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## Childbirth Related Labial Trauma : Time for evidence based practice

Julia Sanders, PhD, RM; Emily Brace, RM; Rebecca Cannings-John, PhD; Sue Channon, PhD; Nadia Hikary-Bhal, MRCOG; Elinor Jenkins, DClinP, RM; Anouk Ridgway, RM; Julia Townson, PhD.

Julia Sanders is Professor of Nursing and Midwifery at Cardiff University and Cardiff and Vale Health Board; Emily Brace, is Consultant Midwife, Oxford Healthcare NHS Trust; Rebecca Cannings-John is Senior Research Fellow in Statistics, Centre for Trials Research, Cardiff University; Sue Channon is a Senior Research Fellow, Centre for Trials Research, Cardiff University; Nadia Hikary-Bhal is Consultant in Obstetrics and Gynaecology, Cwm Taf Morgannwg University Local Health Board; Elinor Jenkins is a Clinical and Research Midwife at the Isle of Wight NHS Trust; Anouk Ridgway is Research Midwife at Cardiff and Vale Health Board; Julia Townson, is Senior Trial Manager, Centre for Trials Research, Cardiff University.

**Address for correspondence:** Julia Sanders, Room 1.7, Ty Dewi Sant Heath Park, School of Healthcare Sciences, Cardiff University Cardiff. CF14 4XN.

Tel: (44)29 20687623. Email: sandersj3@cardiff.ac.uk.

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## Abstract

Trauma to the labia occurs in up to 49% of vaginal births<sup>1</sup>. Trauma to the perineal body resulting from childbirth is well defined using widely used categories, and recommended management of perineal body trauma is based on high level evidence. Currently no similar evidence exists to inform the classification or management of labial trauma. This is reflected in variation in clinical practice with some practitioners favouring suturing of labial trauma, whilst others favour healing by secondary intention. A survey of practice was undertaken in three NHS organisations, over a five-week period in 2019 with data collected on 332 vaginal births. Overall, 47.3% (n=157) of women sustained labial trauma, of whom 29.3% (n=46) sustained trauma described as involving skin and underlying tissues. Of the labial trauma which involved skin and underlying tissues 76.0% (n=35) was sutured and the remainder unsutured. The survey confirmed a lack of consistency in practice and the need for further research to inform care for women.

**Key words** Childbirth, perineal trauma, labial trauma

## Main paper

The management of trauma sustained to the perineal body during childbirth is informed by randomised trials<sup>1</sup> but no similar evidence exists for the management of labial trauma<sup>2</sup> that occurs during childbirth.

During vaginal birth an estimated 35-49%<sup>3,4</sup> of women sustain labial trauma with some clinicians favour suturing whilst others favouring wound healing by secondary intention<sup>5</sup>. Unstitched labial trauma can result in physical and psychological morbidity<sup>6</sup> for women including postnatal pain, dyspareunia, urinary dysfunction and requests for further treatment<sup>7</sup> including surgical separation<sup>2,8-13</sup> or refashioning. However, without high level evidence suturing should not be assumed to be preferable<sup>14</sup> as it may not provide postnatal pain reduction or more effective wound healing.

A Delphi study<sup>6</sup> of 22 clinicians, described management of various degrees of labial trauma severity. Participants agreed that superficial trauma, similar to a graze, did not require suturing; that actively bleeding labial trauma requires suturing to achieve haemostasis<sup>6</sup> and torn labia require suturing to realign tissue. However, agreement was not reached on management of deep labial trauma that was not actively bleeding.

The justifications clinicians gave for suturing, where this was their preference included: promoting healing, reduction of infection, reducing pain, haemostasis, anatomical realignment cosmetic appearance, less scarring and particular to bilateral labial trauma, preventing fusion. Justifications for non-suturing of deeper trauma included that it would heal spontaneously, and it was not bleeding. These justifications may be valid but without research to explore the experiences of women we do not know if leaving labial wounds to heal by secondary intention results in different outcomes for women compared to suturing. Randomised trials to assess the effectiveness and cost-effectiveness of suturing labial trauma compared to conservative management are needed. The need for further research is justified by the lack of a current evidence base, variations in practice<sup>6</sup>, and for the wellbeing of new mothers<sup>15</sup>. To explore the feasibility of a potential future trial of labial trauma management we undertook a survey of practice.

