Labial trauma post birth: A delphi study of classification and suturing requirements

Elinor Jenkins, Chris Markham, Isobel Ryder, Christine Kettle

Abstract

Objectives

Primary objectives were to establish consensus of opinion for classification of post birth labial trauma and which types of post birth labial trauma require suturing. Secondary objectives were to establish optimal method, material and anaesthetic for suturing labial trauma.

Design

Delphi study consisting of 3 rounds.

Setting

UK and Europe

Participants

8 midwives, 4 obstetricians, 7 specialist perineal midwives, 1 consultant midwife and 2 midwifery lecturers all with relevant expertise and or recent, regular clinical experience of assessing and suturing labial trauma from 2 United Kingdom (UK) universities, 12 UK healthcare trusts and 1 European healthcare organisation.

Methods

A Delphi study consisting of an initial round of 6 professional medical illustrations of labial trauma with 6 open questions attached to each sent to panel members. 2 further rounds developed from the first round with between 2 and 10 opt-in statements for the 6 questions for each illustration to 20 and 22 panel members respectively. Consensus was set at 70% opt-in for each statement.

Findings

Consensus was reached that unilateral or bilateral vertical skin separation with minimal trauma to underlying tissues was described as a graze and does not require suturing. Consensus was reached that unilateral or bilateral deeper vertical trauma with involvement of the underlying tissue and horizontal trauma across the labia does require suturing with interrupted technique, injected local anaesthetic and using Vicryl Rapide 3.0 or equivalent.

Conclusion

A pilot study and definitive randomised controlled trial are required to establish in vivo whether labial tears including those which are transverse, are less painful and heal better with interrupted suturing compared to continuous or subcuticular sutures.

Introduction

During vaginal birth, trauma can occur with varied severity in the external genitalia, specifically in perineal, periclitoral, periurethral and labial sites (Albers et al., 1999, American College of Obstetricians and Gynecologists (ACOG) 2016). Unlike trauma to the perineum, reporting of periclitoral, periurethral and labial trauma is inconsistent (Albers et al., 1999), has no universally recognised descriptions and has minimal research evidence regarding treatment for healing, pain and infection (Arkin and Chern Hughes 2001).

This study focuses on trauma occurring in the labia. Research evidence suggests labial trauma ranges in prevalence from 9.3% (De Jonge et al 2010) through to 35% (McCandlish et al., 1998) and up to 49% (Albers et al., 2005). Of these 3 studies Albers et al. (2005) provided the most robust recording of what was considered labial trauma ie: any skin separation including site documented by midwives consistently trained in methods of recording trauma. Midwives and obstetricians are treating labial trauma in the absence of a definitive evidence base (Jenkins 2011), possibly with a reliance on historical practice, personal experience and opinion rather than evidence-based outcomes.

A gap in the evidence is a lack of common criteria for the different types of labial trauma women experience (Mead 2011). This is in contrast to 1st, 2nd, 3rd and 4th degree descriptors for perineal trauma (National Institute for Health and Care Excellence 2017; Royal College of Obstetricians and Gynaecologists 2015), which have a robust and reliable system for classification. To provide best care, the same is required of labial trauma to ensure that documentation, description and treatment are standardised according to research evidence.

Reporting for labial trauma at birth is inconsistent, leading to an unclear picture of longer term consequences (Albers et al., 1999). There is, however, some evidence demonstrating the potentially poor outcomes of labial trauma. Several case studies report post partum fusion secondary to labial trauma at birth requiring surgical separation (Caglayan 2014; Arkin and Chern Hughes 2001; Yoong and Alderman 1990; Shaver et al., 1986; Morgan Davenport and Richardson 1986). Dyspareunia, urinary dysfunction and pain are noted as outcomes for many of these cases. In the general population, 2 studies identify appearance, dyspareunia, discomfort and personal hygiene as reasons for requesting cosmetic labial surgery (Sorice et al., 2017; Liao et al., 2009). Mead (2011) reports a case of litigation for unsutured labial trauma after birth.

