Management of the Term Breech

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UCSF

Financial Disclosures

• The speaker has no financial disclosures relating to the content of this seminar.
Question 1
Which of the following factors is most related to a fetus being in the breech presentation?

1. Multiple gestation
2. Polyhydramnios
3. Prematurity
4. Uterine anomaly
5. Grand multiparity

Question 2
When a term fetus is discovered to be in the breech presentation, what is the increased risk of and it having anomaly?

1. none
2. 1.5 fold
3. 2.5 fold
4. 3.5 fold
5. 4.5 fold
Question 3
Which of the following clinical findings are required to allow a trial of labor in a term breech?

1. Adequate pelvic size
2. Fetus that is not excessively large
3. Normal labor
4. Absence of an extended neck
5. All of the above

Question 4
Which of the following improve the success rate when doing an external cephalic version?

1. Multiparity
2. Fetus that is not excessively large
3. Cervical dilation <1
4. High station
5. All of the above
As a result of the findings of the study (Hannah; 2000), planned vaginal delivery of singleton breech may no longer be appropriate. In those instances in which breech vaginal deliveries are pursued, great caution should be exercised. Patients with persistent breech presentation at term in a singleton gestation should undergo a planned cesarean delivery.
**Congenital Anomalies**

Breech 6.3% versus 2.4% In Non-Breech

- Central nervous system
  - Hydrocephalus
  - Anencephaly
  - Meningomyelocele
- Cardiovascular
- Urinary tract
  - Potter’s syndrome

**Congenital Anomalies**

Breech 6.3% versus 2.4% In Non-Breech

- Respiratory system
- Multiple anomalies
  - Trisomy 18 & 21
  - Fetal alcohol syndrome
  - Myotonic dystrophy
  - Prader-Willi syndrome
  - Werdnig-Hoffman syndrome
**Issue Of Parity**

Rovinsky (1973) - 1,720 Vaginal Breeches

- **Mortality**
  - Primagravidas - 4.7 per 1,000
  - Multigravidas - 4.6 per 1,000

- **Morbidity**
  - Primagravidas - 11.0 per 1,000
  - Multigravidas - 15.0 per 1,000

- **Asphyxic Morbidity**
  - Primagravidas - 3.5 per 1,000
  - Multigravidas - 11.5 per 1,000

**Review Of Literature**

**Term Breech**

- Cibils (1994) - 843 cases
  - Do difference in perinatal mortality
- Rosen (1985) - 140 cases
  - No difference in outcome relating to route of delivery in follow-up of ≥ 2 years
**Review Of Literature**

**Prospective Randomized Study**

- **Collea (1980) - 208 term breeches**
  - Random assignment to route of delivery
  - No difference in perinatal mortality
  - 2 cases of brachial plexus injury in vaginal group
  - 49.3% febrile morbidity in C/S group

**Multi-Institutional Data**

- **Gilbert (2003) - 100,667 cases**
  - CA birth/death certificate data base
  - 3% of all deliveries
  - ≥ 37 weeks
  - Birth weight 2,500 through 3,800 grams
  - Footling and incomplete breech excluded
**Review Of Literature**

**Breech Cases**

100,667 cases

- **Vaginal Breech**
  - 4,952 cases (4.9%)

- **Cesarean Section**
  - 95,715 cases (95.1%)

- **Labor**
  - 35,297 cases (36.9%)

- **No Labor**
  - 60,418 cases (63.1%)

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**Gilbert; 2003**

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**Review Of Literature**

**Neonatal Mortality**

<table>
<thead>
<tr>
<th>Parity</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nulliparous</td>
<td>9.2</td>
<td>3.5-25.6</td>
</tr>
<tr>
<td>Multiparous</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

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**Gilbert; 2003**
### Review Of Literature

**Neonatal Morbidity**

<table>
<thead>
<tr>
<th>Parity</th>
<th>Odds ratio</th>
<th>95% CI</th>
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<tbody>
<tr>
<td>Nulliparous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asphyxia</td>
<td>5.7</td>
<td>4.5-7.3</td>
</tr>
<tr>
<td>Brachial plexus injury</td>
<td>33.9</td>
<td>15.2-76.1</td>
</tr>
<tr>
<td>Birth trauma</td>
<td>5.8</td>
<td>4.7-7.1</td>
</tr>
<tr>
<td>Multiparous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asphyxia</td>
<td>3.9</td>
<td>3.0-5.1</td>
</tr>
<tr>
<td>Brachial plexus injury</td>
<td>22.4</td>
<td>9.9-50.5</td>
</tr>
<tr>
<td>Birth trauma</td>
<td>4.2</td>
<td>3.4-50.5</td>
</tr>
</tbody>
</table>

