Commentary

Severe perineal trauma is rising, but let us not overreact

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Introduction

Severe perineal trauma (SPT) experienced during childbirth is a serious morbidity for women, impacting on short and long-term physical and psychological wellbeing (Signorello et al., 2001; Macarthur and Macarthur, 2004; Priddis et al., 2013; H. Priddis et al., 2014). SPT is defined as a third degree tear, which involves injury to the perineum involving the anal sphincter complex; or a fourth degree tear, which involves injury to the perineum involving the external, internal and epithelium of the anal sphincter (Royal College Obstetricians and Gynaecologists, 2007). It does appear that severe perineal trauma is rising in several developing nations; including Australia (Kettle and Tohill, 2008; Baghestan et al., 2012; Dahlen et al., 2013) (Fig. 1) and this should be a concern to health practitioners. It is important that thoughtful, appropriate and co-ordinated multidisciplinary action is taken and that this action is based on high level evidence, and most importantly is acceptable to women. Overreacting, or reacting without a full understanding of the problem at hand should never be acceptable in today’s enlightened, evidence based health care environment. Consideration of possible unintended consequences and acceptability to women is most important when making major changes in clinical practice.

Risk factors for SPT

There are several risk factors for SPT identified in the literature and these are often divided into antenatal and intrapartum risk factors. Antenatal risk factors associated with an increased incidence of SPT include primiparity, maternal age (very young and older), ethnicity (Asian), nutritional status, previous experience of SPT, larger fetal weight, abnormal collagen synthesis, shorter perineal bodies and possibly male sex (Rizk and Thomas, 2000; Deering, et al., 2004; Kettle and Tohill, 2008; Dahlen and Homer, 2008; Dahlen et al., 2013; Priddis et al., 2013; Dahlen, 2014). Intrapartum risk factors include fetal presentation and position (in particular occipito-posterior positions), episiotomy (especially midline episiotomy), instrumental birth (especially forceps delivery), a prolonged second stage of labour, the birth position adopted by the woman during second stage, and an obstetric emergency such as shoulder dystocia (Robinson et al., 1999; Signorello et al., 2000; Kudish et al., 2006; Gottvall et al., 2007; O’Mahony et al., 2010; Dahlen and Priddis et al., 2013; Dahlen, 2014). Forceps delivery in particular appears to bring with it the greatest risk of SPT, with extensions to episiotomy being a major contributor (Fig. 2).

The Norwegian retrospective cohort study impacting practice

In 2012 Laine et al. (2012) published the findings of a retrospective cohort study that compared the incidence of SPT (referred to by the authors as OASIS) in a university hospital in Norway, over two separate time periods: 2003–2005 and 2008–2010, prior to, and following, the implementation of a perineal protection programme (Laine et al., 2012). The training programme consisted of four main features:

1. Good communication between the accoucheur and the delivering woman.
2. Adequate perineal support.
3. A delivery position that allows visualisation of the perineum during the last minutes of delivery.
4. Episiotomy only on indication (avoiding medial episiotomies due to related increased risks of severe perineal trauma).

The incidence of SPT was examined over two separate time periods. Secondary measures involved an analysis of pre-determined maternal and fetal risk factors for SPT, including shoulder dystocia, instrumental birth, prolonged second stage, epidural anaesthesia and occiput posterior (OP) presentation. The authors reported a significant reduction in the incidence of OASIS over the two time periods following the introduction of the

Following the release of this study there was great enthusiasm in the obstetric community to take up the training programme (personal communication). Some obstetricians and midwives felt that the rise in SPT was to do with changes in clinical practice, such as moves to a more ‘hands poised’ technique during the birth and the increase in alternative birth positions. Enthusiastic support for implementing the training protocol has spread beyond Norway to several other countries including Australia. Professional bodies and health departments have expressed concern and asked for action and SPT guidelines to be developed (personal communication). So, is this a problem? Let us examine the components of the Laine package of care alongside Level 1 evidence. Let us also look at what else may be going on with changes in SPT rates in recent years.