As labial refashioning after birth is a procedure of limited clinical value (Clinical Commissioning Group 2018), there is a consideration that, for women's quality of life, repair of post birth labial trauma should be undertaken effectively and using the best evidence at the time of birth. At present this evidence is limited to prevalence and risk factors (Lagana et al., 2015; Schirmer et al., 2011; DeJonge et al., 2010; Mikolajczyk et al., 2008; Albers et al., 2006a; Albers et al., 2006b; Renfrew et al., 1998) with minimal evidence for treatment (Lundquist et al., 2000).

Labial trauma, therefore, can have immediate and lasting clinical and wellbeing implications for women, yet there is a limited evidence base available to support clinicians in making accurate diagnoses and treatment decisions.

Aim

The purpose of this paper is to provide evidence for treatment for labial trauma that occurs during birth.

The primary aim of this study was to establish consensus of opinion for classification of post birth labial trauma and which types of post birth labial trauma required suturing. Secondary objectives were to establish optimal method, material and anaesthetic for suturing labial trauma.

Methods

Ethics

The study was provided with a favourable opinion by the Health Research Authority IRAS project ID 226,321 REC reference 18/HRA/0039. Sponsorship was provided by the Isle of Wight NHS Trust.

Methodology

Delphi methodology to establish consensus of a panel of midwifery and obstetric clinicians was used. When compared with perineal trauma, there is minimal research evidence for definition, suturing requirements and treatment outcomes on which to base a research study or trial. The basic Delphi enables experts to give their opinions anonymously on subsequent rounds of a questionnaire on a selected topic, whilst being able to see the responses of other panel members on each round (Boulkedid et al., 2011). Participants are able to change their views on seeing the opinions of other participants in subsequent rounds. This allows a group opinion of experts without the bias of individual members overpowering vocally or by status in a focus group or face to face meeting. 3 rounds were used to fit with the time frame of the study, to avoid participant fatigue and because it was envisaged that this would be sufficient for data saturation (Keeney et al., 2011; Walker et al., 2016b).

Participants

The first round was sent to 22 midwifery and obstetric clinicians (7 midwives, 4 obstetricians, 7 specialist midwives, 2 consultant midwives and 2 midwifery lecturers) who gave verbal or email permission to be contacted. The purpose of this round was to identify and theme open ended questions to produce multiple choice statements for rounds 2 and 3 (Hasson et al., 2000), hence the smaller sample than subsequent rounds (with allowance for non-responders). Consent was implied by the return of a completed questionnaire. 16 replies were received (4 midwives, 4 obstetricians, 6 specialist midwives and 2 midwifery lecturers). The second round was sent to 27 midwifery and obstetric clinicians, all of the 22 first round panel members and 5 further midwives (4 midwives and 1 specialist midwife). The 5 further panel members were included to take part in the themed multiple choice and increase the sample size. 20 replies were received (7 midwives, 4 obstetricians, 6 specialist midwives 1 consultant midwife and 2 midwifery lecturers). 1 reply for round 2 from a specialist midwife was mislaid until after round 3 was complete and therefore could not be included. The 3rd round was sent to 22 panel members, all of whom had completed either or both round 1 and 2, with replies received from all 22 (8 midwives, 4 obstetricians, 7 specialist midwives, 1 consultant midwife and 2 midwifery lecturers). Perceived non responders (ie: no answer or communication at any point) from rounds 1 and 2 were not included in the 3rd round.

14 panel members contributed to every round (3 midwives, 4 obstetricians, 5 specialist midwives and 2 midwifery lecturers). 20 panel members contributed to both 2nd and 3rd rounds (8 midwives, 4 obstetricians, 5 specialist midwives, 1 consultant midwife and 2 midwifery lecturers). 16 panel members contributed to rounds 1 and 3 (4 midwives, 4 obstetricians, 6 specialist midwives and 2 midwifery lecturers). Reminder emails were sent to each participant if required after 3 weeks for the 1st round, and weekly for subsequent rounds.