## Methods

The survey was conducted over a five-week period in late 2019 in three UK NHS maternity units. Two units have over 6,000 births annually, one with a main delivery suite and an alongside midwifery led unit; the other with a main delivery suite, an alongside midwifery led unit and four smaller freestanding midwifery led units. The third rural unit has one delivery suite and approximately 1,100 births annually. All units offered home births. Questionnaires were distributed to all clinical areas and midwives and obstetricians were informed of the survey by EB, EJ and AR and requested to complete a form for each vaginal birth they conducted. The questionnaire had four sections: a) background information on the place and mode of birth and whether any genital trauma had occurred; b) description of the severity of labial trauma sustained using previously developed illustrations<sup>6</sup>; c) whether labial trauma had been sutured and methods used; and d) equipoise as to whether the woman was considered clinically appropriate to recruit into a trial comparing suturing with non-suturing of labial trauma.

The questionnaire and protocol were reviewed and approved by the audit lead in each institution and evaluated by the NHS Health Research Authority online tool as not requiring NHS Ethical approval.

## Results

Data were collected on 332 vaginal births with units in Cardiff, Oxford, and the Isle of Wight collecting data relating to 156, 141 and 35 births respectively. The most common place of birth was on obstetric led delivery suites (73.2%, n=243). The remaining births occurred in alongside midwifery units (24.7%, n=82); freestanding midwifery units (0.6%, n=2); or at home (1.5%, n=5). Most questionnaires related to women who had a spontaneous vaginal birth (89.8%, n=298). The remaining births were instrumental, assisted with forceps (7.2%, n=24), or ventouse (2.7%, n=9) and one vaginal breech birth. Overall, 86.1% (n=286) of women sustained genital trauma, including 47.3% (n=157) sustaining labial trauma. (Table 1)

Among the labial trauma sustained by 157 women, 48.1% (n=74) was described by the clinicians as unilateral and superficial, 17.5% (n=27) as bilateral and superficial, 14.9% (n=23) as unilateral and involving deeper tissues, 9.7% (n=15) as bilateral and involving deeper tissues, 5.2% (n=8) a combination of deep and superficial labial trauma, and 4.5% (n=7) as having a horizontal split in the labia. Three were not described.

Among women categorised as having superficial, deep tissue or horizontal tear labial trauma, 16.8% (n=17), 76.0% (n=35), and 85.7% (n=6) respectively had the trauma sutured. One woman with deep bilateral labial tears was offered to be sutured but declined. Where described, clinicians used a continuous or subcuticular stitch for 41.8% (n=18) repairs, and interrupted sutures for 58.1% (n=25).

The survey identified that clinicians had equipoise on the issue of suturing labial trauma responding that had a trial been ongoing they would have been prepared to offer randomisation to 46.2% of women with labial trauma. The reasons for not considering randomisation clinically appropriate were described in free text and included that the trauma was bleeding, too superficial to suture or too severe to leave unsutured. All reasons given when equipoise was not expressed were based on the clinical characteristics of the trauma rather than personal preferences for management.

## Discussion

Our survey found that labial trauma occurred in nearly half of vaginal births. In keeping with a lack of evidence, clinicians varied in their approach to the management of labial trauma. Although some labial trauma needs suturing to maintain haemostasis or realign tissues, it should not be assumed to be superior to non-suturing for all wounds. Suturing may be ineffective due to later wound breakdown, have poor cosmetic results<sup>7</sup> or associated with increased levels of postnatal pain and the requirement for additional health professional input<sup>16</sup>. Equally, healing of labial trauma without suturing may have disadvantages for women, but similar to other clinical areas<sup>17</sup>, remains under researched. Other interventions such as the use of topically applied local anaesthetics, which provide effective anaesthesia in the early postnatal period<sup>18</sup>, are also worthy of evaluation as may provide effective management without the need for suturing. Women in our local PPI research group met to discuss this issue. They agreed studies were required, suggested that in a trial setting information should be provided to all women before labour and selected 'pain on passing urine in the early days following birth' as their primary outcome for future trials. Other outcomes identified as important by the PPI group included pain whilst infant feeding;

duration of breastfeeding; duration and use of analgesics; healing; infection; urinary function; resumption of intercourse, dyspareunia; maternal satisfaction; general maternal health; primary and secondary care resource use following birth.

Provisional sample size calculations indicate that trials of labial trauma management would be feasible to deliver. Assuming the use of primary outcome of pain on urination of 60%<sup>3</sup> in the control group at 48 hours after birth and a two-sided 5% significance level, a trial would require a sample size of 462 women. This would give 90% power to detect an absolute difference of 10% in the proportion of women experiencing pain on urination at 48 hours following birth between the two policies. Allowing for 10% loss to follow-up 508 women would need to be recruited. Any future randomised trial should also incorporate a qualitative work stream to explore the experiences of women and the impact of trauma management.

