

Why Vaginal Breech Delivery Should Still Be Offered: A Response

David Young, MD, FRCSC

Professor and Head, Department of Obstetrics and Gynaecology, Dalhousie University, Halifax NS

J Obstet Gynaecol Can 2006;28(5):386–389

In this issue of the Journal of Obstetrics and Gynaecology Canada, Dr Savas Menticoglou provides evidence to answer the question “Is there still a place for an obstetrician to discuss the option of vaginal breech delivery?” In his thought-provoking commentary,¹ he refers to recent reports of experience in carefully selected vaginal breech births from single centres, as well as data from national registries. Appropriately, he pays particular attention to key publications^{2,3} of the Term Breech Trial (TBT).

The TBT was a multicentre randomized clinical trial (RCT) conducted in 121 centres in 26 countries. It involved 2088 women with a singleton pregnancy and a frank or complete breech presentation who were assigned to planned Caesarean section (PCS) or planned vaginal birth (PVB), with analysis on an intent-to-treat basis. The publications related to the TBT provide information about prospectively collected data that were least likely to be influenced by known prognostic factors and unknown confounders. The completion of this influential research, led by the University of Toronto’s Dr Mary Hannah, was a remarkable achievement. The first report² concluded that PCS is better for the term breech fetus, on the basis of a significant improvement in the primary outcome (a composite of perinatal mortality, neonatal mortality, or serious neonatal morbidity). About half of the women participating in the TBT came from countries with a low perinatal mortality rate (PMR) (≤ 20 per 1000) and half from countries with a high PMR (> 20 per 1000). The reduction in risk with PCS was much greater in countries with low PMR (0.4 % vs. 5.7 %; $P < 0.0001$) than in countries with a high PMR (2.9 % vs. 4.4 %;

$P = 0.13$). This surprising and significant interaction was accounted for by the fact that the serious neonatal morbidity among randomized patients was not lower in countries reported to have a low PMR than in those with a high PMR (2.7 % vs. 2.4 %). On the basis of this report of short-term outcomes, CS became the approach recommended to women with a term breech fetus.^{4–6}

A planned two-year follow-up of 923 infants from 85 TBT centres, where follow-up was expected to be 80% or more, was published in 2004.³ The conclusion was that infants delivered by PCS did not have a lower risk of death or neurodevelopmental delay at two years of age than did those delivered by PVB (3.1 % vs. 2.8%; $P = 0.85$). The serious short-term morbidities identified in the initial report² disappeared in 17 of 18 newborns. This is not unlike the findings regarding worrisome newborn morbidities in the initial⁷ and follow-up⁸ reports of the Dublin RCT of electronic fetal heart rate monitoring. There has been little momentum^{9,10} to alter any recommendations or guidelines that were developed after the original TBT report.²

Because his comments are directed to Canadian readers, Dr Menticoglou has focused on the results from countries with low PMR. He has reasoned that each of the three deaths in the trial from these countries, all in the PVB group, should have been excluded from the analysis. I agree with his assessment of death number two (in Table 4),² but not of the other two deaths, because an experienced clinician was present at the birth and was responsible for the decisions in care. In the original TBT report,² a sub-analysis was carried out excluding the two deaths (both in the PVB group) that occurred prior to randomization, one of which was death number two. This did not change the original conclusion. Such an approach was reasonable in addressing the randomization of a subject in deference to eligibility criteria. A better methodologic alternative would have been to have the data monitoring committee, blind to group assessment, appraise all questionably eligible randomized subjects before analysis and make a decision to include or exclude

Key Words: breech presentation, Caesarean section, perinatal morbidity, perinatal mortality, symphysiotomy

Competing Interests: None declared.

Received on March 13, 2006

Accepted on March 16, 2006

them. This may have been done, but it was not made explicit in the report.