Goffinet; 2006

### Outcomes

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Total Cases</td>
<td>8,105</td>
</tr>
<tr>
<td>Planned Vaginal delivery</td>
<td>5,579 (68.8%)</td>
</tr>
<tr>
<td>Delivered by C/S</td>
<td>732 (29.0%)</td>
</tr>
<tr>
<td>Planned C/S</td>
<td>2,526 (31.2%)</td>
</tr>
<tr>
<td>Delivered vaginally</td>
<td>31 (0.6%)</td>
</tr>
</tbody>
</table>

Goffinet; 2006
Review Of Literature

Outcomes

• Combined neonatal mortality and morbidity low in both groups
  - Odds ratio 1.10  95% CI (0.75-1.61)
• Statistical significant increases in :
  - 5-minute Apgar score < 7
  - Total injuries

Goffinet; 2006

Breech Version (1)
### Version Scoring System

<table>
<thead>
<tr>
<th>Variable</th>
<th>0</th>
<th>1</th>
<th>≥ 2</th>
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</thead>
<tbody>
<tr>
<td>Parity</td>
<td>0</td>
<td>1</td>
<td>≥ 2</td>
</tr>
<tr>
<td>Dilation (cm)</td>
<td>≥ 3</td>
<td>1-2</td>
<td>0</td>
</tr>
<tr>
<td>EFW (gms)</td>
<td>&gt; 3,500</td>
<td>2,500 - 3,500</td>
<td>&lt; 2,500</td>
</tr>
<tr>
<td>Placenta</td>
<td>Anterior</td>
<td>Posterior</td>
<td>Lateral</td>
</tr>
<tr>
<td>Station</td>
<td>≤ -1</td>
<td>-2</td>
<td>≤ -3</td>
</tr>
</tbody>
</table>

#### External Version Success

**Newman**

![Bar chart showing external version success scores](chart.png)
UCSF Approach To Choosing Candidates For Vaginal Breech Delivery

Identification Of Candidates For Trial Of Labor

- Big Pelvis
- Small Baby
- Normal Attitude
- Normal Labor
- Controlled Delivery
  - Epidural anesthesia
  - Uterine relaxation promptly when needed
  - Episiotomy when needed
- Parity and type of breech not an issue
Materials And Methods

Labor Protocol

- Patient discussion of risk, benefits and alternatives
- CT pelvimetry
  - Transverse inlet 12 cm
  - AP inlet 11 cm
  - Interspinous 10 cm
- EFW by ultrasound \( \leq 3,850 \text{ gms} \)

CT Pelvimetry
CT Pelvimetry

Interspinous

CT Pelvimetry

Transverse of Inlet
**Oxytocin**

**Allowed**
- Induction of labor
- Augmentation of active phase arrest due to hypotonic uterine activity as documented by IUPC

**Outcomes in Latest UCSF Series**

Hopkins et al. - 2003

- 1980 to 2001
- 697 were considered for trial of labor
UCSF Breech Experience 1980-2001 (3)

- Breech Evaluated For Trial of Labor: 795
  - Planned C/S: 511 (70%)
  - Trial of Labor: 214 (30%)
    - Vaginal Delivery: 138 (65%)
    - C/S After Labor: 76 (35%)

Cases Excluded:
- Fetal anomalies
- IUFD before labor
- Maternal factors: 70

Reasons For Planned C/S

- Breech: 460
- Previous C/S: 41
- CPD not in labor: 4
- Other: 6
Reasons For Failed Vaginal Delivery

- Malpresentation 28
- Failed progress of labor 27
- Cord prolapse 9
- Fetal distress 4
- Fetal intolerance of labor 4
- Active bleeding 3
- Failed induction 1

Maternal Demographics

- No Differences
  - Parity
  - Ethnicity
  - Mean gestational age at delivery
Perinatal Mortality

No Difference
C/S Delivery: Late neonatal death from coagulopathy secondary to congenital fibrosis of the liver
Vaginal delivery: Infant with polycythemia experienced air embolism during exchange transfusion

Maternal Morbidity

No Difference
1-day fever
DVT
Wound hematoma
Blood transfusion
Perinatal Morbidity

No Differences
5-minute Apgar score <4
Neonatal seizures
Facial nerve injury
Brachial plexus injury
RDS
Cephalohematoma
Neonatal fracture

Hannah Study - 2000

Material and Methods

• 121 centers in 26 countries
• 2,088 women with frank or complete breech
• Patients excluded
  • Lost to follow-up  5
  • Lethal congenital anomalies 5
• Analysis by intention to treat
• Primary outcomes were neonatal or perinatal mortality
Hannah Study - 2000

Delivery

- Planned C/S - 1,041
  - 941 (90.4%) by C/S
- Planned Vaginal Trial - 1,042
  - 451 (43.3%) by C/S

