In A Nutshell

1. Shoulders usually enter the pelvis in an oblique diameter
2. The dystocia occurs when shoulders enter in an A-P diameter
3. Fortunately, the posterior shoulder negotiates past the sacrum
4. This is an emergency
5. Take control of the room, take control of yourself, think, plan, calmly call for help from another OB, a pediatrician, an anesthesiologist
With Appreciation and Warm Memories
A Quick Review of the Anatomy

1. subrascapular nerve
2. musculocutaneous nerve
3. axillary nerve
4. radial nerve
5. median nerve
6. ulnar nerve
Anatomy of Brachial Plexis

- C5
- C4
- C6
- C7
- T1
- C8
A Few Definitions: LGA

- Large for Gestational Age: Birth Weight equal to or greater than 90% for given gestational age

It is my opinion, in the absence of diabetes, that this determination is minimally helpful

- 37 weeks - 3,755 g
- 38 weeks - 3,876 g
- 39 weeks - 3,980 g
- 40 weeks - 4,060 g
- 41 weeks - 4,094 g
- 42 weeks - 4,098 g

Alexander GR. Obstet Gynecol 1996;87:163
A Few Definitions: Macrosomia

- Macrosomia: Birth weight beyond a specific weight, usually 4,000 g or 4,500 g (regardless of gestational age) …opinions of many
- Morbidity for infants and mothers increases when birth weight is 4,000 - 4,500 g; risks sharply increase beyond 4,500 g.
- The opinion that counts, “Recent cohort studies support use of 4,500 g as appropriate EFW for which fetus should be considered macrosomic”
  
ACOG Practice Bulletin #22, November, 2000
### Table 1. Shoulder Dystocia as Related to Birth Weight in Diabetic and Nondiabetic Gravidas Who Delivered Vaginally

<table>
<thead>
<tr>
<th>Birth weight (g)</th>
<th>Nondiabetic</th>
<th>Diabetic</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>ShD %</td>
<td>No.</td>
</tr>
<tr>
<td>4500 +</td>
<td>208</td>
<td>47</td>
<td>10</td>
</tr>
<tr>
<td>4000–4499</td>
<td>1074</td>
<td>107</td>
<td>26</td>
</tr>
<tr>
<td>3500–3999</td>
<td>4249</td>
<td>94</td>
<td>43</td>
</tr>
<tr>
<td>3000–3499</td>
<td>6252</td>
<td>40</td>
<td>47</td>
</tr>
<tr>
<td>2500–2999</td>
<td>2794</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>14577</td>
<td>294</td>
<td>144</td>
</tr>
</tbody>
</table>

ShD = shoulder dystocia.
* Compares incidence of ShD in nondiabetic gravidas to that of diabetic gravidas in the same birth weight division.

Acker, D, Sachs, B,Friedman EA Obstet Gynecol 66:762;1985 vs All are statistically significant
Ancient Literature

Lessons to Learn

1. A fluke of the culture of the hospital: mid-forceps deliveries at this hospital were “frowned upon” by Chair, Dr. Friedman
2. Labor pattern not predictive of adverse outcome if delivery was spontaneous
3. Vacuum delivery was uncommon in those days

Acker, D, Sachs, B, Friedman EA Obstet Gynecol 66:762;1985
### Table 5. Shoulder Dystocia Among Nondiabetic Gravidas Delivering Large Babies (4500 + g) as Related to Labor Pattern and Delivery Method

<table>
<thead>
<tr>
<th>Labor pattern</th>
<th>Spontaneous</th>
<th>Low Forceps</th>
<th>Midforceps</th>
<th>Total</th>
<th>( P ) Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>ShD</td>
<td>%</td>
<td>No.</td>
<td>ShD</td>
</tr>
<tr>
<td>Normal</td>
<td>123</td>
<td>21</td>
<td>17.1</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Prolonged latent phase</td>
<td>17</td>
<td>6</td>
<td>35.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Protraction disorder</td>
<td>22</td>
<td>6</td>
<td>27.3</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Arrest disorder</td>
<td>15</td>
<td>9</td>
<td>60.0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Precipitate labor</td>
<td>23</td>
<td>6</td>
<td>26.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total gravidas</td>
<td>186</td>
<td>42</td>
<td>22.6</td>
<td>16</td>
<td>3</td>
</tr>
</tbody>
</table>

ShD = shoulder dystocia.
* Based on \( \chi^2 \) analysis comparing total shoulder dystocia incidence with labor aberration to rate of shoulder dystocia with normal labor pattern.
† See footnote, Table 3. Excepting precipitate labor, the 68 disordered labors appeared in 52 women.

