Management of perineal and vaginal injuries during childbirth

This article examines clinical best practice, quality data and research pertaining to injuries of the perineum and vagina sustained during childbirth. Prevention is essential, however the ability to recognise anal sphincter rupture, periurethral tears and vaginal trauma is also critical to preventing serious life-altering complications. Principles of treatment are outlined, while a future research agenda and clinical practice policies are discussed.

INTRODUCTION

Whether it is a partial or complete laceration, periurethral tears and vaginal trauma are very serious and complicated injuries. Rupture of the external anal sphincter during childbirth also demands careful medical attention as it has the potential to be a devastating injury[1, 2].

If unrecognised or inadequately repaired, these complications can lead to anal incontinence, urinary incontinence and, in the worst scenario, fistula formation. In circumstances where a patient has undergone female circumcision prior to pregnancy, the health consequences can also be severe[3, 4].

REFERENCES


TYPES OF INJURY

Tears of the perineum are classified according to the type of tissue involved, however clinicians disagree in their categorisation when tears involve the anal sphincter (see glossary on opposite page for definitions). It is generally agreed that first-degree lacerations involve the vaginal epithelium or perineal skin only. Many of these tears, especially if small, will heal without suturing. Second-degree lacerations involve the perineal muscles, but not the anal sphincter. Third-degree tears involve the anal muscles, and fourth-degree tears involve the anal epithelium[5].

However, there are inconsistencies in the classification of third- and fourth-degree tears in various obstetrics texts, with some recommending a subclassification of third-degree tears, which describe the extent of trauma to the sphincter[5].

Female circumcision

Female circumcision can result in damage to the vaginal and perineal areas, and is classified into four types:

- Clitoridectomy (the surgical removal of the clitoris, common in female circumcision)
- Clitoridectomy and partial or total excision of the labia minora
- Infibulation, clitoridectomy, excision of the labia minora, labia majora and suturing of the two sides of the remnant tissue together
- Any other form of tissue damage such as cauterisation, manipulation and application of corrosive substances[6, 7].

A small opening is left for the passage of urine and menstrual blood. Upon healing, scar tissue bridges across the vagina.

ANATOMY

The female perineum is a complex interlocking area of muscles, fibrous connective tissues and fascia, and is conceptually triangular in shape. It provides a physical barrier between the vagina and the rectum, anchors the anorectum and vagina, maintains urinary and faecal continence, and prevents expansion of the urogenital hiatus in the levator ani muscles. The perineal body is innervated by the pudendal nerve, which can be damaged during an episiotomy, a common obstetrical procedure[9]. The anal sphincter is a strong muscle that constantly remains in a contracted state. When cut or torn it can either pull apart or retract, making it difficult to identify on visual inspection.

PREVENTION OF INJURY

It is important for clinicians to develop the knowledge and skills to prevent or minimise injury during childbirth. Firstly it is obligatory for clinicians to prevent infection by hand scrubbing, wearing sterile gloves and taking care when handling the perineum and vulva.
Care must also be taken to minimise faecal contamination of the birth canal. When possible, the vagina and perineum should be cleaned with a locally available antiseptic agent before and after birth.

Secondly, it is essential to manage the second stage of labour with a controlled delivery that minimises trauma. Allowing the patient to push voluntarily, rather than in a concerted effort, and placing her in a sitting or squatting position enables the foetus to descend through the birth canal in a controlled fashion. Many patients naturally feel an urge to push between contractions and this is also helpful. It is estimated that pushing contributes 30% of the force needed to advance the human foetus through the bony pelvis, while uterine contractions provide the remaining 70%.

The foetal head should be delivered in a controlled manner to help prevent both perineal tearing and periurethral lacerations. Delivering the head between contractions and applying gentle counter pressure on the fetal head helps to control its flexion and extension (two important mechanisms of labour) (see glossary). The idea is to allow the perineum to slowly stretch. Extension of the foetal head too suddenly or too soon are some of the most common causes of periurethral tears and lacerations of the perineum.

If the foetus is in a non-vertex (non-head first) position, the birth is considered complicated and must be managed by clinicians in an equipped facility. This may entail moving the patient to a facility capable of providing caesarean delivery if the attendant feels it is safe.

A patient with previous serious trauma of the perineum, vulva or vagina needs expert attention during childbirth so any damaged tissue can be repaired, and to avoid any unnecessary haemorrhage or infection.

In cases of haemorrhage and infection, labour may become prolonged or obstructed causing traumatic pressure wounds to the vagina and subsequent fistula formation. Vaginal fistula repair and healing is a complex process and surgical correction needs to be performed by highly skilled clinicians. Fistulas can also form following inadequate repair of vaginal, perineal and periurethral tears due to poor healing or inappropriate surgical technique.

