Overview

- **Presentation:**
  - The Evidence & Highlights of the 2009 SOGC Breech Guideline (50 min)

- **Workshop:**
  - Case presentations & discussion (40-60 min)
  - WHO Video & Still photographs (20 min)
  - Hands-on demo & practice (per time & interest)
Presentation Objectives

- Review the best evidence on breech birth:
  - The lessons of the Term Breech Trial
  - Newer evidence; a safer protocol

- Selection criteria for breech TOL

- Breech labour management guidelines

- Optimal breech delivery techniques

- Informed consent
Early TBT Results

<table>
<thead>
<tr>
<th>Low PNM countries: N=1027</th>
<th>PNM</th>
<th>“Serious NN morbidity” &lt;30d</th>
<th>Combined S/T Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned C/S</td>
<td>0</td>
<td>0.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Planned VBB</td>
<td>0.6%</td>
<td>5.1%</td>
<td>5.7%</td>
</tr>
</tbody>
</table>

~1/20 chance of having a dead or ‘damaged’ baby with TOL
Early TBT Results

- Large, multicentre RCT (“level I” evidence)
- Definitive difference in short-term neonatal outcome: C/S vs. TOL
- Quickly changed practice guidelines in Canada, the U.S. and U.K.
- Dominate North American breech management
TBT Problems

- Variable quality of care among centers and between trial arms
- Liberal case selection & labour management protocol
- Surrogate short-term outcome
Variable Care

**Hospital A**
- Swiss tertiary care unit
- Pre & early labour U/S
- CEFM
- 24/7 Paeds & Anaesth
- Consultant with 100 VBB available to come in

**Hospital B**
- Romanian community hospital
- Clinical assessment only
- Intermittent auscultation
- Call-in Paeds & Anaesth
- Junior staff or Senior Resident for delivery
All breeches the same??

**Parturient A**
- Multiparous
- 37 weeks GA
- Frank breech
- EFWt. 3200g
- Spontaneous labour
- Rapid progress

**Parturient B**
- Nulliparous
- 41 weeks GA
- Complete breech
- EFWt. 4 Kg.
- Oxytocin induction
- Slow progress
TBT Protocol

• No routine ultrasound:
  • Inappropriate inclusion of IUGR fetuses → ↑ morbidity & mortality
  • Inclusion of stillborn twin, demise pre-labour
• No universal CEFM (only in 1/3 of labours)
• No universal in-house OB/Anesthesia/Peds
• Allowed slow labour progress → poorer outcome
Short-term surrogate outcome

- Combined short-term primary neonatal outcome:
  - PNM
  - “Birth trauma?”
  - “Hypotonia ≥ 2h?”
  - “Stupor or coma?”
  - 5 min APGAR < 4
  - ETT + Ventilation > 24h
  - Cord blood BD ≥ 15
  - Seizures
  - Tube feeding > 4d
  - NICU > 4d
TBT: 2-year infant F/U results
(Whyte H. AJOG 2004;191:864-71)

Subset of all countries N=923

<table>
<thead>
<tr>
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<th>Death or Abn. Neurol. Devel.</th>
<th>“Medical problems”</th>
<th>Combined S/T Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned C/S</td>
<td>3.1%*</td>
<td>21% †</td>
<td>0.4%</td>
</tr>
<tr>
<td>Planned VBB</td>
<td>2.8%*</td>
<td>15% †</td>
<td>5.7%</td>
</tr>
</tbody>
</table>

* NS; 97% chance of normal 2 year-old, either way
† p = 0.02
Serious Neonatal Morbidity
≠ Long-term outcome
= Poor surrogate marker

- 17/18 infants with “serious neonatal morbidity” were neurologically normal at 2 years of age
## Estimation of Long-term risk

<table>
<thead>
<tr>
<th>Study</th>
<th>N=</th>
<th>Duration of follow-up</th>
<th>Long-term morbidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>C/S (%)</td>
</tr>
<tr>
<td>Term Breech Trial</td>
<td>923</td>
<td>&gt; 2 yrs</td>
<td>3.1*</td>
</tr>
<tr>
<td>Malmö, Swed.</td>
<td>711</td>
<td>1.5 – 11.5 yrs</td>
<td>1.0</td>
</tr>
<tr>
<td>Graz, Austria</td>
<td>699</td>
<td>1 – 8 yrs</td>
<td>0.5†</td>
</tr>
<tr>
<td>Birmingham, UK</td>
<td>1433</td>
<td>2 – 10 yrs</td>
<td>3.8**</td>
</tr>
</tbody>
</table>

* 17/18 infants with serious NN morbidity → normal at age 2
† 10/12 infants with serious NN morbidity → normal at age 3
** 50/54 abnormal children had AG5 > 7; 44/54 had no NICU admission; overall 1 case of cerebral palsy in TOL group
Why short-term but not long-term morbidity?
Why short-term but not long-term morbidity?