Retrospectively removing subjects from an analysis after revealing group assignment eliminates the strength of an RCT in reducing selection bias (balancing known risks and unknown confounders). Caesarean sections can also be challenging, but no subjects with PCS and an adverse outcome (who may have had their care provided under less than ideal circumstances) were retrospectively excluded in the TBT report. For example, in a later TBT publication there is a description (in Table 2) of a subject randomized to PCS who experienced an adverse outcome after a prolonged augmented labour.¹¹ In fact, the inclusion of any of the three deaths after PCS in the original TBT report (see Table 4 of the report)² could similarly be questioned. Analysis by intent-to-treat is the basis of an effectiveness, pragmatic, or management trial,¹² answering the question “does this treatment work in real life practice?” The alternative, seeking the ideal patient with the “best” clinician, gives us an efficacy or explanatory trial, answering the question “can this treatment ever work?” Generalizing the results then becomes an issue.

Despite the two-year follow-up data, the initial overall significant reduction in PMR associated with PCS remains a substantive issue.² Death is absolute. If we consider the two deaths in the PVB group from countries with a low PMR to be preventable by PCS, this suggests that about 250 planned Caesarean sections are necessary to prevent one perinatal death. Dr Menticoglou provides a detailed review of non-randomized studies from the past decade (shown in his Table), and argues that the figure is closer to 400 required Caesarean sections. This review, however meticulous, is nevertheless based on retrospective single centre studies and reviews of databases and registry reviews that are more open to bias, as described previously. In countries with a high PMR (and low resources), fewer than 90 Caesarean sections may be needed to prevent one death.

Dr Menticoglou’s commentary in this issue of JOGC¹ appropriately points out the maternal morbidities and risks associated with Caesarean section. He refers to Verhoeven et al.,¹³ who estimated that there have been 8500 additional elective Caesarean sections performed in the Netherlands for term breech since the first TBT report. Although acknowledging that these may have prevented 19 perinatal losses, they have also attributed four avoidable maternal deaths to these Caesarean sections. Such a maternal mortality rate is at odds with reports indicating that elective scheduled Caesarean sections have much lower maternal risks,¹⁴ perhaps even than vaginal delivery.¹⁵ The TBT reports of initial,² three-month,¹⁶ and two-year maternal morbidity¹⁷

showed remarkably little difference between the PCS and PVB approaches.

I must declare my own bias. I offer external cephalic version to patients, although I am discouraged by my low rate of success. I consider myself experienced in vaginal breech birth and offered it before the TBT. I truly fear an entrapment of the after-coming head that will not respond to traction with Piper forceps, although I have not experienced this. The two centres where I practised during the TBT did not enrol patients in the TBT. I was personally concerned that the planned clinically important reduction in primary outcome (from 0.8 % to 0.1%) with PCS, on which the sample size was calculated, was not attainable. In the end, that reduction in relative risk was not achieved, but because there was a higher primary outcome rate than anticipated, a greater reduction in absolute risk was statistically significant and clinically meaningful.

Dr Menticoglou describes three aspects of vaginal breech delivery that make it more dangerous to the fetus than normal cephalic delivery, and recommends ways to make vaginal breech birth safer. First, the frequency of adverse perinatal outcomes by actual method of delivery reported in the TBT increased progressively from pre-labour CS (0.9%) to CS during early labour (1.2%), to CS during active labour (3.0%), and was highest with vaginal birth (6.2%).¹¹ Dr Menticoglou notes that there is a risk of cord prolapse before and during labour. He speculates that a protocol of serial ultrasound examinations, preferably vaginal, beginning near term in pregnancies with breech presentation can identify cord presentation. This finding would lead to CS before labour. He infers that this approach will reduce the frequency of cord prolapse. He also speculates that a vaginal ultrasound examination during labour can be helpful in ruling out an occult cord presentation not identified on pelvic examination. This innovative approach certainly may be successful, but its effectiveness and feasibility remain to be confirmed in more than case reports.

Second, it is without question that for PVB an obstetrician should be continuously present during descent and pushing in the second stage of labour, which should be conducted as a double set-up.