Good communication

Good communication between the accoucheur and woman giving birth should be central to maternity care. This can become complicated when the language spoken by the health provider and woman is different. In a prospective cohort study undertaken by the first author in Australia we asked midwives to complete a form following every woman who experienced SPT for two years in two hospitals, documenting some of the factors at the birth they though contributed to the trauma (Dahlen et al. 2007). Midwives reported poor communication as a significant contributing factor in their opinion. This included being unable to communicate with the woman during the birth and also the birth attendant being unprepared for the birth (Dahlen et al., 2007). In discussion groups that followed the study, midwives felt communication was one of the most important things in minimising perineal trauma. An example of this was telling the woman to breathe as the baby’s head was born. The woman may not understand the midwife and push expulsively, leading to a less controlled birth. SPT rates vary for women born in countries other than Australia where English is often a second language (Dahlen et al., 2007; Dahlen et al., 2013). While communication may be a factor in these rates, other factors are probably also at play. Relationship based care, support and the appropriate use of interpreters and culturally appropriate support workers are important in enhancing communication with women who are giving birth.

Adequate perineal support

When considering risk factors for SPT both midwives and obstetricians have questioned whether or not perineal support leads to better outcomes. This may include hands on or hands off/ poised and perineal techniques such as the ‘perineal pinch’ or
‘guarding’ and the ‘Ritgen manoeuvre’, or indeed other perineal protection devices that emerge from time to time (Lavesson et al., in press). Hands on technique involve the care provider placing their hands on the perineum and occiput of the baby’s crowning head. It is suggested that this technique increases flexion to reduce the presenting diameter of the fetus, and therefore minimising trauma to the perineum (McClandish et al., 1998; Aasheim et al., 2012). Hands off/poised, varies in definition, however in general the care provider keeps hands off and observes the birthing of the head and shoulders and supports the birthing of the body as required or intervenes when required (da Costa and Riesco, 2006; Aasheim et al., 2012).

How much of an impact techniques such as perineal ‘pinching’ or ‘guarding’ actually make on perineal integrity, when the pressures of the advancing head are internal and not external, is hotly debated. Accusations of student midwives today being taught ‘not to touch the fetal head’ polarise the issue and are not helpful. Instead we should turn to high level evidence (Levels 1 and 2) where this is available. A recent Cochrane Systematic Review (Level 1 evidence) examined the role of hands on or poised/off (Aasheim et al., 2012). Three randomized controlled trials were included in the meta-analysis (n=6617) and no difference was found in the incidence of SPT or the rate of intact perineum. Hand off/poised was associated with a significant reduction in the incidence of episiotomy (31% reduction). The authors note however that studies investigating the outcomes of hands off/poised and hands on vary in the definition of hands off (e.g. hands off for the entire second stage, hands off only until head is crowned). Techniques such as the modified Ritgen’s manoeuvre, which involves reaching for the fetal chin between the anus and coccyx and pulling it anteriorly while using the fingers of the other hand on the fetal occiput to control the advancement of the head and keep the head flexed during a contraction, showed no advantage in terms of perineal trauma (Aasheim et al., 2012). Delivery of the baby’s head in between contractions has been shown to be a technique associated with a lower risk of perineal trauma (Albers et al., 2005) but further research is needed.

A delivery position that allows visualisation of the perineum during the last minutes of the birth

Laine et al. (2012) recommend that as part of the perineal protection training programme, health professionals are advised to suggest ‘a delivery position that allows visualisation of the perineum during the last minutes of delivery’ (Laine et al., 2012). In a Cochrane Systematic Review (CSR) conducted by Gupta et al (2012) comparing upright versus supine positioning (22 trials, n=7280), upright positions (several which do not allow easy visualisation of the perineum) were associated with a reduction in episiotomy, an increase in second-degree perineal trauma and an increase in blood loss over 500 ml. There was no significant impact on the incidence of third or fourth degree perineal trauma (Gupta et al., 2012), though only five out of the 22 studies included in the CSR examined this outcome. There was a significant reduction in instrumental births (22%), which are associated with an increased risk of SPT (Gurol-Urganci et al., 2013). A systematic review conducted by de Jonge et al. (2004) reported no significant difference in the risk of perineal trauma amongst three groups: women in lithotomy, semisitting or sitting positions for second stage. The authors suggest that the variation in findings compared with those reported in previous studies are due to the exclusion of studies where health professionals were inexperienced in supporting women in various birthing positions. An increase in blood loss over 500 mls associated with upright birth positions was also found (concerns are expressed about publication bias). However, de Jonge et al. (2007) found in a secondary analysis from a large trial where blood loss was measured using a weighing scale, that the increased blood loss in the upright group originated from perineal damage in the sitting and semisitting position, which may be exacerbated by perineal odema (de jonge et al., 2007).

