

Case series:

Traumatic Perineal injuries in pre pubertal girls: A review of five cases

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Abstract

Objective: To study the mode of trauma in prepubertal females and various modalities of management available.

Methods: This study was carried out on 5 cases (Duration-Jan 2010 to May 2015) of perineal injuries in female children with variable spectrum of presentation referred to our institute and the management algorithm used for them.

Results: 5 patients ,age ranging from 5 months to 9 years presented with varied grades of injury to perineum including genitourinary and GI tract .All patients underwent staged repair (diverting colostomy,suprapubic drainage with definitive repair in subsequent stages)

Conclusion: Few traumatic entities in childhood present more potential for disastrous mismanagement than perineal injuries, it is because of serious damage at the time of injury, underestimation of extent of injury and preventable complications.All such cases should have an individualized management in staged manner as it can be of great help in future continence,cosmesis,function.

Keywords: prepubertal,perineal,trauma,females

Introduction:

Pediatric trauma involving the perineal region is rare in prepubertal girls with a reported incidence of 4-6% (1,2).Quick evaluation and documentation of injury should be done, with swift decision making regarding mode of management in order to achieve a favourable outcome. Perineal injuries following trauma are associated with a significant degree of tissue tear, which is due to rapid and excessive stretching of the tissues against fixed bone structure of the pelvis. The extent of stretching determines the depth and extent of laceration and

may involve the genital tract,urinary tract,GIT or all three. Timely resuscitation, meticulous examination and repair should be done for a satisfactory outcome,the repair may be immediate or delayed,That decision can be readily made by a detailed EUA .

Material and methods:

This was a retrospective analysis of 5 cases of perineal trauma in prepubertal girls managed at our centre over a period of five years (2010-2015).The data regarding demography, mode of injury,extent ,management undertaken and

outcome were analysed . The details of the cases are described below and summarised in the table(Table 1).

Description

CASE NO. 1

Five month old female child sustained a grade III perineal tear following road traffic accident in Jan 2010. 7x2x2cm laceration was present on the posterior aspect of left thigh extending upto anus and vulva.Examination under anesthesia revealed approximately 8cm long tear involving left labia and left lateral wall of anus extending posteriorly approximately 1cm distal to the anal opening.

Repair of perineal and vulval injury was done after thorough debridement of the area, external sphincter and perineal body repaired.Exploratory laparotomy and diverting sigmoid colostomy was made for early healing and to prevent wound contamination.

Case no. 2

Six month old female child presented with a history of perineal trauma following Road traffic accident in Feb 2010 with fecal incontinence. Examination under anesthesia revealed a tear approximately 5cm long extending from anal opening posteriorly and two minor tears in anal mucosa anteriorly, just near to subcutaneous part of anal canal with patulous anal opening and fecal incontinence. Repair of the external sphincter was done and diverting sigmoid colostomy made.

Case no. 3

Four year old female child with history of fall from height on her perineum over a metallic rod in March 2010. Rod had pierced her vagina and

rectum with active vaginal bleeding, x-ray pelvis revealing fracture of right inferior pubic ramus.

Examination under anesthesia of perineal area showed exposed urinary bladder with no rupture, with no peritoneal breach. Torn off left lateral vaginal wall with exposed vaginal mucosa and left pubic bone. External sphincter of anus torn off with exposed rectal mucosa and active bleeding.

Exploratory laparotomy revealed no intraabdominal injury, diversion sigmoid colostomy was done. Perineal body was repaired along with anooplasty and vaginoplasty with repair of lacerated wound over left thigh . Postoperatively patient was managed with regular dressing of wound, antibiotics, perurethral catheterisation and below knee skin traction. Perurethral catheter was removed after 2 weeks with normal micturition and colostomy closure after 6 weeks .Patient continent on follow up.

Case 4

A 8 year old girl presented with inability to pass urine following trauma and a soft tissue defect in right lumbar region.On examination a large hematoma was visualized at introitus with no clear urethral or vaginal openings visible.On laparotomy a defect in pouch of douglas was found with gut loops protruding into vagina and a large pelvic hematoma.Defect in the pouch of Douglas was repaired and an SPC done.Post surgery cystogram after 3 months showed complete cut off of urethra at bladder neck.MRI pelvis revealed fracture of pubic bone,dense fibrosis around bladder neck ,visible uterine body but no vagina seen.urethral tract was visualized. The child underwent an exploratory

laparotomy and pubectomy with double Monti sigmoid replacement of urethra and anterior vaginal wall after 6 months of initial injury. One month after surgery child underwent a cystogram and MCU which revealed nicely delineated urethra in voiding film. Child is partially continent for urine with a hold up time of 45min, fully continent for stools.

