

Vaginal Breech Birth: Evidence, Pearls, & Pitfalls

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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

(Hannah M, et al. Lancet 2000; 356:1375-83)

| | Low PNM countries: N=1027 | | |
|-------------|---------------------------|--------------------------------|----------------------|
| | PNM | “Serious NN morbidity” <30d | Combined S/T Outcome |
| Planned C/S | 0 | 0.4% | 0.4% |
| Planned VBB | 0.6% | 5.1% | 5.7% |

~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 \geq 2h?”
- “Stupor or coma?”
- 5 min APGAR $<$ 4
- ETT + Ventilation $>$ 24h
- Cord blood BD \geq 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 | | |
|-------------|-------------------------------|--------------------|----------------------|
| | Death or Abn. Neurol. Devel. | “Medical problems” | Combined S/T Outcome |
| Planned C/S | 3.1%* | 21% † | 0.4% |
| Planned VBB | 2.8%* | 15% † | 5.7% |

* 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

| Study | N= | Duration of follow-up | Long-term morbidity | |
|-------------------|------|-----------------------|---------------------|---------|
| | | | C/S (%) | TOL (%) |
| Term Breech Trial | 923 | > 2 yrs | 3.1* | 2.8* |
| Malmö, Swed. | 711 | 1.5 – 11.5 yrs | 1.0 | 0.3 |
| Graz, Austria | 699 | 1 – 8 yrs | 0.5† | 1.9† |
| Birmingham, UK | 1433 | 2 – 10 yrs | 3.8** | 5.3** |

* 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)

| | <u>VB:</u> | <u>C/S:</u> |
|------------------------------------|------------|-------------|
| ■ Neonatal APGAR ⁵ < 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)

| | <u>PREMODA</u> | <u>TBT</u> |
|---|----------------|------------|
| ■ CEFM: | 100% | 33% |
| ■ Active 2 nd stage > 60min: | 0.2% | 5.0% |
| ■ Failure to progress > 2h: | 3.8% | ?? |
| ■ Pre/early labour U/S: | 100% | ?? |
| ■ Crossover C/S → vaginal | 0.6% | ≈15% |

Vaginal Delivery of Breech Presentation

SOGC Clinical Practice Guideline
No. 226, June 2009

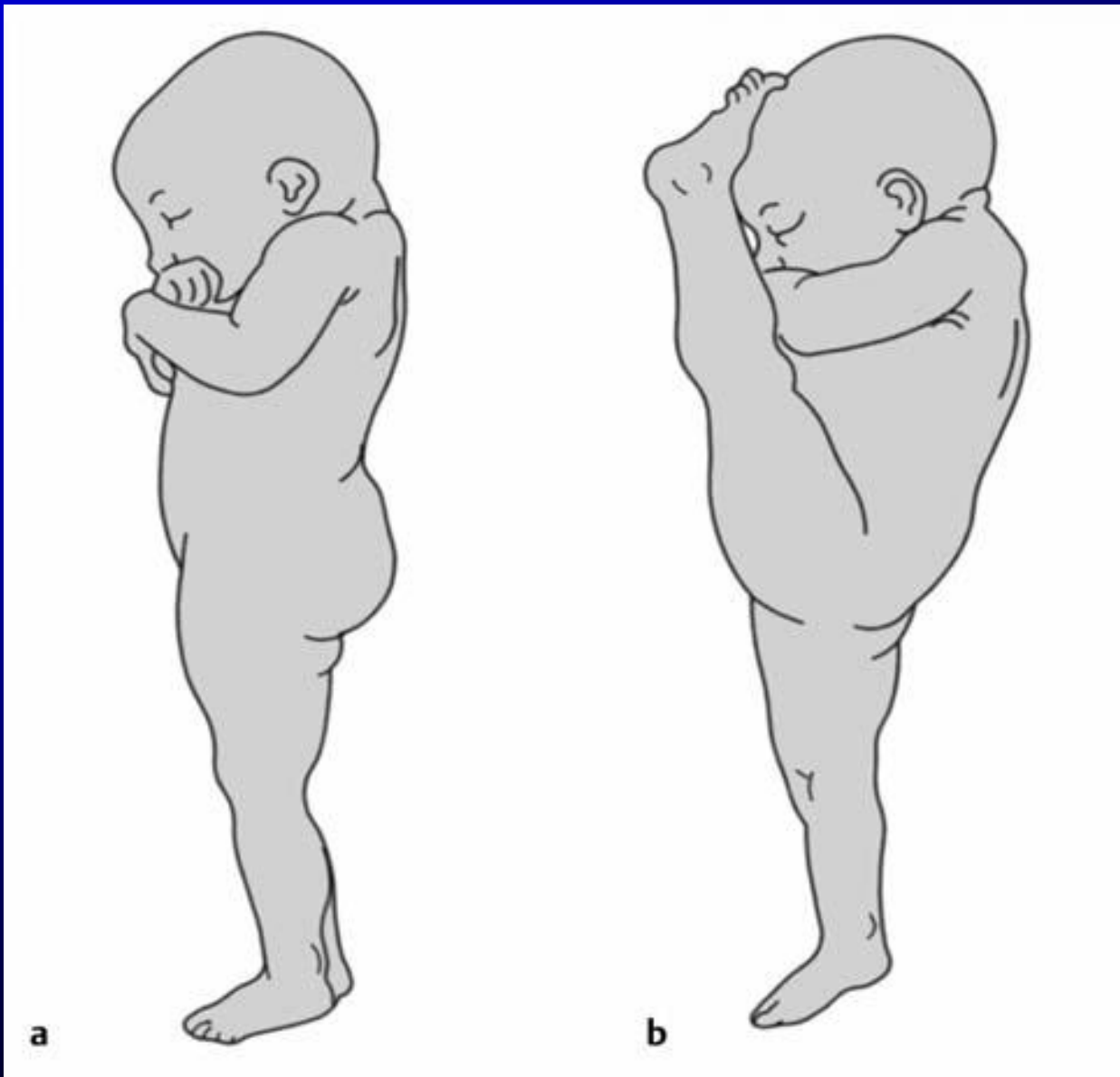
Andrew Kotaska MD, Yellowknife NT
Savas Menticoglu, MD, Winnipeg MB
Robert Gagnon, MD, Montreal QC