Rounds 1 and 2 both achieved response rates greater than 70% and round 3 achieved a response rate of 100%. This is attributable to reminder emails being sent. Rigour may be achieved by response rates greater than 70% of participants (Keeney et al., 2011; Atkins et al., 2005). Sample sizes of 16, 20 and 22 for rounds 1, 2 and 3 respectively were achieved with responses from 4 of the 5 professional groups responding in round 1, and all 5 professional groups responding in rounds 2 and 3. A reasonable sample size (14 participants) (Keeney et al., 2011) of 4 of the 5 professional groups contributed to all 3 rounds. Attrition and potential bias is an accepted part of Delphi methodology, however, for this study there is representation of all professional groups in all bar one round thus minimising potential bias and generalisability.

The final sample size of 22 was selected as it was achievable within the time frame of the study and, based on Walker et al., 2016a, Walker et al., 2016b) and Hasson et al. (2000), would provide a reasonable sample size.

The study used a purposive sampling method, in order to identify a group of midwifery and obstetric clinicians whose experiences would be transferable to the wider population. Non-

probability sampling was used to ensure that each participant met the inclusion criteria (Keeney et al., 2011). The inclusion criteria were described a priori. All participants were selected because they held one or more of the following: 1) expertise in post birth genital trauma, 2) regularly reviewed post birth genital trauma more than 2 weeks post suturing or 3) regularly assessed and sutured labial trauma immediately post birth. Participants were identified through professional networking (suturing study day, midwifery colleagues, international midwifery email groups, specialist midwifery groups and via 2 consultant midwives). On approach, each panel member confirmed they met the inclusion criteria and that they would be willing to take part in 3 rounds of the Delphi study. Panel members remained anonymous to each other throughout the study and after completion. Participating panel members were 8 midwives, 7 specialist midwives in post birth genital trauma, 1 consultant midwife, 2 midwifery lecturers and 4 obstetricians. The 22 panel members were from 15 organisations, including 2 UK universities (2 panel members), 12 UK healthcare trusts (19 panel members) and 1 overseas healthcare organisation (1 panel member).

Data collection and analysis

Data collection (all 3 rounds) was conducted via secure email from 17 August 2017 to 24 February 2018. With the exception of issues for a minority of panel members relating to the size of the illustrations, a network quarantine, web based document access and saving, it was relatively straightforward. These issues were overcome by requesting alternative email addresses, 1 paper copy of a questionnaire and 1 panel member giving data by telephone.

Results were based on the number of participants agreeing with a particular statement. Participants were able to select agree with as many statement options as they chose. This yielded categorical data positive to the statement option. Consensus was set a priori for the final round at 70% or more of participants choosing a question option (Hasson et al., 2000).

The first round consisted of 6 open questions attached to each of 6 illustrations of types and combinations of labial trauma. The illustrations were developed by seeking the experience of 3 labour ward based midwives who were not panel members. Each was given unlimited identical line drawings of female external genitalia and asked to draw every type of labial trauma they had seen onto as many line drawings as required. The drawings were then collated into similar types of trauma. A medical artist then produced the series of 6 pictures depicting the most common types and combinations of labial trauma. The pictures showed vertical skin separation with minimal trauma to underlying tissues (Illustrations 1 and 2), deeper vertical trauma with involvement of the underlying tissues either unilaterally and in combination (Illustrations 3, 5 and 6), and horizontal trauma across the labia (Illustration 4). Pictures were limited to 6 to avoid participant fatigue and to limit the data to a usable amount. Bilateral trauma combinations were included.

Illustration 1. Unilateral vertical skin separation with minimal trauma to underlying tissues.

Illustration 2. Bilateral vertical skin separation with minimal trauma to underlying tissues.

Illustration 3. Unilateral deeper vertical trauma with involvement of the underlying tissues.

