

Cesarean section versus forceps-assisted vaginal birth: It's time to include pelvic injury in the risk–benefit equation

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There is a growing body of evidence that implicates childbirth in general, and specific peripartum risk factors in particular, in postpartum pelvic dysfunction.¹ This pelvic dysfunction results from a combination of structural damage and neurologic injury that occurs during labour and, most certainly, during vaginal birth.^{2,3} This evidence has sparked a debate among health care professionals and the public regarding the use of elective cesarean delivery for the reason of avoiding the discomfort of vaginal birth and the accompanying postpartum pelvic dysfunction. When asked to indicate their personal preference for mode of delivery of a normal, term pregnancy, obstetricians — both male and female — in large numbers opted for cesarean delivery.^{4,5} At the heart of this debate is one of the central tenets of obstetrics: cesarean delivery involves the greatest risk for the woman and the child. Alternatively, a vaginal birth, regardless of how it is achieved, is upheld as more “natural.”

As part of a larger study examining the effect of perineal massage on the risk of perineal laceration, Erica Eason and coauthors⁶ asked patients to complete, 3 months after birth, a questionnaire that included questions about the frequency of involuntary loss of flatus and feces (see page 326). At 3 months 3.1% of the women experienced fecal incontinence, which occurred at least once daily in 0.3%. Uncontrolled release of flatus occurred in 25.5% of women, at least once daily in 2.6%. Anal sphincter injury was associated with increased rates of both fecal and flatal incontinence. Flatal incontinence was associated with operative (forceps-assisted) vaginal delivery when compared with spontaneous vaginal delivery. Although fecal incontinence was not associated with instrumental delivery, the women who had a forceps delivery accompanied by a sphincter injury all experienced fecal incontinence. The only independent risk factor for anal incontinence found on multivariate analysis was forceps delivery.

There are several caveats. Although the authors asked the women about urinary incontinence before their pregnancy, they did not enquire about anal incontinence. In a prospective study of primiparous women we found that 35% experienced flatal incontinence before their pregnancy, and 3%, fecal incontinence.⁷ To minimize the effect of pre-existing conditions on the attribution of peripartum

risk factors, it is most appropriate to include only women who are asymptomatic before pregnancy.

It is also important to measure the effect of flatal incontinence on quality of life. The authors conclude that, although the rate of daily postpartum flatal incontinence was low, the effect on quality of life was substantial. Unfortunately, they did not formally measure quality of life. In our study 28% of women were still experiencing occasional flatal incontinence 6 months after childbirth.⁷ No woman, however, experienced daily fecal incontinence. When asked to comment on the effect of their condition, none of the women with flatal incontinence believed that it affected their daily lives, and only one woman with fecal incontinence considered the incontinence to be an important problem.

Recovery from pelvic injury incurred during childbirth is a gradual process that continues for up to 1 year post partum.⁸ The authors risk overestimating the rates of long-term anal incontinence given their short duration of follow-up, 3 months. On the other hand, we found that rates of anal incontinence did not decrease significantly between 6 weeks and 6 months post partum.⁷ Women whose symptoms resolve in the short term may experience recurrent symptoms over the long term, presumably as a consequence of permanent pelvic injury.⁹

The finding by Eason and coauthors that cesarean delivery did not appear to afford protection against anal incontinence is in conflict with considerable evidence in the literature supporting a protective effect for cesarean delivery.^{10,11} The fact that women who underwent cesarean section in the current study had rates of anal incontinence similar to those among women who gave birth vaginally may be due to the inclusion of women who underwent cesarean section during labour, perhaps after injury to pelvic structures had occurred. Although cesarean section during labour may not prevent anal incontinence, elective cesarean section clearly does.⁷ Elective cesarean delivery does not decrease pelvic muscle strength: maximum anal resting and squeeze pressures are unchanged afterward, as is anal sphincter size.^{12,13} In our study, there were no cases of flatal incontinence in the elective cesarean delivery group.⁷ Cesarean section appears to afford greater protection against the effects of forceps delivery than does spontaneous vaginal delivery (ce-

sarean delivery, both elective and during labour, is associated with lower rates of urinary incontinence¹¹).

