Timing & Mode of Delivery

Sebastian Hobson

Disclaimer

- I have no conflicts of interest
- >50% of twins deliver with spontaneous or iatrogenic preterm birth
- Most of the time our best laid plans are just a dream

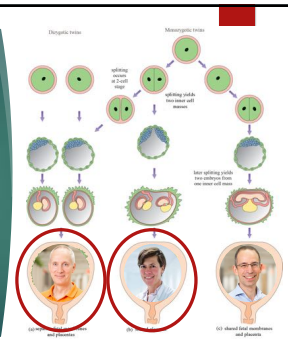
Objectives

- Within the context of uncomplicated twin pregnancies:
  - Discuss the evidence for **timing of delivery**
  - Discuss the evidence for **mode of delivery** (Caesarean vs Vaginal)
    - Fetal aspects
    - Maternal aspects
  - Cover important **intrapartum considerations** for vaginal twin birth
- Align our recommendations with the upcoming SOGC twin guideline

SOGC

Timing

In uncomplicated twins, mostly based on **chorionicity & amnionicity**



Overall timing

- The optimal length of **gestation shorter in twins** than singletons
- Epidemiologically the **lowest perinatal mortality** rate is:
  - 39 to 41 weeks' in singletons
  - **37 to 39 weeks' in twins**
- However epidemiologic studies have limitations
- Overall the field is very divided, today will focus on recent large studies
- There are no large high-quality RCTs to answer this yet ☹

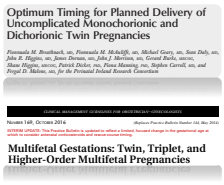
Prospective risk of stillbirth and neonatal complications in twin pregnancies: systematic review and meta-analysis

BMJ 2016 ; 354 doi: https://doi.org/10.1136/bmj.i4353 (Published 06 September 2016)

- 32 cohort studies
- Twin pregnancies >34 weeks
- 29,685 dichorionic
- 5,486 monochorionic
- Limited by the absence of data re: quality of ultrasound examination, antepartum fetal monitoring, mode of delivery & level of neonatal care
- In **uncomplicated dichorionics:**
  - Prospective stillbirth risk from expectant management vs. risk of neonatal death was **balanced at 37 weeks'**
  - Delay in delivery by 1 week lead to an additional 8.8 deaths per 1000
- In **uncomplicated monochorionics**:
  - Prospective stillbirth risk from expectant management vs. risk of neonatal death was **near balanced at 36 weeks'**
  - Delay in delivery by 1 week lead to an additional 2.5 deaths per 1000

Timing of delivery: **Dichorionic** twins

- Prospective risk of IUFD >33w is <1%
- Composite perinatal morbidity
  - 4% at 36 weeks' decreasing to 1% at 38 weeks'
- ACOG recommends 38+0 to 38+6 weeks'
- Generally, in healthy DCDA twins: **37+0** to 38+6 weeks'


Optimum Timing for Planned Delivery of Uncomplicated Monochorionic and Dichorionic Twin Pregnancies

Multifetal Gestations: Twin, Triplet, and Higher-Order Multifetal Pregnancies

Timing of delivery: **Monochorionic** twins

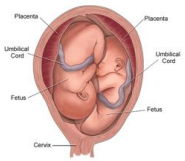
- Prospective risk of death >34w is 1.5%
- Composite perinatal morbidity
  - 41% at 34 weeks' decreasing to 5% at 37 weeks'
- ACOG recommends 34+0 to 37+6 weeks'
- Generally, in healthy MCDA twins: **36+0 to 37+6** weeks'


Optimum Timing for Planned Delivery of Uncomplicated Monochorionic and Dichorionic Twin Pregnancies

Multifetal Gestations: Twin, Triplet, and Higher-Order Multifetal Pregnancies

Mode of Delivery

In uncomplicated twins, mostly based on **presenting twin position, clinician skills & usual obstetric indications**