Hannah Study - 2000

Perinatal Morbidity and Mortality

- 1,039 cases
- 17 (1.6%) C/S vs 52 (5.0%) Vaginal Trial
- Relative Risk 0.33
- 95% CI 0.19-0.56; p < 0.001
Hannah Study - 2000

Maternal Morbidity and Mortality

- No significant differences between groups

Detail Of Stillbirths And Neonatal Deaths

- 16 events occurred with 3 in the C/S group and 13 in the trial of labor group

- 1 in the C/S group and 6 in the vaginal trial don’t seem to be related to the planed method of delivery
Causes Of Perinatal Deaths

Planned Vaginal Delivery

• Baby discharged home well and died during sleep. Age at death not given.
• Baby discharged home well and died of severe diarrhea. Age at death not given.
• Two cases of neonatal death because of “respiratory distress”. Birth weights 2,700 and 2,500 g.

Causes Of Perinatal Deaths

Planned Vaginal Delivery

• IUFD death of a twin probably before randomization FHR lost during 2nd stage of labor.
• IUFD of 3,650 g cephalic presentation prior to labor.
**Causes Of Perinatal Deaths**

**Planned Cesarean Section**

- Neonatal death of meningomyelocele that ruptured during delivery by C/S

**Causes Of Serious Perinatal Morbidity**

**Planned Vaginal Delivery**

39 Cases

- Hypotonia - 18 cases
  - Already gone in 2 hours in 7 of these babies
- Abnormal level of consciousness - 13 cases
  - Pediatricians not blinded to delivery route
Causes Of Perinatal Morbidity

Planned Cesarean Delivery

14 Cases

- Hypotonia - 2 case
- Abnormal level of consciousness - 6 cases
- Pediatricians not blinded to delivery route

Presentation at 2004 SMFM

Secondary Analysis of Hannah’s Data

At four years of age there was no significant difference in the developmental or neurological status of infants in the two groups.
**Differences in UCSF and Hannah Study**

<table>
<thead>
<tr>
<th>Study Characteristics</th>
<th>UCSF</th>
<th>Hannah</th>
</tr>
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<tbody>
<tr>
<td>Pelvimetry</td>
<td>74%</td>
<td>9%</td>
</tr>
<tr>
<td>Ultrasound for EFW</td>
<td>96%</td>
<td>59%</td>
</tr>
<tr>
<td>Ultrasound for fetal attitude</td>
<td>95%</td>
<td>69%</td>
</tr>
<tr>
<td>Conduction anesthesia</td>
<td>72%</td>
<td>25%</td>
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**Obstetric Conundrums**

The Term Breech Trial is an example of a randomized trial that was impeccable as regards its methodological design, but was questionable as regards its clinical design. Thus, more attention was paid to aspects of power calculation, randomization and interim analysis, and less to clinical outcomes such as reasons for perinatal death and definition of serious neonatal morbidity.

John M. Grant, Editor-In-Chief

Obstetric Conundrums

As regards the infant, the main concern of vaginal breech delivery is trauma and birth asphyxia due to mechanical difficulties in the second stage of labor; the main concern of elective cesarean section is respiratory distress. These should have been the primary outcomes of the trial, defined by unequivocal criteria with which every obstetrician and pediatrician would agree. If these criteria had been adopted, doubts about the Term Breech Trial would disappear.

John M. Grant, Editor-In-Chief

How Can We Ever Get Adequate Experience

At cesarean sections
How Can We Keep Up Our Skills

This isn’t about technical skills, it’s about choosing patients properly

Inclusion Of The Patients Preferences

• Clinical considerations of safety and efficacy
  • Considerations of cost-effectiveness
• Considerations of clinical and social consequences of expanded choice
• Considerations of patient values and and preferences including:
  - The extent the patient is willing to trade one set of possible outcomes for another
  - How important potential outcomes are to her
  - Decisions over mode of delivery should be made in the context of what matters most to the patient and not just to numeric trade-offs on discrete medical outcomes, institutional targets of provider views of an “optimal birth”.}

Little et al.; 2008
How Can We Keep Up Our Skills

This isn’t about technical skills, it’s about choosing patients properly.

Using this approach has allowed UCSF to provide safe vaginal deliveries for women with a term breech who prefer a trial of labor without any increase in neonatal mortality or significant neonatal morbidity.
**Question 1**

Which of the following factors is most related to a fetus being in the breech presentation?

1. Multiple gestation
2. Polyhydramnios
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5. Grand multiparity

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c. Cervical dilation $<1$
d. High station
e. All of the above
ACOG Committee Opinion Number 265: Mode of Term Singleton Breech Delivery. ACOG, Washington, DC; 2001

ACOG Committee Opinion Number 340: Mode of Term Singleton Breech Delivery. ACOG, Washington, DC; 2008


