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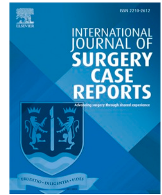

Case report

Surgical management of traumatic perineal injury in female children: A report of two cases

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ABSTRACT

Introduction and importance: Perineal trauma is uncommon in paediatric population,accounting for about 0.2 to 8 % of all paediatric trauma. The goal of surgical management is to ensure adequate anatomical reconstruction with good functional outcome and cosmesis. A novel surgical technique derived from posterior sagittal anorectoplasty (PSARP)was recently described for reconstruction of perineal injuries due to sexual assault in children. We report our experience with the utilization of this technique for perineal reconstruction in 2 girls with fourth-degree traumatic genito-anal injury.

Case presentation: The first patient is a 6 year old girl who presented 2 months post perineal injury following a fall.Previous multiple attempts at repair in peripheral hospital failed.She had Initial debridement,wound irrigation and divided sigmoid colostomy for stool diversion done.Definitive reconstruction was performed 5 months later.The second patient is a 14 year old girl that presented 6 days following perineal trauma sustained while riding a bicycle.Primary repair was also attempted before referral,with subsequent wound breakdown.Wound debridement and colostomy creation was done and surgical reconstruction carried out 6 months later.Following definitive repair,the colostomies in both patients were closed at 2 and 3 months respectively.Both patients are fully continent of stool and have excellent cosmetic outcome during postoperative follow up.

Clinical discussion: The surgical technique allows for effective dissection and proper reconstruction of the perineal body and anorectal sphincters.It also avoids unnecessary dissection and tissue disruption as the intact posterior rectal wall and anal sphincters are left undisturbed.

Conclusion: The Surgical technique derived from the principles of posterior sagittal anorectoplasty gives excellent functional outcome in perineal trauma.

1. Introduction

Perineal trauma is uncommon in children, accounting for about 0.2 to 8 % of all paediatric trauma [1,2]. The mechanisms of injury in paediatric perineal trauma include blunt injury, straddle injury/falling astride, penetrating, and impalement injury [3,4]. The goal of surgical management in genito-anorectal perineal trauma is to ensure good anatomical reconstruction with good functional outcomes (bowel continence) and cosmesis [5].

This report aims to describe our management of two children with fourth-degree perineal injuries due to trauma, using a novel surgical technique derived from posterior sagittal anorectoplasty (PSARP) previously described for reconstruction of perineal injuries due to sexual assault [5]. This work has been reported in line with the SCARE 2020 criteria [6].

2. Case presentation

2.1. Case 1

A 6-year-old girl presented to the paediatric surgery outpatient clinic with a 2-month history of faecal discharge through the vagina. There was a preceding history of falling astride a wall-mounted water tap head at the community water station, sustaining an injury to the perineum.

Abbreviations: EUA, Examination under anaesthesia; PSARP, Posterior sagittal anorectoplasty; GIS, Genital Injury Severity.

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She received initial care at a general hospital (secondary care level) where surgical repair was attempted multiple times (thrice) with subsequent recurrent wound breakdown.

Examination at presentation revealed perineum soiled with faeces with no perineal body intervening between the anus and the vagina and loosened non-absorbable (nylon) stitches from the previous repair.

Perineal Examination Under Anaesthesia (EUA) showed a lacerated perineal body with rent on the anterior rectal wall and posterior wall of the vagina.(Fig. 1a) A divided sigmoid colostomy was fashioned for faecal diversion, perineal wound debrided, and wound irrigation done with copious 0.9 % saline. She was also started on regular sitz bath and was discharged to be followed up in the outpatient clinic.

Definitive perineal reconstruction was done 5 months later, involving perineal body repair, vaginoplasty, and anoplasty [5]. The essential surgical steps the repair include urethral catheterization, placement in a prone jackknife position, retractor application(Lonestar or self-retaining retractor), stay sutures placement along the common wall of rectum and vagina, fine tip diathermy dissection to separate anterior rectal wall from the posterior vaginal wall to allow re-approximation of the torn perineal body and the anterior anal sphincter muscles,repair of perineal body and anterior anal sphincter complex**,** anterior anoplasty and introitoplasty (Fig. 2 a-e).

She did well post-operatively and was discharged home.EUA done 6 weeks after definitive repair showed intact perineal body separating vaginal and anal orifices. She subsequently had closure of colostomy 2 months after definitive repair and is being followed up in the outpatient clinic. Currently, the child is 7 months post colostomy closure and is fully continent of stools.

2.2. Case 2

A 14-year-old girl was admitted via the Accident &Emergency department with a 6-day history of faecal discharge through the vagina. She was said to have fallen with her bicycle into an open roadside drainage. The initial attempt at primary repair in a peripheral clinic failed and she was referred to our centre for further management. Examination at presentation showed perineum soiled with faeces and lacerated perineal body with visible sutures at the anterior aspect of the anus. A formal EUA revealed a 4th-degree perineal tear.(Fig. 1b) Wound debridement and colostomy were done and sitz baths commenced post-operatively before discharge.