Overall mode of delivery

- >60% of twin births are by caesarean section
- Much of the pressure to perform CS centers around fear of the second twin
  - Compound presentation
  - Cord prolapse
  - Placental abruption
  - Assisted vaginal delivery: instrumental or breech
- In general >36 weeks', NNT = 97 CS to prevent 1 serious morbidity or mortality in a second twin
  - Similar to the NNT in VBAC rupture or vaginal breech

Maternal Complications


Maternal complications of twin pregnancy

D.M. Campbell, A. Templeton*

Department of Obstetrics and Gynaecology, University of Aberdeen, Aberdeen Maternity Hospital, Aberdeen, Scotland, UK


Risk of Severe Acute Maternal Morbidity According to Planned Mode of Delivery in Twin Pregnancies

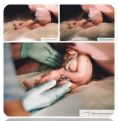
- Adverse events are more common than singletons:
  - Primary PPH (RR 3.4)
  - Secondary PPH (RR 2.9)
  - Manual removal of placenta (RR 2.7)
  - Evacuation of RPOC (RR 3.1)
  - Postpartum VTE (RR 2.6)
- For MoD, there is no difference in overall severe complication rates:
  - Planned caesarean section 6.1%
  - Planned vaginal delivery 5.4%
  - Unless in women >35yo, risk is higher for planned CS 7.8% vs. VD 4.6%

What about if the 1st twin is breech?


Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial

*Mary E Hannah, Walter J Hannah, Sheila A Hewson, Ellen D Hodnett, Sanj Saigal, Andrew R Willan, for the Term Breech Trial Collaborative Group**

- The term breech trial (2000)
- 121 centers in 26 countries
- 2,088 women with breech singleton
- Randomly assigned to planned CS or planned VD
- CS rate: 90% in the planned CS group & 57% in the planned VD group
- Perinatal mortality, neonatal mortality, or serious neonatal morbidity was significantly lower in the planned CS group
- No differences in maternal mortality or serious maternal morbidity
- This is translated in the research to preterm infants <1500g as well



The Twin Birth Study

The NEW ENGLAND JOURNAL of MEDICINE

- International multicenter RCT
- 1,398 women from 32+0 to 38+6 weeks'
- Twin pregnancy with 1st twin cephalic
- Randomised to planned CS or planned VD (between 37+5 to 38+6)
- CS rate: 91% in the planned CS group & 44% in the planned VD group
- Composite outcome (fetal/neonatal death or serious neonatal morbidity)
- Similar for the planned CS (2.2%) versus VD (1.9%) (OR 1.16; 95% CI 0.77-1.74)

Twin Birth Study Follow Ups

Outcomes at 3 Months After Planned Cesarean vs Planned Vaginal Delivery for Breech Presentation at Term
The International Randomized Term Breech Trial

- 3 month follow up
- 1,596 women (82%)
- Planned CS reported less urinary incontinence (RR 0.62, 0.41-0.93)

OBSTETRICS
Twin Birth Study: 2-year neurodevelopmental follow-up of the randomized trial of planned cesarean or planned vaginal delivery for twin pregnancy

- 2 year follow up
- 4,603 children (83%)
- Planned CS conferred no benefit

Neonatal outcomes of twins according to birth order, presentation and mode of delivery: a systematic review and meta-analysis*

AC Rossi,[a] PM Mullin,[b] RH Chmait[b]

- Systematic review 2011
- 18 studies including 39,571 twin sets
- Twins in cephalic/cephalic presentation
- Overall, vaginal delivery was safer than CS for the first twin & was as safe as CS for the second twin

SOGC COMMITTEE OPINION

No. 361, July 2018

No. 361-Caesarean Delivery on Maternal Request

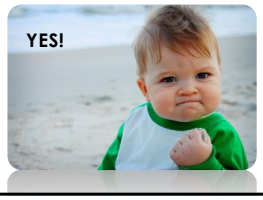
- *"After exploring the reasons behind the patient's request, and discussing the risks and benefits, if a patient insists on her choice a physician may pursue one of the following two options:*
  - *Agree to perform the Caesarean section after 39+0 weeks gestation*
  - *Disagree and refer the patient for a second opinion"*

