

The effect of a mediolateral episiotomy during operative vaginal delivery on the risk of developing obstetrical anal sphincter injuries

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OBJECTIVE: The objective of the study was to evaluate the frequency of obstetrical anal sphincter injuries (OASIS) in women undergoing operative vaginal deliveries (OVD) and to assess whether a mediolateral episiotomy is protective for developing OASIS in these deliveries.

STUDY DESIGN: We performed a retrospective cohort study. Maternal and obstetrical characteristics of the 2861 women who delivered live-born infants by an OVD at term in the years 2001–2009 were extracted from a clinical obstetrics database and were analyzed in a logistic regression model.

RESULTS: The frequency of OASIS was 5.7%. Women with a mediolateral episiotomy were at significantly lower risk for OASIS compared with the women without a mediolateral episiotomy in case of an OVD (adjusted odds ratio, 0.17; 95% confidence interval, 0.12–0.24).

CONCLUSION: We found a 6-fold decreased odds for developing OASIS when a mediolateral episiotomy was performed in OVD. Therefore, we advocate the use of a mediolateral episiotomy in all operative vaginal deliveries to reduce the incidence of OASIS.

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BACKGROUND AND OBJECTIVE

Operative vaginal delivery is a risk factor for obstetric anal sphincter injuries (OASIS). Other risk factors, identified by several studies, are primiparity, induction of labor, epidural anesthesia, occipitoposterior position, fetal macrosomia, increased maternal age, and prolonged duration of the second stage of labor.

In The Netherlands in 2008, the frequency of OASIS, defined as any rupture of the anal sphincter muscle, was 2.3% in all vaginal deliveries. Knowledge of risk

factors and preventive measures may help to reduce the number of anal sphincter injuries. With this study we hope to present more evidence that a mediolateral episiotomy lowers the odds for OASIS in operative vaginal delivery.

The aim of our study was to evaluate the frequency of OASIS in women undergoing an operative vaginal delivery and to assess whether a mediolateral episiotomy protects against developing OASIS in these deliveries.

MATERIALS AND METHODS

The Netherlands Perinatal Registry (PRN) is a national database that includes 96% of approximately 190,000 deliveries per year in The Netherlands at more than 16 completed weeks of gestation under supervision of a midwife or obstetrician. A retrospective cohort study was performed using data from the local PRN database of Amphia Hospital of deliveries from Jan. 1, 2001, through Dec. 31, 2009. We selected all women who had delivered liveborn infants by an operative vaginal delivery at term.

We defined our primary outcome as OASIS. According to a subdivision in the PRN database, perineal ruptures are cat-

egorized in none, rupture (first- and second-degree perineal rupture according to the Royal College Obstetricians and Gynaecologists [RCOG] classification), subtotal rupture (RCOG grades 3A, 3B, and 3C ruptures), and total rupture of the perineum (RCOG grade 4 rupture).

RESULTS

Patients in the group with a mediolateral episiotomy (MLE positive) delivered more frequently by a forceps extraction (12.7% vs 3.9%, $P < .001$), contained more occipitoposterior positions (13.2% vs 9.0%, $P < .01$), were more often primiparous (87.6% vs 73.5%, $P < .001$), and used epidural anesthesia more often than the group without a mediolateral episiotomy (MLE negative) (22.3% vs 13.8%, respectively, $P < .001$). The MLE-negative group delivered by vacuum extraction more often than the MLE-positive group (96.1% vs 86.2%, respectively, $P < .001$).

The analysis included 2861 operative vaginal deliveries in the study period (Figure), with 104 patients excluded. The overall frequency of OASIS was 5.7%. In women delivered with a vacuum extraction, the frequency of sphincter lesions was 5.9% as compared with

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3.2% of women delivered with forceps extraction. The absolute risk of OASIS was 3.5% in the MLE-positive group and 15.6% in the MLE-negative group (odds ratio [OR], 0.19; 95% confidence interval [CI], 0.14–0.26). After univariate logistic regression analysis, this risk estimation remained almost unchanged (adjusted OR, 0.17; 95% CI, 0.12–0.24).

After logistic regression analysis controlling for different covariates, MLE showed a strong protective effect for developing OASIS with odds ratios varying from 0.13 to 0.26. The number needed to treat (NNT) for the use of a mediolateral episiotomy during vacuum extraction to prevent 1 anal sphincter injury was 8.64, whereas the NNT in a forceps delivery was 5.21.

