

Research plan

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Outcome of obstetrical second-degree perineal lacerations in relation to maternal BMI

Background: The true prevalence of second degree lacerations is not known. In different studies from around the globe there are prevalences between 37-78%, which means that it is a very common outcome during vaginal delivery.[1] A perineal laceration during childbirth can occur spontaneously or iatrogenically by episiotomy. The most commonly used classification, which has also been adopted by RCOG, is the Sultan classification. It defines second degree lacerations to include only the muscles in the perineal body, not the anal sphincter or deep vaginal lacerations.[2, 3] In 1995-97 a Swedish study prospectively recruited 2883 women, corresponding to 77,4% of all women expecting a vaginal delivery at Sahlgrenska University Hospital. The study defined second degree lacerations as all lacerations with a depth >5mm. In this population the prevalence of second degree lacerations was 39,6% and among the primiparous women (n =1296) 38,5%.[4] With such a high prevalence the question of short term and long term complications from second degree lacerations is of great importance.

Studies indicate that the postpartum duration and extent of pain from perineal lacerations increases with the severity of the laceration.[5] A perineal laceration seem to increase the risk of urinary incontinence postpartum.[6] In a study from 2002 investigating the sexual function after perineal lacerations it was indicated that women with a second degree perineal laceration, spontaneous or by episiotomy, were 80% more likely to experience dyspareunia at 3 months postpartum compared to women with an intact perineum.[7] Other complications which can derive from a perineal laceration includes psychological suffering, stool issues and prolapse.[8]

It has been indicated that pregnancy related physical changes resulting in impaired pelvic floor function might affect anal incontinence more than the vaginal delivery itself.[9] Weight gain during pregnancy has been pointed out as a risk factor but has not been calculated in the current study.

The number of pregnant women that are classified as overweight or obese has increased dramatically. In Sweden in 2019 26% of the women were overweight and 13% were obese in early pregnancy while expecting their first child.[10] This pattern is also seen globally, where the number of people suffering from overweight or obesity reaches approximately one third of the population.[11]

Obesity in itself is associated with pelvic floor dysfunction regardless of pregnancy and vaginal delivery.[12] There are several studies though, which conclude that obese primiparous women have a decreased risk of having an obstetric anal sphincter laceration during vaginal birth compared to normal weight women. [13, 14] On the other hand, it seems like the same group might have an increased risk of having a first or second degree perineal laceration. [14]

However a study from 2017 showed the contrary, that increased BMI was associated with a reduced incidence of minor perineal trauma, i.e. first or second degree lacerations.[15] One study has shown that the anovaginal distance is longer in obese women giving vaginal birth than in their normal weight counterparts.[16] This is thought to be a protective variable of the perineal body. This might also indicate that the second degree lacerations among overweight and obese women could be less pronounced than in normal weight women and therefore give less clinical complications.

No previous studies, to the best of our knowledge, have investigated the relation between BMI and complications following second degree perineal lacerations after vaginal delivery.

Aim: To evaluate how pelvic floor dysfunction and patient reported satisfaction eight weeks after a second-degree vaginal laceration in primiparous women is related to maternal BMI.

Hypothesis: Women with a second degree perineal laceration with underweight, overweight or obesity, have the same incidence of pelvic floor dysfunction and patient reported satisfaction as normal weight women.

Material and method: A register based cohort study with data obtained from the Swedish Perineal Laceration Registry (PLR) 2014-2021. Second degree lacerations have been reported systematically by a number of Swedish delivery wards including Uppsala, Sundsvall, Halmstad, Karlskrona, Varberg, Växjö and Örnsköldsvik.[17] The data has been collected prospectively starting at the delivery ward when the second degree vaginal tear has been diagnosed and sutured. The patient has then filled out a form answering questions about symptoms and function related to continence, abdominal pain and genital issues prior to the pregnancy. The follow up data has been collected through two follow up questionnaires at eight weeks and one year postpartum respectively. The questionnaires have been distributed either digitally as an online form through the Swedish national Healthcare Guide 1177, by email or by traditional mail service. A reminder is sent out after 7-14 days and 14-28 days. Variables related to the pregnancy and delivery have been collected from the woman's electronic medical record Obstetrix.

The study population will include primiparous women with a spontaneous second degree laceration derived from giving vaginal birth or from episiotomy.

Data will be obtained on maternal and obstetric characteristics; age, BMI, diabetes mellitus, IBD, preoperative urine leakage and preoperative gas and/or fecal incontinence.

The study population will further be subdivided according to BMI in five classes as suggested by WHO. [18] Normal weight women with a second degree laceration will be set as the reference group.

Outcomes to evaluate in relation to maternal BMI are: Pelvic floor function; anal incontinence, sexual function and urine incontinence at eight weeks and one year postpartum.

Primary outcomes: Prevalence of urinary incontinence, fecal incontinence and patient reported satisfaction eight weeks after delivery with a second degree vaginal laceration according to maternal BMI.

Secondary outcome: Prevalence of complications and infections at eight weeks according to maternal BMI.

All analyses will be performed using SPSS Statistical package version 25.0 (IBM Corporation 1989, 2017). Maternal characteristics will be analysed using Chi² test for categorical variables, and t-test for continuous variables. A p-value of <0.05 will be considered statistically significant.

Binary logistic regression will be performed to calculate odds ratios (ORs), adjusted odds ratios (aORs) and 95% confidence intervals (95% CIs) for outcomes

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