SOGC

Vaginal birth: Some intrapartum considerations

- Induction of labour
- IV access
- Send group & screen
- Continuous electronic fetal monitoring, maternal HR
  - Fetal scalp electrode may assist
- Epidural is recommended
- Ultrasound: start & end, the 2nd twin often flips (20%)
- Have oxytocin & nitroglycerin at hand for intertwin interval and 2nd twin third stage
- Send placenta for histopathological exam

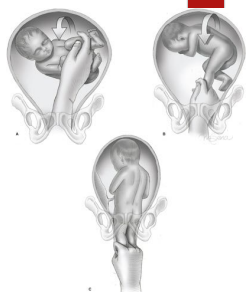
There aren't many things more satisfying than an empowered mom having vaginal twins!



So you've delivered twin 1… well done!

Twin 2 is transverse… Oh…

Do you do an ECV or internal podalic version?



What was the effect of the term breech trial on skills?

Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial

Mary Z Hannah, Walter J Hannah, Sheila A Hewson, Ellen D Hodnett, Saroj Saigal, Andrew R Willan, for the Term Breech Trial Collaborative Group*

- Many clinicians began to lose the ability to safe deliver vaginal breech
- Coupled with decreasing rates of assisted vaginal birth
- Should we begin to invest more in educating & supporting each other with these difficult skills frequently required for the 2nd twin?

Inter-twin delivery interval

Neonatal hypoxia of the second twin after vaginal delivery of the first twin: what matters?

Effect of inter-twin delivery interval on umbilical artery pH and Apgar score in the second twin.

- Many obstetricians advocate for delivery of the 2nd twin <15 mins
- This was based on old data from as early as the 1950's
- The most recent largest studies have shown the 2nd twin's Apgar scores & cord artery pH are not affected when >30 mins
- The optimal time interval needs further studies

Low birthweight (<1500g) or preterm

What is the safest mode of delivery for extremely preterm cephalic/non-cephalic twin pairs? A systematic review and meta-analyses

Catherine Dagreou[a], Anne-Mary Lewis-Millard[a], Marinela Gabrovac[a], Amit Mukerji[a] and Sarah D. McDonald[a,b]

- Some studies suggest CS decreases the risk of intracranial haemorrhage in twins <1500g, regardless of presentation
- Systematic review in 2017
  - Cephalic/non-cephalic twin pairs
  - 24+0 to 27+6 weeks'
  - No significant differences in rates of neonatal death or severe brain injury by mode of delivery
  - Authors acknowledged available evidence very low quality

Size discordance

The influence of mode of delivery on twin neonatal mortality in the US: variance by birth weight discordance.

Infant morbidity and mortality associated with vaginal delivery in twin gestations.

Combined vaginal-cesarean delivery of twin pregnancies.

- Most of us are concerned >25% discordance for twin 2
- Mainly around prolonged interval or head entrapment
- There is actually no quality evidence for this
- Only one has shown a significant adverse effect of >40% difference

Twin VBAC

Vaginal birth after cesarean delivery in twin gestations: A large, nationwide sample of deliveries

Abigail A. D. Ford, MD,[a] Brian T. Bateman, MD,[a] Lynn L. Simpson, MD[b,*]

- Largest series of VBAC attempted in twins
- Uterine rupture occurred in 16 of the 1850 women (0.9%)
- Comparable to that in singletons undergoing trial of labor (0.8%)
- Successful vaginal delivery was achieved in 45% twins & 62% singletons

In summary…

- Timing of delivery:
  - DCDA: **37+0** to 38+6 weeks'
  - MCDA: **36+0 to 37+6** weeks'
  - Special considerations: varies
- Mode of delivery:
  - Vaginal delivery is safe
  - CS should be offered or granted on maternal request
- There is no defined limit to the inter-twin delivery interval
- Ultrasound will be your friend in the delivery room
- Size discordance >40% rather than >25% is more evidence based medicine
- Twin VBAC appears safe
- We cannot lose our skills in AVB & breech

Thank you