

Birth Attendants' Own Analyses of Causes for Anal Sphincter Tears

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Abstract

Objective: Explore the explanations of birth attendants who had diagnosed an anal sphincter tear in their own patient.

Study Design: Total of 261 study protocols were filled in immediately after a delivery in four delivery units in Norway.

Methods: Causes were classified as maternal, fetal, combined maternal/fetal, suboptimal treatment and others. Birth attendants were also asked to explain why an anal sphincter tear occurred. These explanations were further classified as scientifically proven and scientifically unproven. The hospital derivate differences were calculated. The explanatory data was categorized, and numbers and percentages were calculated for further analyses.

Results: The most used causes were fetal (32%), maternal (18%) or combined fetal/maternal factor (8%). The most common explanations were that the delivery of baby's head was uncontrolled (17%), hand beside baby's head (9%), edema/strict perineum (8%), no or insufficient episiotomy (7%) and inadequate perineal support (6%). Over half of all explanations were based on known risk factors for anal sphincter tears, but every fifth had an explanation lacking a scientific proved basis. Twenty-one percent did not find any reason for OASIS. There were no hospital derivate differences.

Conclusion: Causes for anal sphincter tears were most commonly related to the fetus and the most common explanation was that the head of the fetus came too fast.

Keywords: *Obstetric Anal Sphincter Injuries; Risk Factors; Own Analysis; Midwifery*

Abbreviations: OASIS: Obstetric Anal Sphincter Injuries

Introduction

Incontinence after obstetric anal sphincter injuries (OASIS) has a significant impact on a women's physical and emotional health [1,2]. This includes the development of anxiety and depression, with a reluctance to consider future pregnancies as well as delay in woman's

resumption of sexual intercourse [3-5]. Symptoms of incontinence profoundly impair patients' quality of life including usual activities, discomfort, anxiety, and social stigmatization. The resulting social isolation is a major concern leading to reduced quality of life [6]. Further, these serious tears impose a significant social and economic impact on the individual and the community [7,8].

The symptoms of anal incontinence may occur immediately or develop later in life. Aging has been shown to affect muscle strength, reduce the squeezing pressure, affect tissue elasticity, and resilience to load bearing in the pelvis which can lead to more detrimental results in these women.

Risk factors for anal sphincter laceration at childbirth may be divided into maternal, fetal, and obstetrical causes [2]. Knowledge and modification of attributive risk factors may help reduce the number of anal sphincter injuries during vaginal delivery.

In Norway, the frequency of obstetric anal sphincter injuries (OASIS) increased from 1% in the late 1960s to 4.3% in 2004. After an alarming report from the Norwegian Board of Health, a national program aimed at reducing the number of anal sphincter tears in Norway was established. As a part of this program, an intervention was started in five Norwegian hospitals. The focus of this intervention was on the manual support of perineum, close contact between patient and accoucheur, correct indication and technique when performing episiotomy, and the delivery position allowing the visualisation of perineum and adequate perineal support. The details of the intervention procedure [9] as well as results of this multicentre intervention programme showing a highly significant decrease in OASIS were recently published [10].

The aim of this prospective observational study was to explore the immediate and spontaneous views and explanations of midwives and doctors who had diagnosed an anal sphincter tear in their own patient during an interventional programme aiming to decrease the number of OASIS.

Methods

Four out of the five hospitals participated in the present study, which is part of the Norwegian intervention. Three of these clinics (Tromsø, Lillehammer and Ålesund) are relatively small with 1000 - 1500 deliveries/year, while Stavanger has about 4500 deliveries/year. The clinics participating in the present study come from geographically different parts of Norway.

