Midwifery 51 (2017) 40–43

Contents lists available at ScienceDirect

Midwifery

journal homepage: www.elsevier.com/locate/midw

Impact of mediolateral episiotomy on incidence of obstetrical anal sphincter injury diagnosed by endoanal ultrasound

Kristina Drusany Staric[a], Adolf Lukanovic[a], Petra Petrocnik[d], Vita Zacesta[c], Corrado Cescon[b], Miha Lucovnik[a,*]

[a] Division of Obstetrics and Gynaecology, University Medical Centre Ljubljana, Slajmerjeva 4, 1000 Ljubljana, Slovenia
[b] Department of Business Economics, Health and Social Care, University of Applied Sciences and Arts of Southern Switzerland, Le Gerre, Via Pobiette 11, CH-6928 Manno, Switzerland
[c] Riga maternity hospital, Riga Stradins University, Dzirciema 1r6, LV-1007 Riga, Latvia
[d] Faculty of Health Sciences, Midwifery Division, University of Ljubljana, Zdravstvena pot 5, 1000 Ljubljana, Slovenia

ARTICLE INFO

Keywords:
Mediolateral episiotomy
Obstetric anal sphincter injuries
Endoanal ultrasound
fFaecal incontinence
Anal incontinence

ABSTRACT

Objective: to examine potential association between mediolateral episiotomy and reduced incidence of obstetrical anal sphincter injuries (OASIS) diagnosed by endoanal ultrasound.
Design: prospective cohort study.
Setting: tertiary referral university hospital.
Participants: sixty nulliparous women at 28–33 weeks of gestation with singleton pregnancies were included between 2010 and 2012.
Measurements and findings: participants were examined with endoanal ultrasound at 28–33 weeks gestation and at 6–7 weeks post-partum. At both visits, symptoms of anal incontinence were assessed using Cleveland Clinic (Wexner) faecal incontinence scoring system. Mann Whitney *U*-test and χ^2 test was used to compare groups with vs. without episiotomy and groups with vs. without OASIS diagnosed by ultrasound. χ^2 test was used to assess correlation between OASIS and anal incontinence symptoms ($p \leq 0.05$ considered significant). None of the women included had sphincter injury or anal incontinence before childbirth. All delivered vaginally. Mediolateral episiotomy was performed in 33 (55%) cases. Six (10%) had OASIS on endoanal ultrasound (two were also diagnosed clinically), and 11 had symptoms of anal incontinence post-partum. No significant differences were seen in clinical characteristics between groups with vs. without episiotomy. No significant differences were seen in episiotomy rate ($p=0.14$), angle ($p=0.42$) and length ($p=0.14$) between groups with vs. without OASIS on ultrasound. Correlation between anal incontinence symptoms and sonographically diagnosed OASIS was statistically significant ($p=0.04$).
Key conclusions: mediolateral episiotomy does not seem to be protective against clinically or sonographically diagnosed OASIS even when episiotomy technique is considered. Endoanal ultrasound allows a significantly better detection of symptomatic OASIS compared to clinical examination alone.
Implications for practice: mediolateral episiotomy should be considered only when shortening the second stage of labour is indicated due to foetal distress, and not as a means of OASIS prevention.

Introduction

Obstetrical anal sphincter injuries (OASIS) are a major risk factor for subsequent development of anal incontinence (Sultan et al., 1993; Vandervoort, 2002; Bharucha et al., 2012; Huebner et al., 2013; LaCross et al., 2015; Ozyurt et al., 2015; Richter et al., 2015). OASIS is still mostly diagnosed immediately after childbirth by clinical examination of the perineum. This examination is subjective and studies showed that sphincter injuries are often missed clinically (Fletcher et al., 2003; Gupta et al., 2003; Andrews et al., 2006). Endoanal ultrasound (EUS) is a more accurate and objective method to diagnose OASIS (Burnett and Bertram, 1991; Nielsen et al., 1992; Gupta et al., 2003; Walsh and Grivell, 2015). As a result, it has been proposed that EUS should become the gold standard for detection of OASIS (Fletcher et al., 2003).

Mediolateral episiotomy, a surgical enlargement of the vaginal

* Correspondence to: University Medical Centre Ljubljana, Department of Perinatology, Division of Obstetrics andf Gynaecology, Slajmerjeva 4, Ljubljana, Slovenia.
E-mail address: miha.lucovnik@kclj.si (M. Lucovnik).

http://dx.doi.org/10.1016/j.midw.2017.05.008
Received 2 November 2016; Received in revised form 7 April 2017; Accepted 15 May 2017

orifice by a mediolateral incision in the perineum during the last part of the second stage of labour, is often performed in order to prevent OASIS (Kalis et al., 2008). Nevertheless, studies have not clearly demonstrated the efficacy of episiotomy in the prevention of anal incontinence (Hartmann et al., 2005). Most studies examining whether episiotomies prevent OASIS and/or anal incontinence did not account for episiotomy technique, which has been shown to be an important determinant in preventing sphincter injury (Eogan et al., 2006).

The objective of our study was to determine whether mediolateral episiotomy reduces the incidence of OASIS diagnosed by EUS. We also examined the association between sonographically diagnosed OASIS and symptoms of anal incontinence post-partum.

Methods

This prospective, observational study was performed at a single tertiary perinatal centre from December 2010 to December 2012. All women included in the study provided written informed consent for study participation. The National Medical Ethics Committee approved the study (reference number 124/02/10).

