Gentle attempt at traction, assisted by maternal expulsive forces?: Yes
First maneuver: McRoberts maneuver, suprapubic pressure
Second maneuver: Rubin maneuver
Third maneuver: Woods screw maneuver
Fourth maneuver: delivery of posterior arm

Presentation
Presentation: Vertex
Position: Left Occiput Transverse

Newborn Delivery
Time head delivered: 4/10/2019 12:09:00
Birth date/time: 4/10/2019 12:13:00
Delivery type: VBAC, Spontaneous

Delivery Providers
Delivering clinician:

<table>
<thead>
<tr>
<th>Provider</th>
<th>Role</th>
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<tbody>
<tr>
<td></td>
<td>Delivery Assist</td>
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<td></td>
<td>Delivery Nurse</td>
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</table>

Placenta
Placenta delivery date/time:
Placenta removal:

Apgars
Living status: Living
Medicolegal Risk

Documentation

○ Antenatal risk factors
  ■ Diabetes, History of dystocia, known macrosomia
    “Well controlled gestational diabetic not requiring medications with an estimated fetal weight of 3500g and pelvis proven to 3200g with uneventful vaginal delivery – not at increased risk of shoulder dystocia”

○ Features of management: duration of dystocia, maneuvers used, chord pH
  ■ Reference to “traction” - always document (and do) “gentle traction”
  ■ Higher risk? Document consideration at each stage.
    “Primp with GDM-A2 with suspected macrosomia, EFW of 3900g with slow first stage progress. Augmentation initiated. Following labor course closely.”

○ Who was called to the room for support e.g. NICU, additional nursing

○ Features of labor which might indicate suspicion such as slowly progressing labor.

Lack of clarity or **delay in consultation with or transfer to OB**

less with dystocia and more with NRFHT

**Assisted delivery in a diabetic**
Data Supporting Simulation

- Simulation and team training protocol are associated with **reduction in transient brachial plexus injury**
- After introducing mandatory clinical shoulder dystocia simulation for all personnel on a labor and delivery unit, the frequency of evidence-based management of shoulder dystocia was higher, and the **rate of neonatal brachial injury at birth** was lower
- In one large UK hospital, a decade after annual training was started, there were no cases of permanent BP injury in 562 cases of SD
Before Delivery

Prepare based on historical knowledge

- Major Risk Factors
  - Maternal History (10% chance of recurrence)
  - Fetal Macrosomia
  - Dysfunctional labor progression and patterns
  - Maternal Obesity
  - Gestational Diabetes
  - Excessive weight gain
Newborn resuscitation

- Team in room
- Rapid assessment of newborn
  - If need for cardiopulmonary support
    - vitals, warm and dry, stimulation
    - equipment
    - transfer to NICU
  - If no need for resuscitation
    - isolette
  - evaluate for injury
    - Delay versus rapid clamp and cut
- Cord gases (venous and arterial)
The Shoulder Dystocia Delivery - Newborn Risks

Potential complications:

- Fetal Brachial Plexus injuries (4.0 to 40%) - most common
- Permanent brachial plexus palsy (0.5 to 1.6%)
- Clavicular fracture (1.7 to 9.5%)
- Humeral fracture (0.1 to 4.2%)
- Hypovolemic due to chord compression
- Hypovolemic Shock
- Hypoxic-ischemic encephalopathy (0.3%), 1 in 22,000
- Long term neurologic deficits
- Death
Worcester Early Intervention Network

330 Plantation St.
Worcester, MA 01604
(508) 770-0089

567 Southbridge St.
Auburn, MA 01501
(508) 770-0089

480 Main St.
Holden, MA 01520
(508) 770-0089

Towns Served -- Auburn, Boylston, Holden, Leicester, Paxton, Shrewsbury, W. Boylston, Worcester
Who is Eligible?

Eligible children include those between birth and three years of age who were born with a disability or health condition that affects their development. Children who were born prematurely; have feeding, vision or hearing issues; are slow to crawl, sit, walk, talk or do things for themselves; have behavior or attention difficulties or have been identified as having environmental risk factors may also be eligible. **Parents are encouraged to call the early intervention program if they have any concerns related to their child’s development.**

- **THE EARLY INTERVENTION TEAM**
- Speech and Language Therapist
- Occupational Therapist
- Physical Therapist
- Developmental Specialist
- Registered Nurse
- Social Worker
- Mental Health Clinician
Non-surgical approaches

- Daily PT and regular OT
- **Erb’s Palsy** requires early immobilization and passive and active motion exercises.
- Recovery nearly 100% if started within first 4 weeks of birth.
- Observation
Specialty Care Boston

Boston Children’s Brachial Plexus Program
Contact: Contact the Brachial Plexus Program
617-355-6021

(Not necessarily a total transfer)

They treat children from birth to young adulthood with the following:

- Brachial plexus birth injury (BPBI)
- Traumatic brachial plexus injury
- Erb’s palsy
- Total plexus involvement
- Horner’s syndrome
- Klumpke’s palsy
- Acute flaccid myelitis
- Thoracic outlet syndrome