Illustration 4. Unilateral horizontal trauma across the labia.

As there is currently minimal evidence from which to develop quality indicators (Boulkedid et al., 2011), the statements were developed by open questions in the first round relating directly to the research questions.

For each illustration the following questions were asked of each panel member:

1. How would you describe this trauma?
2. Would you recommend suturing this trauma?
3. Why would you suture this trauma?
4. How would you suture this trauma?
5. What suture material would you use?
6. What anaesthetic and technique for administration would you use?

Answers from the first round were themed and multiple choice statements for each of the 6 questions attached to each illustration were developed for the 2 subsequent rounds (Hasson et al., 2000). Every question had from 2 to 11 statements, which the participant could agree with or leave blank. The participant could answer as many questions as they chose. For the second round each answer was presented with the number of respondents who had selected the answer in the first round and the total number of responses. The third round was based on the second round with null answers removed. Each question in the third round had the number of participants who had responded to it from the second round.

Reporting standard

The reporting standard Conducting and REporting of DElphi Studies (CREDES) was used for this study (Junger et al., 2017).

Results

The illustrations and results are detailed below with consensus levels reached after 3 rounds.

For Illustration 1, the description of graze reached consensus at 95.45% (21/22 participants). There was 100% (22/22 participants) consensus that this trauma does not require suturing as it will heal spontaneously (81.82%, 18/22 participants). Other reasons not to suture that did not reach consensus but had at least 1 positive response were no edges to draw together (18.18%, 4/22 participants), not bleeding (31.82%, 7/22 participants), unilateral (18.18%, 4/22 participants), superficial (45.45%, 10/22 participants), may cause more trauma to suture (18.18%, 4/22 participants), may cause more pain to suture (22.73%, 5/22 participants) and difficult to suture (9.09%, 2/22 participants).

For Illustration 2, the description of bilateral (72.73%, 16/22 participants) grazes (95.45%, 21/22 participants) that do not require suturing reached consensus (77.27%, 17/22 participants). Reasons not to suture reached consensus as the trauma was superficial (81.82%, 18/22 participants) and was likely to heal spontaneously (72.73%, 16/22 participants). Other reasons not to suture that did not reach consensus but had at least 1 positive response were no edges to draw together (4.63%, 1/22 participants), not bleeding (27.27%, 6/22 participants), may cause more pain to suture (22.73%, 5/22 participants) and advice can be given to prevent fusion (31.82%, 7/22 participants).

For Illustration 3, the description of tear reached consensus at 77.27% (17/22 participants). The recommendation for suturing (77.27%, 17/22 participants) with interrupted sutures (77.27%, 17/22 participants) using Vicryl Rapide 3.0 or equivalent (77.27%, 17/22 participants) reached consensus with the rationale of healing promotion (81.82%, 18/22 participants). Other options for suturing rationale that did not reach consensus but had at least 1 positive response were reducing pain (36.36%, 8/22 participants), reducing discomfort (13.64%, 3/22 participants) and infection (36.36%, 8/22 participants), it would achieve haemostasis (45.45%, 10/22 participants) and prevent haematoma (13.64%, 3/22 participants), anatomical realignment (36.36%, 8/22 participants), avoid the risk of excess granulation tissue (9.09%, 2/22 participants) and it was deep trauma (4.63%, 1/22 participants). Other suturing methods and material that did not reach consensus but had at least 1 positive response were continuous (9.09%, 2/22 participants) and subcuticular (13.64%, 3/22 participants), and Vicryl Rapide 4.0 (9.09%, 2/22 participants) and 2.0 or equivalent (4.63%, 1/22 participants). For anaesthetic, injected local anaesthetic reached consensus at 86.36% (19/22 participants). Other options for anaesthetic and technique of administration with at least 1 positive response were epidural in situ (18.18%, 4/22 participants), topical (9.09%, 2/22 participants) or subcutaneous local (13.64%, 3/22 participants), Entonox (27.27%, 6/22 participants), using an orange (25 gauge) needle 31.82%, 7/22 participants) and either 5 millilitres (mls) (9.09%, 2/22 participants) or 10 mls (4.63%, 1/22 participants) of lignocaine.