The finding by Eason and coauthors that forceps delivery is an independent risk factor for anal incontinence is in agreement with an overwhelming body of evidence implicating forceps delivery as a cause of clinically significant pelvic floor dysfunction.^{2,14} Spontaneous vaginal delivery has been shown to have detrimental effects on both external striated and internal smooth muscle sphincter function; forceps delivery, in addition to these detrimental effects, has been associated with impaired anal canal sensation, further compromising anal sphincter function.¹⁵

The authors recommend that median episiotomy be avoided and that mediolateral episiotomy be used when episiotomy is indicated. This recommendation is corroborated by figures from a large database study of more than 90 000 births that showed that the relative risk of anal sphincter injury was significantly higher with median episiotomy than with mediolateral episiotomy (Lynne MacLeod, Dalhousie University; personal communication, 2000). The authors conclude that “our findings are important in understanding how best to manage the second stage of labour.” Their conclusion that forceps and episiotomy should not be used to shorten the second stage of labour is supported by well-designed studies showing that prolongation of the second stage does not result in detrimental effects on pelvic organ function.^{10,11}

Perhaps of greater importance are the implications of this study for the management of a prolonged labour with secondary arrest. In this situation the choice is between cesarean delivery and a trial of forceps. Although cesarean delivery after labour may not prevent anal incontinence, it almost certainly will prevent significant anal sphincter injury. Anal sphincter injury is associated with the highest rates of impaired anal sphincter function. In this situation, perhaps cesarean delivery is a better choice.

What are the implications of this growing body of evidence for obstetric practice? Obstetricians are facing increasing pressure from patients demanding elective cesarean delivery.^{5,16} The assumption that vaginal birth — particularly if it must be effected with instrumental assistance — is preferable to cesarean delivery is founded on immediate peripartum risks, such as maternal hemorrhage, and does not consider the implications of long-term pelvic dysfunction.¹⁶ Obstetricians have an obligation to recon-

sider their assumptions about the relative merits of different delivery options and to convey the evidence to their patients in a clear and unbiased manner. Women have a right to consider the evidence and weigh the potential risks and benefits, and thereby participate more equally in the decisions concerning their pregnancy and mode of delivery.

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Competing interests: None declared.

References

1. Sultan AH, Monga AK, Stanton SL. The pelvic floor sequelae of childbirth. *Br J Hosp Med* 1996;55:575-9.
2. Sultan AH, Kamm MA, Hudson CN, Chir M, Thomas JM, Bartram CI. Anal-sphincter dissection during vaginal delivery. *N Engl J Med* 1993;329:1905-11.
3. Snooks SJ, Henry MM, Swash M. Faecal incontinence due to external anal sphincter division in childbirth is associated with damage to the innervation of the pelvic floor musculature: a double pathology. *Br J Obstet Gynaecol* 1985; 92:824-8.
4. Al-Muffi R, McCarthy A, Fisk NM. Survey of obstetricians' personal preference and discretionary practice. *Eur J Obstet Gynecol Reprod Biol* 1997;73:1-4.
5. Tranquilli AL, Garzetti GG. A new ethical and clinical dilemma in obstetrics practice: cesarean section “on maternal request.” *Am J Obstet Gynecol* 1997; 177:245-6.
6. Eason E, Labrecque M, Marcoux S, Mondor M. Anal incontinence after childbirth. *CMAJ* 2002;166(3):326-30. Available: www.cma.ca/cmaj/vol-166/issue-3/0326.asp
7. Farrell SA, Allen VM, Baskett TF. Anal incontinence in primiparas. *J Soc Obstet Gynaecol Can* 2001;23:321-6.
8. Viktrup L, Lose G. Epidural anesthesia during labour and stress incontinence after delivery. *Obstet Gynecol* 1993;82:984-6.
9. Snooks SJ, Swash M, Mathers SE, Henry MM. Effect of vaginal delivery on the pelvic floor: a five year follow-up. *Br J Surg* 1990;77:1358-60.
10. Wilson PD, Herbison R, Herbison GP. Obstetric practice and the prevalence of urinary incontinence three months after delivery. *BMJ* 1996;103:154-61.
11. Farrell SA, Allen VM, Baskett TF. Parturition and urinary incontinence in primiparas. *Obstet Gynecol* 2001;97:350-6.
12. Peschers UM, Schaefer GN, Delancey JOL, Schuessler B. Levator ani function before and after childbirth. *Br J Obstet Gynaecol* 1997;104:1004-8.
13. Sultan AH, Kamm MA, Hudson CN, Bartram CI. Effect of pregnancy on anal sphincter morphology and anal sphincter function. *Int J Colorectal Dis* 1993;8:206-9.
14. Donnelly V, Fynes M, Campbell D, Johnson H, O'Connell PR, O'Herlihy C. Obstetric events leading to anal sphincter damage. *Obstet Gynecol* 1998; 92:955-61.
15. Cornes H, Bartolo DCC, Stirrat GM. Changes in anal canal sensation after childbirth. *Br J Surg* 1991;78:74-7.
16. Paterson-Brown S. Should doctors perform an elective caesarean section on request? Yes, as long as the woman is fully informed. *BMJ* 1998;317:462-3.

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