Due to the inconsistency of definitions used for upright positions more research is required (de Jonge et al., 2004; Priddis et al., 2012). In suggesting a position to a woman in the second stage of labour for purposes of observing the perineum, it is important to consider that freedom to change positions in labour has been identified as integral to feelings of control and the management of pain in labour due to the physiological and psychological benefits (Green and Baston, 2003; Priddis et al., 2011; Nieuwenhuijze et al., 2013; Thies-Lagergen et al., 2014).

Episiotomy only on indication (avoiding medial episiotomies)

Discussion continues as to the impact of median and medio-lateral episiotomies on perineal outcomes (Revicky et al., 2010). Episiotomies are frequently referred to in the literature as being an identified risk factor for severe perineal trauma (Hartman et al., 2005; Eskandar and Shet, 2009; Carroli and Mignini, 2012). A restrictive episiotomy policy is protective of SPT compared to routine episiotomy policies (Carroli and Mignini, 2012). Laine et al. (2012) reports that mediolateral episiotomies performed as a result of a clinical indicator was a protective factor for OASIS across both time periods for primiparous women, when compared to the use of routine episiotomy (Laine, et al., 2012). Therefore consideration should be given to the use of restrictive (clinically indicated) mediolateral episiotomies over routine episiotomies in the clinical setting.

There has been a significant decline in episiotomy due to the emerging evidence (Ollphant et al., 2010) but this has also led to some health practitioners questioning whether skills to undertake episiotomy when required may also be less than optimal (Bick et al., 2012). There is evidence that the angle the episiotomy is cut needs to be larger than may currently be common practice. There appear to be differences in angle of episiotomy between midwives and obstetricians (Tincello et al., 2003); institutions and countries (Kalil et al., 2008), Eogan et al. (2006) showed a 50% relative reduction in the risk of sustaining a SPT for every 6° away from the perineal midline (Eogan et al., 2006), Kalil et al. (2011) suggest an incision angle of 60 degrees is optimal but that a RCT is needed to determine which angle is most protective (Kalil et al., 2011). However, it is possible the greater the angle of the incision the more discomfort women suffer postnatally (Signorello et al., 2001). We have found the highest rate of episiotomy extensions in NSW over 11 years (2000–2011) occurred with forceps deliveries with this accounting for over 50% of all SPT (Fig. 2). While all efforts should be made firstly to reduce instrumental birth there may also need to be a focus on simulated training in undertaking episiotomy and emphasis on a wider angle of incision. This may be especially required when a forceps delivery is undertaken. There are very few extensions to episiotomy observed with a normal vaginal birth.

What could be the unintended consequences on the Laine protocol?

The biggest potential unintended consequence of the Laine protocol is the dictating of women’s positions for birth due to requirement for control of the baby’s head and good visualisation of the perineum. It also ignores the fact that there seems to be a linear rise in the incidence in SPT with birth occurring in hospital when compared to birth at home and in birth centres (Birthplace in England Collaborative Group, 2011; Smith et al., 2013; Homer et
What other evidence is there for reducing SPT?