For Illustration 4, the description of tear reached consensus at 77.27% (17/22 participants). Other options for description that did not reach consensus but had at least 1 positive response were split (18.18%, 4/22 participants), partial detachment of the labia (4.63%, 1/22 participants), complete tear (18.18%, 4/22 participants), transverse tear (18.18%, 4/22 participants), full thickness upper third tear (13.64%, 3/22 participants) and lateral tear (9.09%, 2/22 participants). The recommendation for suturing was 100% (22/22 participants) with interrupted sutures reaching consensus at 90.91% (20/22 participants) using Vicryl Rapide 3.0 or equivalent (72.73%, 16/22 participants) reached consensus with the rationale of anatomical realignment (100%, 22/22 participants) and cosmetic appearance (72.73%, 16/22 participants). Other options for suturing rationale that did not reach consensus but had at least 1 positive response were reduction of pain (45.45%, 10/22 participants) and discomfort (63.64%, 14/22 participants), reduction of pain during sexual intercourse (13.64%, 3/22 participants), haemostasis (50%, 11/22 participants), healing promotion (68.18%, 15/22 participants), preservation of labial function (22.73%, 5/22 participants), avoiding return for correction (22.73%, 5/22 participants) and avoiding longer term consequences (18.18%, 4/22 participants). Other options for suturing method that did not reach consensus but had at least 1 positive response were continuous (4.63%, 1/22 participants), buried knots 4.63%, 1/22 participants), closing each side separately (18.18%, 4/22 participants) and securing the outer edge first (4.63%, 1/22 participants). Other suturing material that did not reach consensus but had at least 1 positive response were Vicryl Rapide 4.0 (13.64%, 3/22 participants) and 2.0 or equivalent (9.09%, 2/22 participants). For anaesthetic, injected local anaesthetic reached consensus at 95.45% (21/22 participants). Other options for anaesthetic and technique of administration with at least 1 positive response were epidural in situ (18.18%, 4/22 participants); topical local (9.09%, 2/22 participants); Entonox (22.73%, 5/22 participants); using an orange (25 gauge) needle (40.91%, 9/22 participants) and either 5mls (4.63%, 1/22 participants) or 10mls (9.09%, 2/22 participants) of lignocaine.

For Illustration 5, the bilateral trauma (9.09%, 2/22 participants) reached consensus as a tear on the woman's right (86.36%, 19/22 participants) and a graze on the woman's left (95.45%, 21/22 participants). There was consensus that the tear (right side) should be sutured (86.36%, 19/22 participants) with an interrupted technique (77.27%, 17/22 participants) using injected local anaesthetic (95.45%, 21/22 participants) and Vicryl Rapide 3.0 or equivalent (81.82%, 18/22 participants) to promote healing (72.73%, 16/22 participants). As a point of note, not suturing the graze (left side) did not reach consensus (68.18%, 15/22 participants). Other options for suturing rationale that did not reach consensus but had at least 1 positive response were anatomical realignment (36.36%, 8/22 participants), reduction of infection (31.82%, 7/22 participants), reducing pain (27.27%, 6/22 participants) and discomfort (22.73%, 5/22 participants), haemostasis (45.45%, 10/22 participants), it is deep trauma (13.64%, 3/22 participants), preventing fusion (63.64%, 14/22 participants), cosmetic appearance (9.09%, 2/22 participants) and less scarring (9.09%, 2/22 participants). Other suturing methods and material that did not reach consensus but had at least 1 positive response were continuous (18.18%, 4/22 participants) and subcuticular

(9.09%, 2/22 participants), and Vicryl Rapide 4.0 (9.09%, 2/22 participants) and 2.0 (4.63%, 1/22 participants) or equivalent. For anaesthetic, injected local anaesthetic reached consensus at 95.45% (21/22 participants). Other options for anaesthetic and technique of administration with at least 1 positive response were epidural in situ (9.09%, 2/22 participants); topical (9.09%, 2/22 participants) or subcutaneous local (13.64%, 3/22 participants); Entonox (22.73%, 5/22 participants); using an orange (25 gauge) needle (31.82%, 7/22 participants) and either 5mls (4.63%, 1/22 participants) or 10mls (9.09%, 2/22 participants) of lignocaine.