- Cord compression during breech birth often results in an acute, predominantly respiratory acidosis from which a healthy term newborn easily recovers

(Caveat: Not IUGR!)
TBT Conclusion: with TOL

- No difference in PNM: (0.4% vs. 0%)
- Greater risk of short-term infant morbidity:
  - > 90% of which resolved by 2 years of age
- Lower incidence of childhood “medical problems,” not otherwise specified
- Same chance of a normal 2 year old (97%)
PREMODA Study
(Goffinet F, et al. AJOG 2006;194:1002-11)

- Non-randomized, prospective study
- 174 French and Belgian maternity units
- 8105 women with singleton term breech fetus
- All eligible women with breeches included
- Audit of current practice – no modifications
- Meticulous, comprehensive data collection*
- Intent to treat analysis
- Primary outcome same as TBT
PREMODA Results

- Planned C/S for 5579 (69%)
- Planned vaginal birth for 2525 (31%)
- Vaginal birth in 1796:
  - 71% of women planning vaginal birth
  - 22.5% of all women with a breech

- Vaginal birth rate variable among centres:
  - Varying patient motivation
  - Varying practitioner expertise & comfort
PREMODA Study: Results
(Goffinet F, et al. AJOG 2006;194:1002-11)

- Neonatal APGAR<sup>5</sup> < 4: 0.16% 0.02%*
- Perinatal mortality: 0.08% 0.15%
- PNM & serious NN morbidity: 1.6% 1.45% (TBT: 5.7% 0.4% )

N = 8105 * only significant different outcome
## PREMODA Study: Results

(Goffinet F, et al. AJOG 2006;194:1002-11)

<table>
<thead>
<tr>
<th></th>
<th>PREMODA</th>
<th>TBT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEFM</td>
<td>100%</td>
<td>33%</td>
</tr>
<tr>
<td>Active 2\textsuperscript{nd} stage &gt; 60min:</td>
<td>0.2%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Failure to progress &gt; 2h:</td>
<td>3.8%</td>
<td>??</td>
</tr>
<tr>
<td>Pre/early labour U/S:</td>
<td>100%</td>
<td>??</td>
</tr>
<tr>
<td>Crossover C/S \rightarrow vaginal</td>
<td>0.6%</td>
<td>$\approx$15%</td>
</tr>
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</table>
Vaginal Delivery of Breech Presentation

SOGC Clinical Practice Guideline No. 226, June 2009

Andrew Kotaska MD, Yellowknife NT
Savas Menticoglu, MD, Winnipeg MB
Robert Gagnon, MD, Montreal QC
Selection Criteria

- **Mandatory pre/early ultrasound:**
  - **No IUGR**
  - Frank or complete breech
  - No presenting cord
  - EFWt 2800 – 4000g
  - Flexed/neutral fetal head

- **Motivated, informed patient**

- **Experienced practitioner available**
“Footling Breech”

- Feet leading ≠ Footling breech
- “Footling” = at least one extended hip
- Rare at term in normally grown fetus with closed cervix and intact membranes
- Rarely an indication for elective C/S at term
Footling
Labour Management

- Continuous electronic fetal monitoring
  - FECG helpful especially in 2\textsuperscript{nd} stage (STAN?)
- Intravenous access
- Obstetrician MRP
- Adequate progress in labour
  - Maximum 7 hours from 5 cm to fully
  - Maximum 1 hour passive 2\textsuperscript{nd} stage
  - Maximum 1 hour active second stage
- Experienced clinician makes Dx of “fully”
Delivery

- OR/paeds/anesthesia in-house for active second stage
- IV oxytocin augment ready hanging
- Spontaneous delivery optimal
- Power from above prn:
  - Bracht manuever – needs assistant
  - Rapid oxytocin augment
- Other maneuvers reserved for expulsive delay despite power from above
Delivery

- All-fours position?
- Løvset’s or Bickenbach/Classic maneuver for nuchal/tardy arms prn
- Mauriceau-Smellie-Veit for head prn
- Piper’s?
- Cord gases
Løvset’s Maneuver
Løvset’s Maneuver
GET HIPPOS