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



Complete

Labour Management

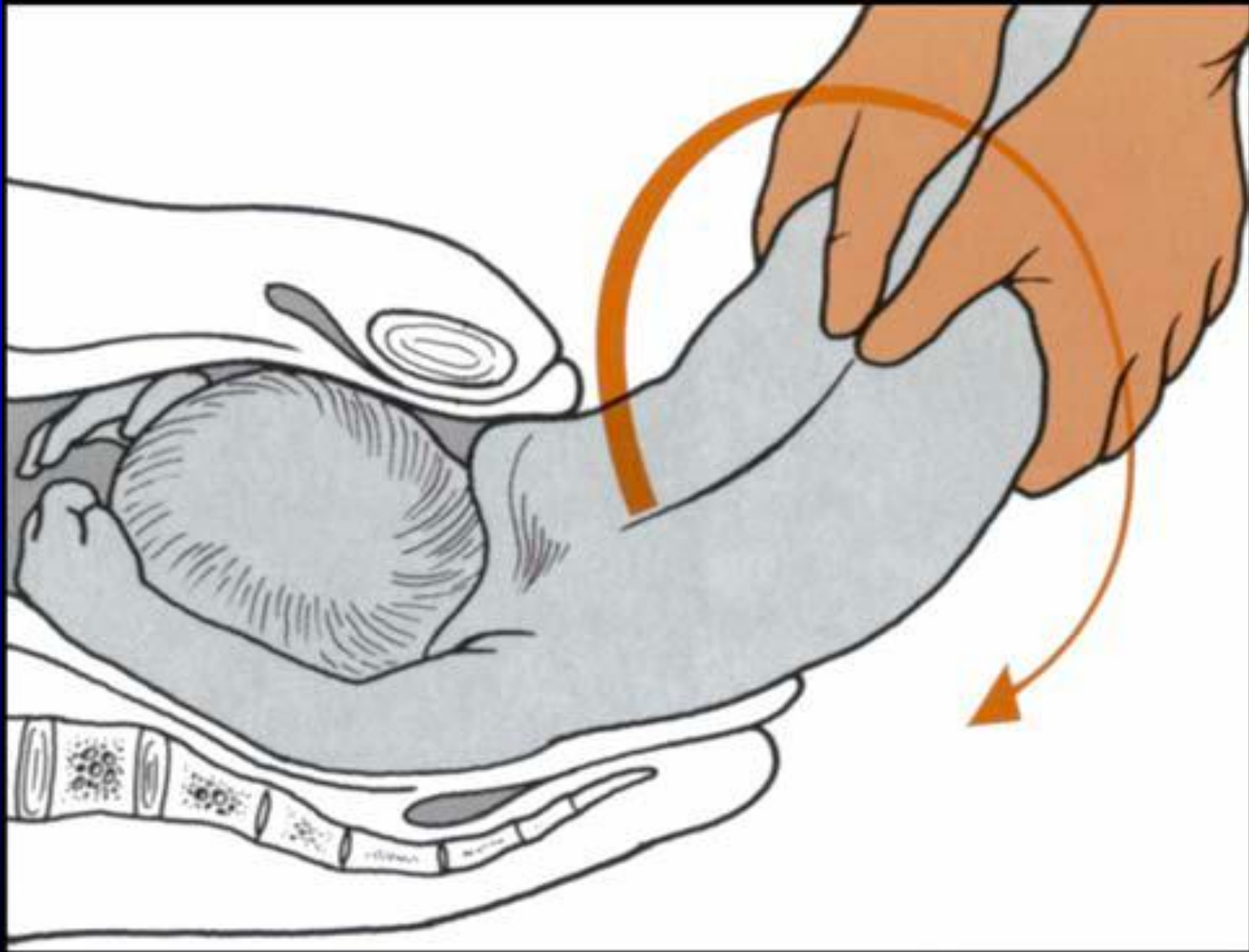
- Continuous electronic fetal monitoring
 - FECG helpful especially in 2nd stage (STAN?)
- Intravenous access
- Obstetrician MRP
- Adequate progress in labour
 - Maximum 7 hours from 5 cm to fully
 - Maximum 1 hour passive 2nd stage
 - Maximum 1 hour active second stage
- Experienced clinician makes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