Our survey provided data on 332 vaginal births over a five-week period in three NHS organisations, with total annual births of 14,000. During this period, across the three units, it would be expected that there would have been around 1,045 vaginal births suggesting a response rate of around 30%. Spontaneous births were over represented, but rates of labial trauma were similar to those previously reported<sup>4</sup>. The survey found 47.3% (n=157) of women sustained labial trauma, of whom 61 (18.3% of all vaginal births) resulted in trauma which clinicians expressed that they would have been prepared to recruit into a trial of labial trauma management. In a maternity unit with 5,000 births, and 75% vaginal birth rate (3,750 annually) this suggests, depending on criteria, up to 686 women per year, could be eligible for recruitment into a trial of management of labial trauma.

Studies including randomised trials to assess the effectiveness and cost-effectiveness of the management of childbirth related labial trauma are justified by the lack of a current evidence base, recognised variations in practice<sup>6</sup>, and the importance of genital trauma healing for the wellbeing of new mothers<sup>15</sup>.

To our knowledge this was the first survey to explore the willingness of clinicians to recruit women into a randomised trial of labial trauma management. However, the cohort was incomplete, and the rates of labial trauma and its management found in the survey may not be reflective of all women undergoing vaginal birth, or practice in other units. The survey provided information to inform the design of future randomised trials of the management of labial trauma and suggested such trials would be feasible to design and deliver.

#### [CRediT roles:](#)

Julia Sanders: Conceptualization, Methodology, Validation, Formal analysis, Writing - Original Draft, Project administration, Writing - Review & Editing, Funding acquisition.

Emily Brace: Conceptualization, Methodology, Investigation, Writing - Review & Editing, Project administration, Funding acquisition.

Rebecca Cannings-John: Conceptualization, Methodology, Validation, Formal analysis, Visualization, Writing - Review & Editing.

Sue Channon: Conceptualization, Methodology, Writing - Review & Editing.

Nadia Hikary-Bhal: Conceptualization, Methodology, Writing - Review & Editing.

Elinor Jenkins: Conceptualization, Methodology, Investigation, Resources, Writing - Review & Editing, Project administration, Funding acquisition.

Anouk Ridgway: Conceptualization, Methodology, Investigation, Writing - Review & Editing, Project administration.

Julia Townson: Conceptualization, Methodology, Writing - Review & Editing.

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Table 1. Description of labial trauma sustained in vaginal births in three centres

	N (%)	
<b>Place of birth (n=332)</b>		
Delivery suite	243 (73.2)	
Alongside Midwifery Units (AMU)*	82 (24.7)	
Freestanding midwifery units (FMU)**	2 (0.6)	
Home	5 (1.5)	
<b>Mode of Birth (n=332)</b>		
Spontaneous vaginal births (SVB)	298 (89.8)	
Forceps	24 (7.2)	
Ventouse	9 (2.7)	
Vaginal breech	1 (0.3)	
<b>Any genital trauma sustained (n=332)</b>		
No trauma	46 (13.9)	
Trauma sustained	286 (86.1)	
<b>Labial trauma sustained (n=332)</b>		
Yes	157 (47.3)	
No	175 (52.7)	
Of those with labial trauma sustained:		
<b>Labial trauma description (n=157)</b>		
Superficial total:	101 (64.3)	
Unilateral superficial		74 (48.1)
Bilateral superficial		27 (17.5)
Deeper total:	46 (29.2)	
Unilateral involving deeper tissues		23 (14.9)
Bilateral involving deeper tissues		15 (9.7)
Combined superficial and deeper		8 (5.2)
Other:		
Horizontal split	7 (4.5)	
Not described	3	
<b>Management of superficial labial trauma (n=101)</b>		
Sutured	17 (16.8)	
Not sutured	80 (79.2)	
Not described	4	
<b>Management of labial trauma involving deeper tissues (n=46)</b>		
Sutured	35 (76.0)	
Not sutured	11 (14.0)	

<b>Management of labial trauma involving horizontal tear (n=7)</b>		
Sutured	6 (85.7)	
Not sutured	1 (14.3)	
<b>Suture method used for repair of all labial trauma (n=58)</b>		
Continuous / subcuticular	18 (41.8)	
Interrupted	25 (58.1)	
Not described / combination	15	

\*Alongside midwifery unit

\*\*Freestanding Midwifery Unit