COMMENT

We analyzed the decreased odds for developing OASIS associated with the use of a mediolateral episiotomy in 2861 patients delivered by an operative vaginal procedure.

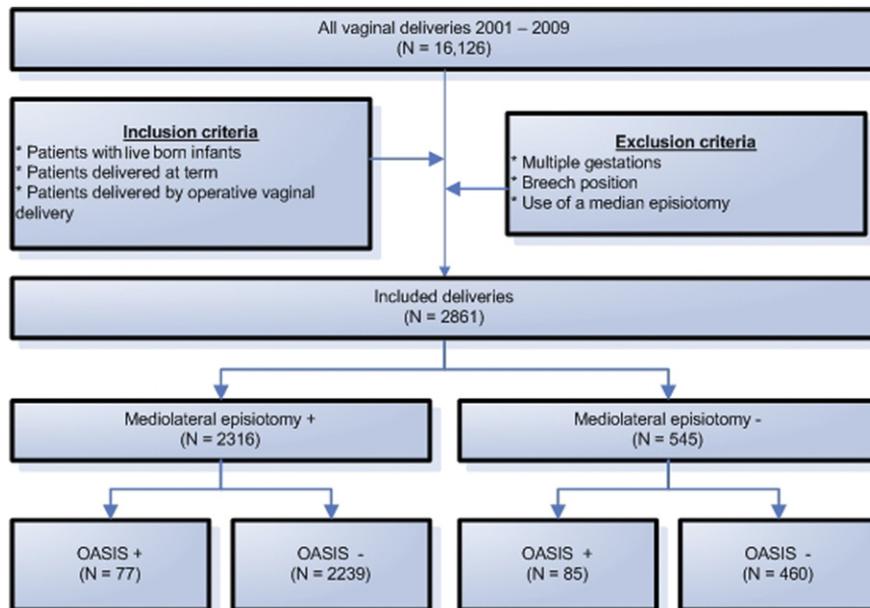
When a mediolateral episiotomy was performed, the odds for developing OASIS decreased 6-fold.

Known risk factors for developing OASIS (eg, primiparity, occipitoposterior position, and forceps delivery) are overrepresented in the MLE-positive group vs the MLE-negative group. Despite this inequality, the frequency of OASIS is lower in the MLE-positive group, which may indicate that the reducing effect of a mediolateral episiotomy on the risk for developing OASIS has been underestimated.

The strength of this study is the large number of analyzed deliveries collected prospectively. The weaknesses of this study are the retrospective study design, the inequality at baseline between the 2 groups (although the differences are minimized by using a logistic regression model), and lack of standardization regarding how and when a mediolateral episiotomy was performed. The database

FIGURE

Flow diagram of the included patients



The flow diagram of the included patients was divided into 2 groups (MLE positive and MLE negative). MLE, mediolateral episiotomy.

de Vogel. Mediobilateral episiotomy, operative vaginal delivery, and OASIS. *Am J Obstet Gynecol* 2012.

did not include adverse effects from the use of a mediolateral episiotomy, making it impossible to take these possible effects into account. Despite the weaknesses of this study, the evident and considerable protective effect of the mediolateral episiotomy clearly is of clinical importance.

Although adverse effects are not reported in our study, the known adverse effects of the mediolateral episiotomy (eg, short-term pain while healing, dyspareunia) cause less morbidity, in our opinion, than the known adverse effects of OASIS, such as fecal incontinence. Therefore, the significant risk-reducing effect of the mediolateral episiotomy warrants its use in operative vaginal delivery as opposed to median episiotomy, which markedly increases risk for OASIS in that setting.

We found that the odds of developing OASIS were reduced by 6-fold when a

mediolateral episiotomy was performed during operative vaginal delivery. Therefore, we advocate the use of a mediolateral episiotomy in all operative vaginal deliveries to reduce the incidence of OASIS.

CLINICAL IMPLICATIONS

- When a mediolateral episiotomy was performed during an operative vaginal delivery, the odds of developing obstetrical anal sphincter injuries decreased 6-fold.
- Despite well-known adverse effects of mediolateral episiotomy, its ability to reduce risk significantly may warrant its use vs median episiotomy in operative vaginal deliveries.
- We advocate the use of a mediolateral episiotomy in all operative vaginal deliveries. ■