Third, every obstetrician fears entrapment of the aftercoming head. Dr Menticoglou advocates a role for symphysiotomy, an operation in which the fibrocartilaginous symphysis pubis is divided with a scalpel. It can be carried out rapidly under local anaesthesia. Careful support of the parturient’s legs is essential. The procedure has been well described in published articles, some of which include diagrams.^{18–20} Although widely practised in the developing world, it has rarely been used in North America²¹ and Europe.²² Recent case reports demonstrate

the value of symphysiotomy when it is carried out in a timely fashion.²² Björklund has provided a comprehensive review,²³ concluding that there is sufficient evidence to support reinstatement of this procedure in obstetrics. He outlines the maternal complications of the procedure in more than 1900 patients in the second half of the twentieth century. Immediate complications include painful walking in approximately 4% of patients, stress incontinence and local hematoma in approximately 3%, obstetric fistula in approximately 2%, and osteitis in less than 1%. Long-term follow-up of more than one year has been carried out only in about 200 cases. Walking difficulty seems to disappear with time. Urinary incontinence or pain in the sacroiliac or symphyseal joints continues as a problem in fewer than 2% of patients. An Irish consumer health website²⁴ indicates that this procedure was carried out more frequently in Ireland during the 1950s, 60s and 70s.²⁴ A special interest support group, Survivors of Symphysiotomy (who, it's worth noting, refer to themselves as "SOS"), has raised a number of lingering issues.²⁵

In more than 30 years of obstetric practice, I am unaware of a symphysiotomy ever having been carried out in a hospital or region where I have served. At the same time, I am aware of only two instances of entrapment of the aftercoming head during vaginal breech delivery in those same centres, and the newborn outcomes were tragic. Current texts on emergency obstetrical care²⁶ give a brief description of symphysiotomy, and the Society of Obstetricians and Gynaecologists of Canada's ALARM Course Manual²⁷ simply mentions the procedure. I am sure that the orthopedic trauma a mother might suffer by undergoing symphysiotomy could be overcome in Canada today, where physiotherapy, fixation procedures, and complex joint replacements are readily available. If we were to use symphysiotomy for management of the entrapped aftercoming head (or unrelenting shoulder dystocia), it would be prudent to establish a registry to enable long-term follow-up. The extremely rare use of the procedure would preclude conducting an RCT.

I agree with Dr Menticoglou that a planned term vaginal breech delivery remains an option for Canadian obstetrician-gynaecologists to offer to highly selected patients, such as those who fulfil the eligibility criteria listed for the TBT. Planned vaginal breech birth demands a woman's informed choice through a thorough understanding of the issues in this approach to birth. She should know that as many as 400, but more likely about 250, Caesarean sections are needed to prevent one perinatal death (based on best available evidence).² Nearly one in 20 babies born by vaginal breech delivery encounter serious short-term morbidity, although recovery is usually complete at two years of age.

Would she want us to use symphysiotomy, knowing our lack of experience in performing it, and the uncertainties regarding maternal complications, for the rare entrapped aftercoming head? Because vaginal breech birth will continue to occur—whether we support it or not—I believe that symphysiotomy should have an integral place in our emergency obstetrics curriculum and practice drills for high impact, but low frequency, events.