As a part of the intervention, a specific protocol (Figure 1) was created in aim to explore the reasons for an anal sphincter tear. The research was conducted using a questionnaire which was developed by the authors and led by the corresponding author. Further, the questionnaire was pretested on five experienced midwives/doctors in all participating hospitals. The focus of this protocol was the accoucheur's (midwife in a spontaneous vaginal delivery, and doctors in an instrumental delivery) own opinion why a tear took place. The protocol was filled in immediately after a delivery, and later analyzed and discussed together with a member of a local expert core team to learn from the process and to learn what could be done differently next time in aim to avoid these serious tears. Every woman with suspected tears were examined by a doctor and the diagnose were always confirmed by a doctor who also performed suturing.

Total of 261 protocols were collected for analysis mainly within two years from the start of the intervention. Data were entered into a SAS database. The data assessed included the main and secondary/tertiary explanations for anal sphincter tears. These explanations were further tested as scientifically proven and scientifically unproven based on known/unknown risk factor in the scientific literature. The hospital derivate differences were calculated. The given explanations were placed evenly to different reason groups. The explanatory data was categorized, and numbers and percentages were calculated for further analyses.

Follow-up of grade 3 and 4 tears

Delivery _____ (date) _____ (time)

Midwife _____

Physician _____

Type of tears (3a, b, c, 4): _____

Episiotomy: yes/no

Type: medial/mediolateral/lateral

Indication: _____

Perineal support: traditionally/ own method/ no support/ other _____

Delivery position: lithotomy/ lateral/ sitting/ all fours/ kneeling/ water birth/ birthing stool/ other

Instrumental delivery: vacuum/ forceps/ breech

Indication: _____

Comments: _____

Figure 1: The study protocol.

The study was a part of a national intervention program in Norway, which was approved by the Regional Committee North for Medical and Health Research Ethics.

Results

In all, 261 protocols were filled in and all were suitable for analyses. The mean response rate was 72% (Lillehammer 97%, Tromsø 69%, Ålesund 95%, and Stavanger 56%, respectively). The most used explanation group was the fetal, maternal or combined fetal/maternal factor which was included in 58% of all protocols (Table 1). A suboptimal treatment of the last stage of the delivery represented 15% of answers, and 25% did not have any answer at all (Table 1).

Causes for OASIS	Number	Percent
Fetal factor	85	32%
Maternal factor	47	18%
Combined fetal/maternal factor	21	8%
Suboptimal treatment	39	15%
Other	2	1%
No explanation	67	26%
Total	261	100%

Table 1: Categorized explanations for obstetric anal sphincter injuries.

The main explanations were split up widely, and the most used explanation was that the birth of fetal head was uncontrolled, which represented 17% of all explanations (Table 2).

Main explanation	Number	Percentage
Uncontrolled delivery of baby's head	44	17%
Hand beside baby's head	23	9%
Edema/strict perineum	20	8%
No/bad episiotomy	19	7%
Inadequate perineal support	15	6%
Shoulders	11	4%
Bad communication/cooperation	10	4%
Operative delivery	9	3%
Diverse	55	21%
No explanation	55	21%
Total	261	100%

Table 2: Accoucheur's main explanation for obstetric anal sphincter injury.

The other explanations not listed in the Table 2 included for example epidural analgesia, oxytocin stimulation, long lasting second phase of delivery, occiput posterior presentation, earlier anal sphincter tear, delivery chair, maternal obesity, genetic predisposition, fundus pressure, fungal infection in vagina, and delivered by a student or a substitute.

The scientific validity of explanations was as follows. Over half of all explanations were based on the known risk factors for anal sphincter tears, but every fifth had an explanation completely lacking a scientific proved basis. Further, one fourth did not give any explanation at all.

There were 236 grade 3 tears and 25 grade 4 tears, respectively. No statistical differences in the explanations between grade 3 and 4 tears. Further, the explanations between the four participating hospitals did not show any statistically significant differences.

Discussion

To our knowledge the present study is the first one reporting accoucheur's reflections behind an anal sphincter tear. Based on our results, almost 60% of respondents thought they found a solid reason behind an anal sphincter tear whereas one fourth did not have any explanation. It has to be kept in mind that in some cases, especially without any risk factors, it can be hard to find any cause for a serious tear.