The authors of a recent CSR (Asheim et al., 2012) concluded that there was reasonable data to support the use of warm compresses on the perineum during the birth, which resulted in a reduction in SPT (risk ratio (RR) 0.48, 95% confidence interval (CI) 0.28–0.84). A reduction in episiotomy was seen with hands off technique (RR 0.65, 95% CI 0.50–0.96) and a reduction in SPT was observed with second stage perineal massage (RR 0.52, 95% CI 0.29–0.94). Unfortunately, evaluations of the various techniques by women and clinicians have been excluded from this review (Dahlen, 2012). For example, while second stage perineal massage may lead to a reduction in severe perineal trauma, women often dislike the technique, and it can be especially traumatic in cases of previous sexual abuse. The RCT undertaken into the application of warm compress examined two hypotheses: (1) perineal suturing and (2) comfort during and after birth (Dahlen et al., 2007). Reduction in second stage pain and postpartum pain was the most significant finding in this trial, along with the high acceptability to women and midwives (Dahlen et al., 2009). This did not form part of the meta-analysis, most likely because it was not examined in other primary RCTs.

Are we missing something else?

While focus has been put on changing practices (control of the fetal head, birth positions etc) as a possible explanation for rising severe perineal trauma (despite Level 1 evidence to the contrary) could something else be going on? It is highly likely we have improved our detection and reporting of SPT over recent years, which is a good thing and this may in part be contributing to an increase in SPT rates. Demographics in many developed nations have also been changing in recent years with increased migration and a world that is more internationalised than ever before. We looked at our state of NSW (n = 1,097,762) and found the numbers of women born in Australia and giving birth to a baby had declined from 72% to 66% between 2000 and 2011 (Fig. 3). The biggest increases in migrant women were in women born in China and India (Fig. 4). Over an 11 year period in NSW (2000–2011) women born in India had a SPT of 7.6%, with similarly high rates also found in women born in Bangladesh, Indonesia, China, Thailand, Sri Lanka, Philippines and South Korea (4.1–7.6%) (Fig. 5). There were also higher rates of instrumental births in many of these migrant women compared to Australia born women, with primiparous women born in India having an instrumental birth rate of 38% (Fig. 6). While looking at the entire state of NSW may not show dramatic increases in SPT when you look at a single maternity unit (n = 25,796 primiparous women) with a rising number of women born in India and China over the past 11 years (Fig. 7) you can see the contribution this changing demographic has on the significant rise of SPT (Figs. 8 and 9). To apply a population wide approach in this unit for example would potentially be missing the fact that a closer look needs to be taken at particular populations with high rates of SPT. We published a study in 2013 showing that of all the top seven migrant groups in NSW, Indian women had the highest rate of induction, epidural, episiotomy and instrumental birth and this remained true even when only low risk women were included (Dahlen et al., 2013).

A patchwork of services for women with SPT

Research led by the second author demonstrates that the way women are cared for during their pregnancy birth and postpartum period has a direct impact on their capacity to understand and process their experience of SPT (both positive and negative) and their ability to manage any ongoing symptoms and related morbidity (Priddis et al., 2012; H. Priddis et al., 2014). Women who experience SPT describe feeling ‘abandoned’ by health providers and the health system. Using words like ‘feeling like a piece of meat’ demonstrate the lack of compassion shown to women who experience SPT (H. Priddis et al., 2014). We found health professionals were more focused on technical skill and less on providing compassionate care, whereas women were more concerned with how they were cared for, facial expressions during suturing and the way they were spoken to and followed up afterwards (H. Priddis et al., 2014; H.S. Priddis et al., 2014). When women who experienced SPT described their birth as traumatic this trauma came from how they were treated and this contributed to a sense of disembodiment, social isolation and
mental health issues. While we must continue to find ways to reduce the incidence of SPT during birth more focus needs to be placed on consistent guidelines to reduce the ‘patchwork of services’ available to women who experience SPT and also on compassionate, informed care (H.S. Priddis et al., 2014). This should not be considered as optional but as a fundamental human right.

Conclusion

Level 1 evidence exists to support the use of warm compresses to reduce SPT. This technique also increases second stage comfort for women and is acceptable to women and midwives. While Level 1 evidence exists to support intrapartum perineal massage as reducing SPT the comfort of this procedure and acceptability to women and midwives has not been adequately evaluated so it should be used with caution. Level 1 evidence also exists to support a restrictive policy of episiotomy as leading to lower SPT. It appears a wider angle of episiotomy (around 60 degrees or more) may be protective of SPT, but further research is required to confirm this. There is no evidence to support the restriction of birth position and women should be free to move about and chose their birth position. Level 1 evidence exists to show upright birth

Fig. 3. Country of birth Australia expressed as a % of all birthing women over time (NSW 2000–2011).