REFERENCES

1. Menticoglou S. Why vaginal breech should still be offered. *J Obstet Gynaecol Can* 2006;28(5):380–5.
2. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR, et al. Planned Caesarean section versus planned vaginal birth for breech presentation: a randomized multicentre trial. *Lancet* 2000;356:1375–83.
3. Whyte H, Hannah ME, Saigal S, Hannah WJ, Hewson S, Amankwah K, et al. Outcomes of children at 2 years after planned cesarean birth versus planned vaginal birth for breech presentation at term: the International Randomized Term Breech Trial. *Am J Obstet Gynecol* 2004;191:864–71.
4. American College of Obstetricians and Gynecologists. Committee Opinion No. 265. Mode of term singleton breech delivery. *Obstet Gynecol* 2001;98:1189–90.
5. Royal College of Obstetricians and Gynaecologists. Guideline No. 20. The Management of breech presentation. London RCOG 2001.
6. Thornton JG. Editor's Choice. *Brit J Obstet Gynaecol* 2004;111:10.
7. Macdonald D, Grant A, Sheridan-Pereira M, Boylan P, Chalmers I. The Dublin randomized controlled trial of intrapartum fetal heart rate monitoring. *Am J Obstet Gynecol* 1985;152:524–39.
8. Grant A, O'Brien N, Joy MT, Hennessy E, MacDonald D. Cerebral palsy among children born during the Dublin randomized trial of intrapartum monitoring. *Lancet* 1989;8674:1233–6.
9. Kotaska A. Inappropriate use of randomized trials to evaluate complex phenomena: case study of vaginal breech delivery. *Brit Med J* 2004;329:1039–42.
10. Glezerman M. Five years to the term breech trial: the rise and fall of a randomized controlled trial. *Am J Obstet Gynecol* 2006;194:20–5.
11. Su M, Hannah WJ, Willan A, Ross S, Hannah ME. Planned caesarean section decreases the risk of adverse perinatal outcome due to both labour and delivery complications in the Term Breech Trial. *BJOG* 2004;111:1065–74.
12. Sackett DL, Gent M. Controversies in counting and attributing events in clinical trials. *N Engl J Med* 1979;301:1410–12.
13. Verhoeven AT, de Leeuw JP, Bruinse HW. [Breech presentation at term: elective cesarean section is the wrong choice as a standard treatment because of too high risks for the mother and her future children]. *Ned Tijdschr Geneesk* 2005;149:2207–10.
14. Hall M, Bewley S. Maternal mortality and mode of delivery. *Lancet* 1999;354:776.
15. Yoles I, Maschiach S. Increased maternal mortality in cesarean section as compared to vaginal delivery? Time for re-evaluation. *Am J Obstet Gynecol* 1998;178:Suppl:S78. abstract.
16. Hannah ME, Hannah WJ, Hodnett ED, Chalmers B, Kung R, Willan A, et al. Outcomes at 3 Months After Planned Cesarean Vs Planned Vaginal Delivery for Breech Presentation at Term: The international randomized Term Breech Trial. *JAMA* 2002;287:1822–31.
17. Hannah ME, Whyte H, Hannah WJ, Hewson S, Amankwah K, Cheng M, et al. Maternal outcomes at 2 years after planned cesarean section versus planned vaginal birth for breech presentation at term: The international randomized Term Breech Trial. *Am J Obstet Gynecol* 2004;191:917–27.

18. Menticoglou SM. Symphysiotomy for the trapped aftercoming parts of the breech: a review of the literature and plea for its use. *Aust NZ J Obstet Gynaecol* 1990;30:1–9.
19. Hofmeyr GJ, Shweni PM. Symphysiotomy for feto-pelvic disproportion (Protocol). *The Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No: CD005299. DOI: 10.1002/14651858.CD005299.
20. Maharaj D, Moodley J. Symphysiotomy and fetal destructive operations. *Best Pract Res Clin Obstet Gynaecol* 2002;16(1):117–31.
21. Goodwin TM, Banks E, Millar LK, Phelan JP. Catastrophic shoulder dystocia and emergency symphysiotomy. *Am J Obstet Gynecol* 1997;177:463–4.
22. Wykes CB, Johnston TA, Paterson-Brown S, Johanson RB. Symphysiotomy: a lifesaving procedure. *BJOG* 2003;110:219–21.
23. Björklund K. Minimally invasive surgery for obstructed labor: a review of symphysiotomy during the twentieth century (including 5000 cases). *BJOG* 2002;109:236–248.
24. Irishhealth.com [homepage on the Internet]. Dublin. Available from: <http://www.irishhealth.com>. Accessed March 10, 2006.
25. Survivors of Symphysiotomy [on irishhealth.com website]. Available from: <http://www.irishhealth.com/index.html?level=4&cid=3841>. Accessed March 10, 2006.
26. Baskett TF. *Essential management of obstetric emergencies*. 4th ed. Bristol, UK: Clinical Press Ltd; 2004.
27. SOGC Alarm Syllabus, 12th ed. Ottawa: Society of Obstetricians and Gynaecologists of Canada; 2005.