References

GLOSSARY
Perineal laceration/tear: injury to the tissue located inbetween the vagina and the anus
Peri-urethral laceration: damage to tissue surrounding the urethra
Episiotomy: a deliberate surgical incision running from the vagina towards the anus (median) or angled laterally from the vagina through the perineum (mediolateral)
Flexion: foetal chin moving in the direction of the foetal chest
Extension: the back of the foetal head moving toward the knap of the foetal neck
Third-degree: damage of the vagina, perineal body, and involving part of the anal sphincter
Fourth-degree tear: damage to vagina, perineal body, anal sphincter and rectal mucosa
Sitz bath: solution of water that is warm or cold and includes salt or baking soda that the patient sits in up to the hip.
EPISIOTOMY, INSTRUMENT DELIVERY AND THE REPAIR OF LACERATIONS

Many recent studies indicate that episiotomy does not prevent severe perineal damage and thus should not be widely practised.\(^2, 6, 10\)

There are two types of episiotomies: midline and mediolateral. A midline episiotomy means the surgical incision is made vertically in line with the anus, while the mediolateral incision is angled midway between the anus and the ischial tuberosity.

Whether the mediolateral episiotomy protects the perineum from trauma is controversial, since studies have produced contradicting results. Some experts indicate that midline episiotomy in vaginal instrument deliveries can lead to severe trauma and should be avoided.\(^8\)

When an instrument delivery is indicated, surgeons often have different preferences. For example, US clinicians tend to use forceps and a midline episiotomy, while European clinicians use the vacuum extractor and mediolateral episiotomy.\(^8\)

The recommended method of repair is continuous suture with polyglactin suture as this is associated with the best outcome.\(^2\)

These studies also show the increased risk for severe trauma extending into the anal sphincter with the use of episiotomy.\(^8\)

As noted previously, a sphincter laceration may go unnoticed by clinicians necessitating routine systematic inspection of the vagina with adequate exposure and lighting for all deliveries. Training for clinicians should include the observation and repair of a sufficient number of episiotomies to ensure safe practice.\(^2, 5, 10, 11\). This training should also extend to periurethral tears, recognising anal sphincter tears and periurethral tears extending into the urethra.

In the past, it has been taught that a severe laceration involving the anus should be repaired as soon as diagnosed, but Sultan and Thakar state in their research that delaying a repair could be justified until an experienced clinician is available.\(^2\) They believe that all anal sphincter lacerations should be repaired in an operating room where there is better lighting, sterility and access to appropriate surgical instruments.\(^2\)

The World Health Organization’s Essential Surgical Repair Manual recommends a one-time administration of ampicillin with metronidazole orally for prophylaxis.\(^6\) Stool softeners also have shown positive outcomes by preventing constipation.

HEALING

Keeping the wound clean with routine sitz baths (see glossary), reinforcing personal hygiene (such as washing ones hands before using the toilet and cleansing the perineum after using the toilet) and ensuring that the patient has adequate nutrition following childbirth can help prevent further complications and promote a good quality of life.\(^15\)

Those who have sustained childbirth injuries that involve the anus should be examined by a competent professional six to eight weeks after birth so a careful history of bowel, bladder and sexual function can be taken alongside a rectal and vaginal examination.

It is recommended by some that patients with severe childbirth trauma necessitating anal sphincter repair undergo caesarean section in subsequent pregnancies,\(^1\) but many other clinicians disagree and recommend vaginal birth. Unfortunately, there is not enough research to support either method and the medical literature is lacking in this regard.

CONCLUSION

In the future, the research agenda needs to include adequate training of clinicians on the detection of anal sphincter lacerations and their repair. There is a need to determine the risk of recurrence in patients following severe childbirth injury repair to guide the management of future pregnancies and determine the appropriate mode of delivery. The role of nutrition in the healing process of these injuries and the role of pelvic floor muscle for patients with continence issues during post-operative recovery are also worth studying.

AUTHOR DETAILS

Ruchi Puri, MD is a Fellow in Global Health, Department of Obstetrics and Gynecology, Duke University School of Medicine in Durham, North Carolina, US.

Phyllis Leppert, MD, PhD is Professor of Obstetrics and Gynecology and Professor of Pathology, Duke University School of Medicine in Durham, North Carolina, US.

Page points

1. There are two types of episiotomies: midline and mediolateral
2. Training for clinicians should include the observation and repair of a sufficient number of episiotomies to ensure safe practice
3. There is a need to determine the risk of recurrence in patients following severe childbirth injury repair

References