Acker, D, Sachs, B, Friedman EA Obstet Gynecol 66:762;1985
### Table 3. Birth Weight as a Predictor of Brachial Plexus Injury at Vaginal Delivery*

<table>
<thead>
<tr>
<th>Birth weight (g)</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
<th>PPV (%)</th>
<th>NPV (%)</th>
<th>Cesareans for BPI†</th>
<th>Cesareans for permanent BPI‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>All nondiabetic vaginal deliveries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥4000</td>
<td>48.0</td>
<td>89.7</td>
<td>0.6</td>
<td>99.9</td>
<td>162</td>
<td>733–3226</td>
</tr>
<tr>
<td>≥4500</td>
<td>18.7</td>
<td>98.7</td>
<td>1.9</td>
<td>99.9</td>
<td>51</td>
<td>233–1026</td>
</tr>
<tr>
<td>≥5000</td>
<td>4.0</td>
<td>99.9</td>
<td>5.4</td>
<td>99.9</td>
<td>19</td>
<td>85–373</td>
</tr>
<tr>
<td>Operative nondiabetic vaginal deliveries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥4000</td>
<td>41.9</td>
<td>89.3</td>
<td>1.3</td>
<td>99.8</td>
<td>74</td>
<td>339–1493</td>
</tr>
<tr>
<td>≥4500</td>
<td>9.7</td>
<td>98.8</td>
<td>2.6</td>
<td>99.7</td>
<td>38</td>
<td>174–766</td>
</tr>
<tr>
<td>≥5000</td>
<td>0</td>
<td>99.9</td>
<td>—</td>
<td>99.7</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>All diabetic vaginal deliveries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥4000</td>
<td>66.6</td>
<td>85.4</td>
<td>2.1</td>
<td>99.8</td>
<td>48</td>
<td>219–962</td>
</tr>
<tr>
<td>≥4500</td>
<td>22.2</td>
<td>98.0</td>
<td>5.0</td>
<td>99.6</td>
<td>20</td>
<td>91–400</td>
</tr>
<tr>
<td>≥5000</td>
<td>11.1</td>
<td>99.8</td>
<td>20.0</td>
<td>99.6</td>
<td>5</td>
<td>23–100</td>
</tr>
</tbody>
</table>

PPV = positive predictive value; NPV = negative predictive value; BPI = brachial plexus injury.
* Data calculated using only vaginal deliveries (spontaneous and operative) given the relative protection conveyed by cesarean delivery.
† Number of cesarean deliveries required to prevent a single brachial plexus injury diagnosed around the time of birth (1/PPV).
‡ Estimated range of the number of cesarean deliveries required to prevent a single permanent brachial plexus injury calculated using a persistence rate of 5–22% [(1/PPV) × (100/5)] to [(1/PPV) × (100/22)].

Other than true birth weight risk factors

- Previous Shoulder Dystocia
- Pre-existing Diabetes or Gestational Diabetes
- Prior History of Macrosomia
- Maternal Pre-Pregnancy Weight +/- Weight Gain

- Recurrence rate of 1% - 17%
- Regardless of birth weight, rate of injury is increased
- 5 - 10 x more likely to have infant > 4,500 g
- Obese women more likely and morbidly obese (> 300 pounds) 8 x more likely

Okun N et al J MFM 1997;6:285
ACOG Practice Bulletin #40, Nov 2002
Informed Consent

• It is a process, not a piece of paper. The piece of paper is called ‘consent for a procedure.’
• It is part of the ongoing clinician-patient relationship, which frees the patient from coercion, manipulation, and infringement on her body and her integrity.
• It facilitates respect for personal preferences and choices.
• It causes active participation in decisions about one’s own care.
• It is what you would want your wife, daughter, or daughter-in-law to receive.
Judging Adequacy of Informed Consent

• Consistent with Common Practice
• Meets the Reasonable Needs of the Ordinary Person
• Addresses the Unique Needs of an Individual Patient
• In accordance with the “Golden Rule” …maybe, maybe not as you are setting yourself up as “the standard,” and is that valid?
For those infants with true birth weight >4500 g who are delivered vaginally, the likelihood of a permanent Erb’s Palsy is 1/1000. So

The complete absence of a pre-delivery discussion coupled with such a tragedy is unfair to all, but...