Illustration 5. Unilateral vertical skin separation with minimal trauma to underlying tissues in combination with unilateral deeper vertical trauma with involvement of the underlying tissues.

For Illustration 6, the description of bilateral (90.91%, 20/22 participants) tears (90.91%, 20/22 participants) reached consensus. The recommendation for suturing (90.91%, 20/22 participants) with interrupted sutures (81.82%, 18/22 participants) using Vicryl Rapide 3.0 (77.27%, 17/22 participants) or equivalent reached consensus with the rationale of promoting healing (81.82%, 18/22 participants) and preventing fusion (90.91%, 20/22 participants). Other options for recommending suturing with at least 1 positive response was that possibly just 1 side could be sutured (9.09%, 2/22 participants). Other options for suturing rationale that did not reach consensus but had at least 1 positive response were reduction of infection (31.82%, 7/22 participants), reducing pain (22.73%, 5/22 participants) and discomfort (45.45%, 10/22 participants), haemostasis (50%, 11/22 participants), anatomical realignment (18.18%, 4/22 participants), cosmetic appearance (13.64%, 3/22 participants) and less scarring (9.09%, 2/22 participants). Other options for suturing method that did not reach consensus but had at least 1 positive response were continuous (13.64%, 3/22 participants) and subcuticular (13.64%, 3/22 participants). Other options for suture material with at least 1 positive response were Vicryl Rapide 2.0 (9.09%, 2/22 participants) and Vicryl Rapide 4.0 (13.64%, 3/22 participants). For anaesthetic, injected local anaesthetic reached consensus at 100% (22/22 participants). Other options for anaesthetic and technique of administration with at least 1 positive response were epidural in situ

(13.64%, 3/22 participants); topical local (9.09%, 2/22 participants); Entonox (13.64%, 3/22 participants); subcutaneous along edges (4.63%, 1/22 participants), using an orange (25 gauge) needle (36.36%, 8/22 participants) and 10mls of lignocaine (4.63%, 1/22 participants).

Illustration 6. Bilateral deeper vertical trauma with involvement of the underlying tissues.

Illustration 1, Illustration 2 and 5 (left side) showing vertical skin separation with minimal trauma to the underlying tissues all reached consensus for being described as grazes. Illustration 3, Illustration 5 (right side) and 6 showing deeper vertical trauma with involvement of the underlying tissues all reached consensus for being described as tears. For grazes the consensus was consistent at 95.45% (21/22 participants) for all 3 Illustration 1, Illustration 2 and 5) depicting this trauma. However, for tears the intra-rater reliability was reduced as consensus varied for each illustration. In Illustration 3 where the trauma was unilateral, consensus was 77.27% (17/22 participants). In Illustration 5, where the trauma was depicted with a graze, consensus was 86.36% (19/22 participants). In Illustration 6 where tears were bilateral, consensus was 90.91% (20/22 participants).

All trauma described as tears (Illustration 3, Illustration 4, Illustration 5 and 6) reached consensus that it should be sutured. For Illustration 3, Illustration 5 and 6, consensus was reached that this would promote healing. However, for Illustration 4, consensus was reached for anatomical realignment and cosmetic appearance. When grazes occurred unilaterally or bilaterally, consensus was reached that grazes should not be sutured as they would heal spontaneously. The exception was a graze occurring with a tear (Illustration 5), where no consensus was reached whether the graze should be sutured or not.