She had surgical reconstruction 6 months later and a repeat examination under anaesthesia confirmed an intact repair. Colostomy closure was subsequently done 3 months after the definitive surgery. She has now been followed up for 5 months post-operatively and no faecal incontinence has been reported.

3. Clinical discussion

Perineal trauma is uncommon in the paediatric population, with estimated prevalence varying from 0.2 to 8 % of all paediatric trauma [1,2]. The etiology of these injuries may include road traffic accidents, sexual abuse, falls and Impalement.[3]Some studies identified road traffic accidents as the most common etiology [7,8] while falls from height was responsible for the majority of the perineal trauma in others [9,10]. On the other hand, Manjuth and colleagues reported sexual abuse and impalement as the most common cause of perineal trauma in children [3].

The mechanisms of injury in paediatric perineal trauma include blunt injury, straddle injury/falling astride, penetrating, and impalement injury [3,4]. Jones and Worthington reported that 64 % of injuries were due to straddle or impalement mechanism, 25 % from sexual abuse, and 11 % from motor vehicular accidents [11]. However, it should be noted that any of the mechanisms or a combination of different mechanisms may be involved in some types of injuries [3].

The Onen's classification of Genital Injuries Severity (GIS) in children(boys and girls) and the Sultan classification of birth-related perineal tear(used in girls) are commonly utilized in describing perineal injuries in children. The injuries in both of our patients fall under Onen's GIS grade IV and Sultans 4th degree perineal injury classification [12,13].

The clinicians must have a high index of suspicion to detect sexual assault and exclude it as the likely etiology of the trauma [4,11,14]. This possibility was thoroughly explored(as per hospital protocol) in these two patients. A concerted effort was made to unravel the possibility of concealment, but assault was ruled out eventually in both cases. The parents and children were questioned separately on different occasions. Also, the history of the children's activity preceding the trauma (the

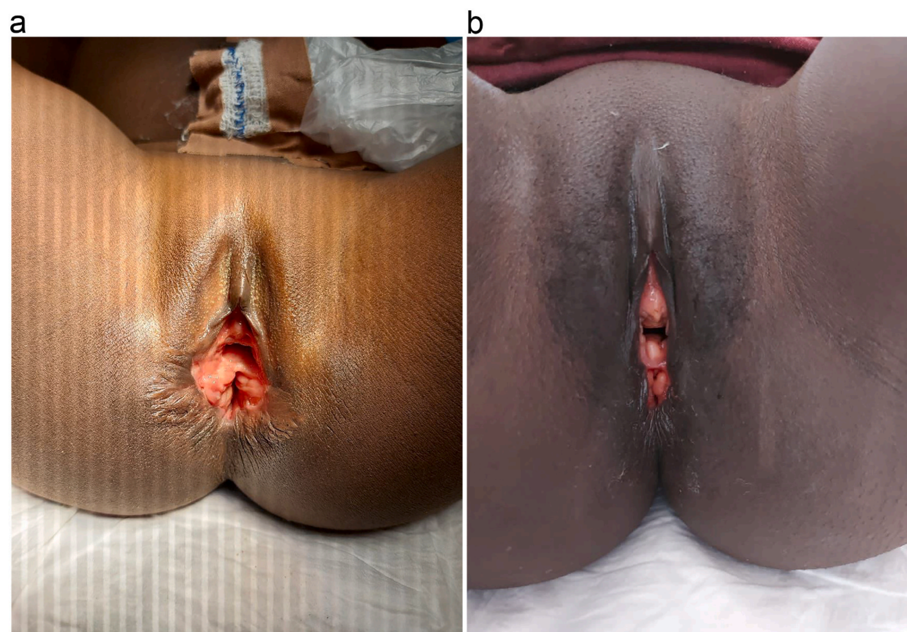

Fig. 1. a. Case 1.
b. Case 2.