By whom, when, what, and under what circumstances should the “informed consent” process begin/occur?
Informing The Patient: Some Practical Points

It is not what you say, it is how you say it.

- 10% Chance of Shoulder Dystocia
- If SD occurs, 7% chance of an immediate Erb’s Palsy
- If immediate Erb’s Palsy, 15% chance of a permanent Erb’s Palsy
- There is a risk of permanent paralysis

- 90% Chance of Not Having a Should Dystocia
- If SD occurs, 93% chance of not having an Erb’s Palsy
- If immediate Erb’s palsy occurs, 85% chance it resolves
- 999/1000 no permanent paralysis occurs
Avoiding Second Stage Labor Traps

- **High Dose** Pitocin > Fetal Stress > Forceps/Vacuum
- Maternal Exhaustion at 2+ -3+ --> Forceps/Vacuum
- Fundal Pressure to Bring the Head Down
- The head comes down with contractions and then goes back up...so an episiotomy is cut to facilitate NSD
- No Progress Notes...so there is nothing to remind you of your well thought-out plan
Documenting: Why Do It?

• Even Though 85% of Immediate Erb’s palsy resolves .... that leaves 15%
• It is Prudent, as Months or Years Later, No One Really Remembers What Happened
• It takes only a few minutes, compared to days/weeks in court
Basic Elements of Documentation

- Time of Delivery of Head
- Time of Delivery of Baby
- Who was in Attendance
- Ask those in Attendance to Write What They Observed
- Describe Sequence of Maneuvers, not just names
- Describe Traction/Force Utilized ... how can this be done? I will tell you ....
The Baby is Injured...Now What

- Inform the patient in an unhurried manner
- Express confidence/hope for recovery...remember 85% chance of recovery, but do not say something like, “...everything will be alright...”
- Explain what happened
- Say, “I am sorry.....” For what .... How about for their distress, their fear, their anxiety, etc, etc
- Keep in touch with the patient
Shoulder Dystocia
ACOG Practice Bulletin #40, Nov. 2002

• Can it be predicted?
• Does labor predict it?
• Does labor induction affect risk?
• Any benefit to C/S to in presence of macrosomia?
• How do you treat it? Any special maneuvers?
• Previous shoulder dystocia. What to do now?

• Risk factors not useful.
• Labor curve is not useful.
• Labor induction for macrosomia - ineffective.
• EFW > 4000, no diabetes, not recommended.
• Erb’s can occur regardless of procedures used.
• Fielder’s choice
Shoulder Dystocia: The Maneuvers ....It is tricky
First: Instruct the Mother to Stop Pushing
Assess the Need for An Episiotomy: Not Always Necessary
McRobert’s Maneuver: Hyperflexion
McRobert’s Maneuver II: Suprapubic Pressure
And Then

You Must Apply Downward Traction
Just as You Would Do If There had Not Been a
Shoulder Dystocia
Because if the Maneuver has been Successful,
There is No Shoulder Dystocia
But, What if It Hasn’t Been Successful?
Must Stop Pulling !!
Need a Sign
Instruct the Mother to Stop Pushing, Again
Deliver the Posterior Arm

For this, you need an episiotomy
Posterior Arm Delivered

Now, downward traction
Shoulder Dystocia: Rotation of Anterior Shoulder

Which of the two maneuvers is easiest to do?
Which has risk of tearing the Brachial Plexus if you do it forcefully
So, which should go first??
Shoulder Dystocia: (Carl) Woods’ Screw Maneuver

Never Use Fundal Pressure, until you Know the Dystocia has been Resolved

Rotate Posterior Shoulder Counterclockwise, turning it to anterior position
The Maneuver

Old Posterior Shoulder is Now the Anterior Shoulder and It is inferior to the Pubic Symphysis

Head was LOT, now is ROT

May Deliver in Usual Fashion, or

Rotate New Posterior Shoulder Clockwise back to Anterior Position
Gaskin Maneuver: On All Fours
Zavanelli Maneuver