Fig. 4. Country of birth expressed as a % of all birthing women over time (NSW 2000–2011).

Fig. 5. Total SPT expressed as a % of all vaginal births for Australian women and the eight countries of birth with the incidence of SPT ≥ 100 and rates of SPT ≥ 4.0% (NSW 2000–2011).
positions reduce the incidence of epidural anaesthesia and instrumental births, both which are associated with an increased incidence of SPT. There is no evidence that hand manoeuvres reduce the incidence of SPT compared to a hands off/poised approach. Good communication, compassionate care and coordinated systems that support women who have experienced SPT are fundamental human rights for all childbearing women and continue to often be lacking. Future research needs to undertake into the contribution of changing demographics in countries and the apparent rise in SPT. Research needs to be targeted at specific groups of women with high rates of SPT that is culturally sensitive and acceptable to women (Table 1). Reducing perineal trauma during birth is important to women and remains a high priority for health professionals. Future research should include women’s evaluations and long term follow up when assessing techniques/technologies. Factors such as ethnicity, culture, nutrition, and fear should be considered in future research, along with birth position, pushing methods, mechanical perineal dilators, pelvic floor exercises, cold compresses, labour support, place of birth and models of care (Dahlen, 2012).

Fig. 6. Rates of operative vaginal delivery and country of birth for the eight countries of birth with the highest rates of severe perineal trauma and Australian born women expressed as a % of all vaginal births for primiparous women (NSW 2000–2011).

Fig. 7. Severe perineal trauma rates for primiparous women as expressed as a % of all vaginal births for all women at a single maternity unit (n=25,796) (NSW 2000–2011).

Fig. 8. Changing rates of country of birth expressed as a % of all birthing primiparous women at one unit for the two countries with the highest rates of non-Australian country of birth (NSW 2000–2011).
Fig. 9. Severe perineal trauma at one unit with top 12 countries where incidence ≥ 50 of event and rate ≥ 5% of cases of vaginal birth to singleton primiparous women compared to Australian born women.

Table 1
Practice recommendations to help reduce SPT and provide women with humanised care.

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<th>Recommendations</th>
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<tr>
<td>1. Good communication is a fundamental human right when caring for women who are giving birth</td>
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<td>2. There is no evidence to support the use of hand manoeuvres for reducing SPT</td>
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<td>3. Delivery of the baby's head between contractions rather than with a contraction needs further research to confirm its possible effect in reducing perineal trauma</td>
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<td>4. Women should have freedom to choose and move into positions of their choice. Upright birth positions reduce instrumental vaginal birth (22%) and episiotomy (21%), both associated with an increase in SPT</td>
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<td>5. Episiotomy should only be done only as clinically indicated. Restrictive use of episiotomy compared to routine use reduces SPT rates (23%)</td>
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<td>6. Instrumental birth should be avoided where possible, especially forces delivery, as it leads to the highest number of episiotomy extensions and SPT</td>
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<td>7. A larger angle of episiotomy (&gt; 60%) may be associated with a lower risk of SPT and simulated training may be required, though more research is required</td>
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<td>8. Warm compresses should be offered to women as second stage comfort and due to the fact they are associated with a reduction in SPT (&gt; 50%) and are acceptable to women and midwives</td>
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<td>9. Women born in countries such as India, Bangladesh, Indonesia, China, Thailand, Sri Lanka, Philippines and South Korea have high rates of SPT and more research is needed into why this is and how this can be reduced</td>
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<td>10. Intervention in birth starts a cascade that increases the risk of SPT. Normal physiological birth and models of care that reduce intervention need to be promoted</td>
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<td>11. More focus needs to be placed on consistent guidelines to reduce the 'patchwork of services' currently available to women who experience SPT and also on making sure health professionals provide compassionate, informed care</td>
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References