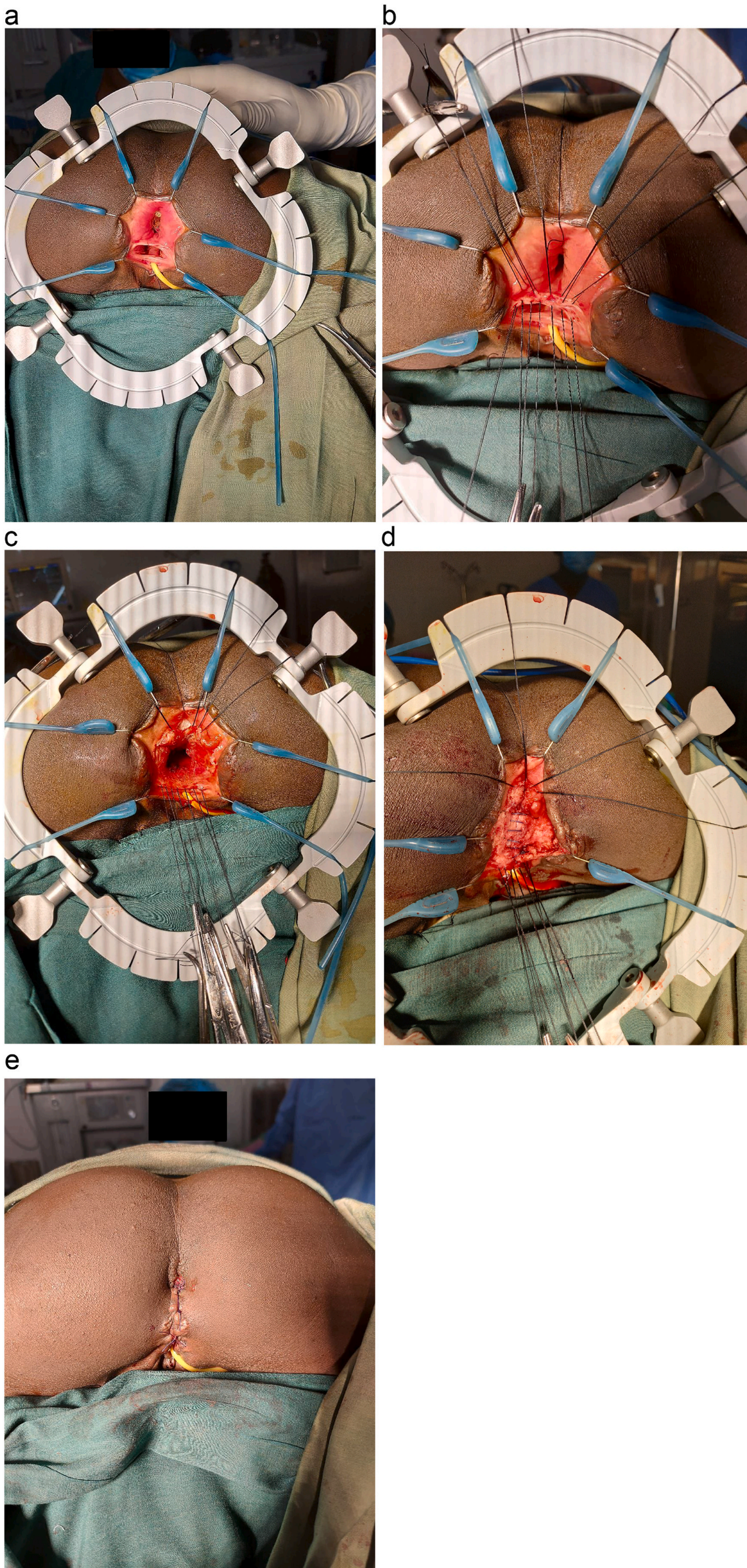

Fig. 2. a. Application of Lonestar retractor.
b. Stay sutures along common wall of rectum and vagina.
c. Needle/fine tip diathermy dissection to separate anterior rectal wall from posterior vaginal wall.
d. Repair of perineal body and anterior anal sphincter complex.
e. Post operative picture.

older child riding a bicycle shortly before the incident, and the 6 year old climbing and playing on top of the wall to which the tap head was connected) was corroborated [14].

Brisghelli and colleagues [5] described the surgical technique derived from the posterior sagittal anorectoplasty (PSARP) approach used for repairing congenital anorectal malformations to reconstruct the perineal body and sphincter complex with the goal of creating a good cosmetic result and to allow the patient to regain faecal continence. The technique was used for reconstruction in three girls with perineal injuries due to sexual assault, with promising long-term results achieved both from cosmetic and functional points of view [5]. We successfully utilized this technique in this study with good outcome. The failure of previous surgical repairs done outside our hospital may be attributed to a combination of poor surgical techniques and faecal wound contamination with subsequent infections and wound dehiscence post operatively. Despite these previous multiple repair attempts in both patients with the attendant risk of tissue fibrosis and scarring, we found that the technique provided excellent anatomical detailing and proper visualization of tissue planes for effective dissection and proper reconstruction of the perineal body and anorectal sphincters. Also, the technique avoids unnecessary dissection and tissue disruption as the intact posterior rectal wall and anal sphincters are left undisturbed. The stoma reversal is done once the perineal wound is healed and EUA shows a patent anus completely surrounded by sphincter muscles [5].

The limitations of this study include the few number of patients involved and the relatively short duration of follow-up post-surgical repair. However, the long-term results look promising and no complication has been observed to date.

4. Conclusion

Though uncommon, perineal trauma in children is a significant cause of morbidity. A good surgical technique will ensure a good outcome. The technique derived from the principles of posterior sagittal anorectoplasty gives excellent functional outcome.

Ethical approval

This study is exempt from ethical approval in our institution.

Source of funding

None.

Author contributions

AOO: conceptualization, design, data collection, image acquisition, initial drafting, revision, and approval of the final manuscript.

SW, CUR, AMA: data collection, revision, approval of the final manuscript.

Guarantor

AOO.

Research registration number

Not applicable.

Informed consent

Full, informed consent and assent was obtained for this study.

Provenance and peer review

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Declaration of competing interest

All authors have no conflict of interest to declare.

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