Study population

We included nulliparous women with singleton pregnancies at 28–33 weeks of gestation during their routine antenatal visits. We excluded women with episodes of anal incontinence before pregnancy, previous pelvic surgery, presence of neuropathies affecting pelvic innervations, 3rd degree haemorrhoids, and those who were scheduled for elective caesarean section.

The participants were examined twice: at inclusion, i.e. at 28–33 weeks of gestation and 6–7 weeks post-partum during their routine pot-partum visit. On both occasions, EUS was performed and anal incontinence symptoms were assessed using the Cleveland Clinic (Wexner) faecal incontinence scoring system. In addition, length and angle of episiotomy were measured at the post-partum visit in the case episiotomy had been performed. All measurements were performed by a single investigator (DS. K.).

Endoanal ultrasound measurements

Endoanal ultrasound imaging was performed using a B & K Medical 2050 endoscopic probe (B & K Medical, Sandhoften, Denmark). The mechanically rotated probe produces a 360° cross-sectional view ideally suited to the examination of sphincters. The ultrasound probe is covered with a rigid plastic cone of uniform diameter that prevents anatomical distortion. The probe was inserted into the anal canal and a 3D scan was taken. The internal and external sphincters were checked for any damage. Images taking before and after childbirth in every participant were compared. The continuity of the anal sphincter ring was checked. In the case of sphincter damage, the location of injury was recorded according to the clock (twelve o'clock being anterior and six o'clock posterior). The depth of the damage was also measured and classified according to Sultans classification (Sultan et al., 2007). All ultrasound examinations and analyses were performed by a single investigator (DS. K.).

Cleveland Clinic (Wexner) faecal incontinence scoring system

The Cleveland Clinic (Wexner) faecal incontinence scoring system was used to quantify the degree of anal incontinence symptoms in each woman before childbirth as well as at the time of their post-partum examination. This scoring system takes into account five parameters that are scored on a scale from zero (absent) to four (daily) - frequency of incontinence to gas, liquid, solid stool, or the need to wear a pad, and of lifestyle changes (Jorge and Wexner, 1993).

Statistical analysis

For comparison between the two study groups (with mediolateral episiotomy vs. without mediolateral episiotomy) Mann Whitney U-test was used for continuous variables and χ^2 test for categorical variables, as appropriate. We also compared data on rates, angles and lengths of episiotomies in groups with OASIS diagnosed by EUS vs. no OASIS on EUS. χ^2 test was also used to assess the correlation between EUS diagnosed OASIS and anal incontinence symptoms diagnosed by Cleveland Clinic (Wexner) faecal incontinence scoring system. For all tests, a two-tailed p value ≤0.05 was considered statistically significant. The software used for statistical analysis was IBM SPSS Statistics for Windows Version 21.0 (Armonk, NY: IBM Corp.).

Findings

Sixty pregnant women were included in the study. None of them had sphincter injury seen on EUS during pregnancy. Similarly, no symptoms of anal incontinence, assessed by Wexner scoring system, were present in any of the women included before childbirth. In all cases, maternal race was 'white women' Midwives and none of the women included admitted to alcohol or drug abuse during pregnancy.

All 60 participants delivered vaginally. There were no instrumental vaginal deliveries in the cohort of women included. Mediolateral episiotomy was performed in 33 (55%) cases. There were no midline episiotomies performed in the population studied. Injury of the external anal sphincter was diagnosed clinically at childbirth in two (3%) women. At 6–7 weeks post-partum, EUS showed an injury of the external anal sphincter in six (10%) women. Clinical examination has, therefore, missed four out of six cases of OASIS (33% detection rate). In all cases, sphincter injury was classified as 3a (injury of the outer half of the external anal sphincter). All deliveries as well as post-partum perineal exams and perineal trauma repairs occurred in delivery rooms within the labour ward. Midwifes were the primary providers of care during labour and childbirth, but there was no continuity of care, since women received antenatal care at other institutions by different providers (obstetricians or midwives). All women included in this study were in the semi-reclining position during childbirth. Midwives who attended childbirth also examined perineal injuries after childbirth and could, in case a more extensive injury was diagnosed, consult an obstetrician who was present in the labour ward at all times. All repairs of perineal injuries were performed by obstetricians.

Fig. 1 presents EUS images before and after childbirth of one of the women included in the study who suffered OASIS. Injury of the external anal sphincter can be clearly seen in the post-partum image.

Table 1 presents comparison of groups with vs. without episiotomy. No significant differences were seen in maternal, neonatal and labour characteristics of the two groups. This suggests that episiotomies were not performed in a group of labouring women with higher risk of OASIS *per se*.

Table 2 shows comparison of mediolateral episiotomy rate, angle and length in the groups with OASIS seen on EUS vs. no OASIS on EUS. All episiotomies were performed at a 30–50° angle, which is considered adequate (Eogan et al., 2006). There was a statistically non-significant trend towards higher OASIS incidence associated with mediolateral episiotomy irrespective of its length (p=0.14).

Eleven patients had a Cleveland Clinic (Wexner) score of more than zero at the post-partum visit. EUS was diagnosed in three (27%) of these 11 women. The correlation between anal incontinence symptoms diagnosed by Cleveland Clinic (Wexner) faecal incontinence scoring system and EUS diagnosed OASIS was statistically significant (p=0.04).

Discussion

On the basis of the results of our study, mediolateral episiotomy