• Growth assessment
• Electronic Fetal Monitoring
• Type of breech
• Help: OB/ Anaesthesia/ Paeds/ OR
• I.V. access & oxytocin ready
• Progress in labour (adequate)
• Power from above (Bracht Maneuver)
• Oxytocin hanging ready
• Smellie-Veit- Mauriceau for the head prn.
Informed Consent

- No longer sufficient to simply inform women with a breech at term that they “should undergo a planned cesarean section.”
- Strong ethical and legal obligation to give a more complete view of the evidence
- Our duty to support women’s autonomy by re-establishing vaginal breech birth as a mainstream choice
2009 SOGC Breech Guideline

- “...a woman with a breech presentation should be informed of the risks and benefits of a trial of labour and elective C-section, and informed consent should be obtained. A woman’s choice of delivery mode should be respected.”

2006 RCOG Breech Guideline

- “If a unit is unable to offer the choice of a planned vaginal breech birth, women who wish to choose this option should be referred to a unit where this option is available.”
Conclusions

- Vaginal breech birth can be safe
- Caution is key
- Learn from units with expertise
- Support clinicians still skilled and willing to offer breech birth to women
- Systems of back-up call for mentorship
- (Initially) Regionalize breech births
Vaginal Breech Birth: like walking across a slippery log
Some say we should all walk on a boardwalk

(elective C/S)
But which breeches are easier and safer?
- Selection criteria?
- Progress in labour?

(multip @ 37wks; frank Breech; EFWt = 3200g, rapid labour; Cx @ 6 cm)
Which are more difficult?

(Nullip; 41wks; knee-footling; EFWt: 4100g; Cx = 7 cm)

(Don’t try this at home!)
Do some maternity units have special expertise, tools or techniques?

(Who wears cork boots and how can we get a pair?)
With a cautious approach:

- Universal pre/early-labour ultrasound:
  - Breech type? IUGR? Flexed head? EFWt?
- Continuous monitoring in labour
- Immediate availability of rapid C/S
- Anaesthesia & Paeds at all deliveries
- Truly experienced practitioner
- Close attention to labour progress:
  * Not required by TBT protocol
For many, the trip can be acceptably safe.
Case Presentations & Discussion
Key Points

- Understanding the physiology of breech birth is as important as knowing manual techniques.
- The most important predictor of an uncomplicated vaginal breech birth is good progress in labour.
- Inexperience and caution belong together: one’s C/S rate in labour is appropriately higher when starting out (c.f. abdominal vs. vaginal hysterectomy rate)
Case #1

- 26 Y/O G₁ @ 39 weeks.
- Presents in spontaneous labour
  - frank breech - engaged;
  - flexed head; EFWt = 4100g;
  - CTG normal; AFI = 124
  - Membranes intact; Cx: 5 cm
- More information?
- Options?
Case #2

- 32 Y/O G₂T₁ @ 41 weeks.
- Routine assessment for fluid/NST shows:
  - frank breech - engaged;
  - flexed head;
  - EFWt = 2700g;
  - CTG normal; AFI = 69.

- More information?
- Options?
Case #3

- 19 Y/O Aboriginal G₁ @ term, not in labour, with normally grown fetus. U/S report states “footling breech.” Normal fluid/NST.

- More information?
- Options?
- Offer or recommend?
Consent for Labour

Risks: fetal
- Prolonged cord compression during expulsion causing: Perinatal mortality/HIE: 1/500?
- Birth trauma??
  - Rarely significant

Risks: maternal
- Higher likelihood of epis.?  

Benefits: maternal
- Lower risk of C/S & less:
  - Infection & hemorrhage
  - VTE & surgical complications
  - Prolonged recovery
  - Future placenta accreta
  - Death

Benefits: fetal
- Respiratory maturity
- Neonatal immune activation
Labour & Delivery

- Progress in labour:
  - 1\textsuperscript{st} stage
  - 2\textsuperscript{nd} stage

- Membranes: ARM?
- Assessing full dilation
- Expulsion phase physiology
- The emergency tool kit: 3 + 1
- What if…?
Delivery

- Løvset’s or Bickenbach/classic maneuver for nuchal/tardy arms prn
- Mauriceau Smellie Veit for head prn
- Piper’s?
- Symphysiotomy preparations: Foley
- Cord gases
Issues:

- Induction?
- Epidural analgesia?
- Augmentation?
- $\text{EFWt} > 4000\text{g}$?
- $\text{EFWT} < 3000\text{g}$?
- Time off of CEFM?
Informed Consent?

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