Delivery

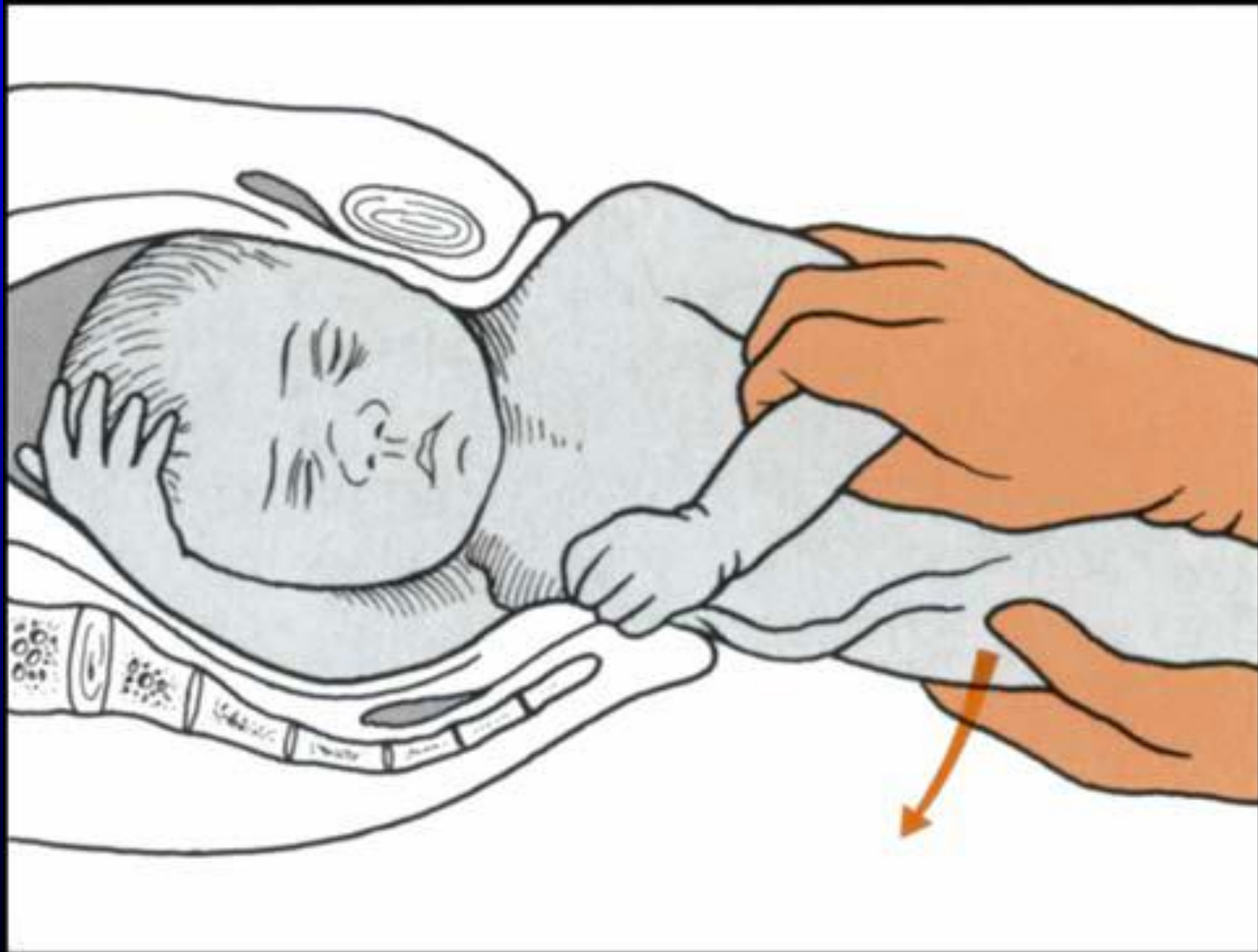
- OR/paeds/anesthesia in-house for active second stage
- IV oxytocin augment ready hanging
- Spontaneous delivery optimal
- Power from above prn:
 - Bracht maneuver – needs assistant
 - Rapid oxytocin augment
- Other maneuvers reserved for expulsive delay despite power from above

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

- **G**rowth assessment
- **E**lectronic Fetal Monitoring
- **T**ype of breech
- **H**elp: OB/ Anaesthesia/ Paeds/ OR
- **I.V.** access & oxytocin ready
- **P**rogress in labour (adequate)
- **P**ower from above (Bracht Maneuver)
- **O**xytocin hanging ready
- **S**mellie-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:
 - 1st stage
 - 2nd 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?
- EFWt > 4000g?
- EFWT < 3000g?
- Time off of CEFM?

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- Strong ethical and legal obligation to give a more complete view of the evidence
- Our profession’s duty to support women’s autonomy by re-establishing vaginal breech birth as a mainstream choice