Discussion

The primary aim of this study was to establish consensus of opinion for classification of post birth labial trauma and which types of post birth labial trauma required suturing. Secondary objectives were to establish optimal method, material and anaesthetic for suturing labial trauma.

The findings demonstrate a consensus of opinion for classifying traumas and how these different forms of trauma indicate a distinct clinical management technique to perineal trauma. The study also provides a new perspective on some of the limited evidence currently available.

The classifications of graze and vertical tear reached consensus for vertical skin separation with minimal trauma to underlying tissues and deeper vertical trauma with involvement of the underlying tissue respectively. This was a robust finding, however the intra-rater reliability was reduced for tears as the consensus levels were not consistent. The lowest consensus was reached for a unilateral tear (77.27%); higher consensus was reached for a tear with a graze (86.36%) and highest consensus was reached for bilateral tears (90.91%). This finding has the potential to affect the accurate description of labial tears in clinical practice and thus affect the treatment. Grazes had consistent consensus regardless of whether they were bilateral, unilateral or depicted with a tear. There was some description of the location (unilateral or bilateral) and depth but these did not reach consensus.

Using classification of trauma has been shown to enable better treatment for perineal trauma in that standards for suturing can be applied (National Institute for Health and Care Excellence 2017; Royal College of Obstetricians and Gynaecologists 2015) and also provides better description for documentation and litigation (Mead 2011). The trauma in Illustration 4 was different in location and anatomy than the other labial trauma in the study. It had consensus for being described as a tear despite this descriptor being used for vertical trauma. Describing this as ‘transverse’ or ‘split’ could distinguish it from vertical trauma and make documentation, repair and understanding easier.

Grazes reached consensus for not requiring suturing and tears reached consensus for requiring suturing. Lundquist et al. (2000) found that minor lacerations in the labia can heal spontaneously although the anatomical description of minor was not clearly defined. Consensus was reached that healing promotion, anatomical realignment and cosmetic appearance were the rationale for suturing labial tears. Macdonald and Johnson (2017) state that perineal suturing is undertaken post birth for all of the above but also haemostasis, reduction of infection and avoidance of sexual dysfunction. These were also identified in this study as rationale for suturing labial tears but did not reach consensus. However, this study additionally found the suturing rationale of preventing fusion for labial trauma. Fusion is not an issue for perineal trauma. Consensus was reached that bilateral labial trauma required suturing to prevent fusion, however, measures to prevent it are not currently supported by evidence. Whilst there are suturing rationale similarities between perineal and labial trauma there is a single fundamental difference in treatment rationale (preventing fusion) that renders it different to perineal trauma.

All trauma that reached consensus for suturing also reached consensus that the suturing method was interrupted with Vicryl Rapide 3.0 or equivalent. The use of polyglactin is well established in

post partum perineal suturing for reduced pain and better comfort (Kettle et al., 2010) albeit at 2.0 gauge. No other suture materials were indicated by the panel.

Current guidance for perineal suturing method is to use a continuous non-locked technique (NICE 2017) for reduction of postpartum pain (Kettle et al., 2002). In this study there was consistent consensus for interrupted suturing technique in the labia. However, the findings are not able to provide evidence that this is the best method of repair in terms of discomfort and healing. Knots in interrupted suturing may impact on comfort and the absorption time of Vicryl Rapide. The manufacturers state that it is only suitable for wounds that require support for 7 to 10 days and 50% of tensile strength will be retained at 5 days. Attention to knots including number of throws, burying and small knots could also impact on comfort. The friction afforded by Vicryl Rapide should reduce the need for repeated knot throws (Ethicon 2007).

Further research with patient and public involvement is required. Despite being anatomically different, Illustration 4 also reached consensus for interrupted suturing. However, there is scope for clarifying the method for Illustration 4 more precisely in that this trauma is double sided rather than single, as seen with the vertical tear. The panel identified additional suturing techniques, which did not reach consensus, which presented ideas for a method of how to suture transverse trauma such as closing each side separately and securing the outer edge first.