Nulliparity, midline episiotomy, instrumental delivery (forceps delivery or vacuum extraction), and fetal weight are some of the factors widely recognized to be associated with an increased risk of anal sphincter laceration at delivery [11,12]. Furthermore, prolonged second stage of delivery, edematous perineum, large infant head diameter, occiput posterior presentation, use of oxytocin, OASIS during earlier delivery, and lack of adequate perineal support technique have also been shown to be risk factors of OASIS [2,10-12]. Combined use of different instruments, in comparison to the exclusive use of one, may increase the risk of perineal trauma. Consensus is lacking regarding the role of mediolateral episiotomy [13]. However, recent studies indicate that mediolateral episiotomy is protective against OASIS during operative vaginal deliveries as well as for primiparous women [14] especially if the episiotomy is cut correctly [15].

The number of women requesting caesarean section is constantly growing in western European countries, thereby causing controversy between obstetricians and midwives on how to reduce maternal intrapartum and postpartum complications to provide optimal care for the childbearing patient. Patients, obstetricians and midwives alike have a universal desire to limit the incidence of third- and

fourth-degree tears in order to minimize the effect of vaginal delivery on the fecal continence, and to make the vaginal delivery safer and more attractive for pregnant women. Better knowledge of the risk factors as well as the predisposing factors for serious complications during the vaginal delivery could decrease the number of different complications. On the other hand, awareness of the risk factors does not always help to predict what women will sustain a sphincter tear, and tears most often occur in women without any risk factors.

The most common explanation in the present study was that the delivery of baby's head was uncontrolled. This is a quite obvious reason because a precipitate delivery, when there is less time for maternal tissues to adapt to delivery forces, is suspected to be associated with perineal injury. The positions which allow women to push very hard can make it difficult for the birth attendant to control the delivery causing an increase in tear rate. A study by Shorten et al. reported that those women who delivered in the lateral (side lying) position had the lowest incidence of perineal trauma [16].

We have shown in our article from 1998 [17] that the use of perineal support technique to control the crowning of fetal head will decrease the risk for OASIS even more in low risk deliveries without any known risk factors compared to the high-risk deliveries. Further, our recent findings from this intervention including four Norwegian hospitals give strong support to this hypothesis [18]. Similarly, the technique has been proven to be successful in other countries, too [19].

In more than half of the cases, the explanation was a scientifically proven one, often including one of the known risk factors. In 20% of the forms, a wide variety of different scientifically not proven explanations could be found (see Table 2). Probably an accoucheur has experienced similar occasions several times in aim to find an explanation to a severe tear, and this experience has been a still unproven fact to her/him.

The four clinics which took part in the study come from different parts of Norway with great demographic and geographical differences. There were different routines in the clinical work and different size in delivery units. However, no major differences in any outcome parameters between the four clinics were observed.

The strength of this study is that all the protocols were filled in directly after an anal sphincter tear happened which increase the reliability of the present study. Further, four clinics from different parts of Norway took part, and they filled in over 250 questionnaires. Further, the response rate of 72% was high increasing the reliability of this study. All midwives and doctors had participated in the tutorials which probably increased their knowledge of prevention, treatment as well as risk factors for anal sphincter tears. A time factor related to the tutorials and to the intervention is naturally a limitation of the present study. The answers could have been different if the protocols were filled in before the tutorials or after a long-term training period.

The protocol used in this study could be implemented in everyday clinical practice, and therefore we recommend to use it after an OASIS in aim to increase the understanding mechanism behind anal sphincter tears. The protocol and an interactive discussion together with an expert could easily be an important part of an education process of decreasing these serious tears.

Contribution to Authorship

T.P. conducted the study, performed the analyses, and led the writing of the article. M.G. helped with the statistical methods and helped interpret the results. E.H., A.R., R.R., and S.H. assisted with data collection. J.P. conceived and supervised the study and helped interpret the results. All authors assisted in critical revision of the manuscript and approved the final version.

Conflict of Interest Statement

There are no existing potential conflicts of interest for any of the authors.

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