Establishing an appropriate amount of local anaesthetic for suturing labial trauma either with or without the presence of perineal trauma for adequate pain relief during suturing is essential (NICE 2017). Consensus was reached that injected local anaesthetic should be used to anaesthetise the labia prior to suturing. Quantities suggested in the first round were 5 or 10 millilitres (mls) of lignocaine but this did not reach consensus in either of the following rounds. Local anaesthetic use of lignocaine is 3 to 4.5 mg/kg. The vascularity of the tissue affects absorption with subcutaneous infiltration giving the lowest levels in the blood (as compared to intercostal nerve block) (EMC 2018). For perineal suturing, a maximum dose of 20 mls of lignocaine 1% (200 mg) is recommended (NICE 2017, Sanders et al, 2002). However, what is required is an effective dose for local pain relief during suturing which may be less than the maximum dose. The dose needs to be able to cover the entirety of labial and perineal suturing effectively and the quantity and site of administration for labial suturing remains unclear at this point.

Strengths and limitations

The study harnessed the clinical opinions of an expert panel where minimal research evidence exists.

The Delphi methodology is a strength; the level of consensus strengthens this evidence.

The panel were invited to agree with as many statements as they chose for each question; however, the majority appeared to select only 1 or 2, which may have limited the data to their first choice rather than all or ranked choices. However, where an answer was given this indicated the participant's opinion. These opinions are a measure of what is currently happening in clinical practice.

Low consensus levels may indicate lack of knowledge and or experience or disagreement with the statement. This effectively reduced the strength of the results in that no answer could mean disagreement or no experience. The study was not able to capture qualitative rationale for participants' option choices, which means that understanding of why options were chosen is not clear.

It is a potential limitation that illustrations rather than photographs of real birth trauma were used. The process for identifying, consenting, photographing and gaining a variety of real labial trauma was considered too lengthy for a study of this duration. It was also felt that photographs might not provide descriptive clarity of individual trauma that is evident with the illustrations. However, photographs would show different locations and combinations of trauma in the labia. It was accepted that the minimal trauma sites used in this study were of the greatest value initially.

Due to the time constraints of the funding it was not possible to conduct a pilot of the instruments used in this study. It is conceivable that a 4th round may have delivered further valuable data.

As a limited sample and compared to a quantitative design, the results from this study provide a valuable, but limited, strength of evidence and generalisation. It is recommended that a pilot study and definitive RCT are conducted using these initial results as a foundation for outcome measures alongside women's preferences for outcome measures. The data describes what is happening in clinical practice but is not necessarily a description of best clinical practice. Further research may also enable individual anatomical variations to be overcome by providing principles for labial repair rather than a finite repair protocol.

Conclusions

The findings from this study suggests that vertical skin separation with minimal trauma to underlying tissues in the labia after birth can be described as grazes and do not require suturing, even if they occur bilaterally. The exception is if the graze occurs in combination with a tear which was inconclusive for suturing or not in this study. However, it should be noted that this is the view of panel members selected according to a group of inclusion criteria rather than a clinical trial in which women's preferences have been considered. Deeper vertical trauma with involvement of the underlying tissue in the labia can be described as a tear and requires suturing. Horizontal trauma across the labia is described as a tear; however, due to the very different nature of the trauma for suturing rationale it may be better described as a transverse tear or split.

The study suggests that suturing method should be interrupted sutures using 3.0 Vicryl Rapide or equivalent with injected local anaesthetic although volume is unclear.

A pilot study and definitive randomised controlled trial, informed by the results of this Delphi study, are now required. This is to establish in vivo whether labial tears including those which are transverse, are less painful and heal better with interrupted suturing compared to continuous or subcuticular sutures; the volume of injected local anaesthetic required for satisfactory analgesia during suturing and maternal satisfaction with suturing.

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