Case 5

A 9 year old girl presented with a history of fall from height and bleeding per vaginum. On examination a rectovaginal fistula, 2 cm from anal verge was found. Plain X ray abdomen was suggestive of pneumoperitoneum. On exploration a 3*3 cm rent was found in the pouch of Douglas, which was primarily repaired and a loop sigmoid colostomy made. The rectovaginal fistula healed spontaneously, confirmed by dye study. The sigmoid colostomy was closed after 4 months of Primary surgery. Child is asymptomatic and fully continent on follow up.

Follow up:

All the patients reported in our series are continent for both urine and feces with one patient lost to follow up (case 2) after 2 years of surgery. Patient who underwent Monti procedure has occasionally reported nocturnal incontinence which was later found to be due to UTI and was treated accordingly.

Discussion:

Perineal trauma in female children involving genitourinary and GIT is rare with a reported incidence of 4-6%. Rarely may they sustain serious injuries that necessitate significant surgical intervention (1, 2). Injury may either be a partial urethral injury or may be a complete disruption which is usually associated with

vaginal injuries, may also include injury to anal sphincter complex to various degrees.

Perineal tears in children have been given little attention (3) as compared to perineal injuries following child birth in adult females. Road traffic accident is the most common mechanism of perineal trauma in female children, followed by falls, bicycle related injury and assaults (4, 5). Our series reveals that the mechanism of trauma was road traffic accident and fall from height. Road traffic accident is the most common cause of anogenital injuries in children, however there is no correlation of specific findings on examination with the type of collision (5-9).

Lynch and coworkers stated that emergency department examination of young girls who have suffered blunt perineal trauma grossly underestimates the severity of injury when compared to the examination under anesthesia in the operating room (5). In this series surgical repair was done in all cases after examination under anesthesia, to delineate the injury and achieve an anatomical repair.

Diversion colostomy in these cases prevents the development of spreading infection and in providing the anal sphincter a rest. Wynne suggested when there has been delay, soiling or sepsis, diversion of faecal stream is necessary for the perineal wound to heal (8). Platt et al also recommend that a diverting colostomy enhances wound healing (10), hence providing a good outcome, we had a similar experience

Perineal injuries from road traffic accident are often associated with intraabdominal injuries, pelvic and limb fractures, and head injuries leading to high mortality, so all such children's

should be thoroughly evaluated for perineal and associated injuries(11).

Controversy still exists about the best modality in acute female urethral injuries whether immediate repair or urinary diversion followed by delayed repair. Proponents of immediate repair reason that delaying the repair leads to evolution of the injury into obliteration of urethra, urethrovaginal fistula and various degrees of vaginal stenosis. In complex genitourinary injuries urinary system repair takes a priority .

Some people also recommend primary realignment of separated urethral ends over a catheter to avoid suturing and dissection in injured edematous tissues. Waterhouse and Gross described this in 2 girls . In both the cases bladder neck stricture developed requiring additional surgery. A third and the most popular view is to go in for a SPC drainage and defer the repair after other injuries have been addressed.

Urethra may be aligned either by a primary anastomosis ,or a neourethra may be created by anterior vaginal wall, Monti ileum ,Monti sigmoid. Hosseini et al used the retropubic approach with end to end anastomosis in 7 patients with good results 13. S K Aggarwal et al have used pedicled appendix and Monti ileum as urethral substitute in male children with good results. 14. Bakal et al have shown their

experience on perineal trauma using Onens classification to stratify guidelines.17

Results in such cases dictated by achieving urinary continence. After proper surgical reconstruction, it can be achieved by Kegel exercises and intermittent clamping of spc before taking it out to increase bladder capacity. Urinary incontinence is the most devastating complications and depends upon the extent of injury around bladder neck. 15,16,18. Reconstruction can be done by complex procedures like was done in our case no 4 leading to a favourable outcome and good quality of life.

Conclusion:

Few traumatic entities in childhood present more potential for disastrous mismanagement than perineal injuries, it is because of serious damage at the time of injury, underestimation of extent of injury and preventable complications. Traumatizing perineal injuries in prepubertal girls need to be examined thoroughly and carefully and repaired without delay under anesthesia as degree of injury is not fully recognized on first superficial appraisal. Traumatic urethral injuries in female children is a rare but serious event. Staged management with delayed urethral reconstruction offers good outcomes. Future incontinence dependent on extent of injury to bladder neck.

Conflicts of Interest: None declared

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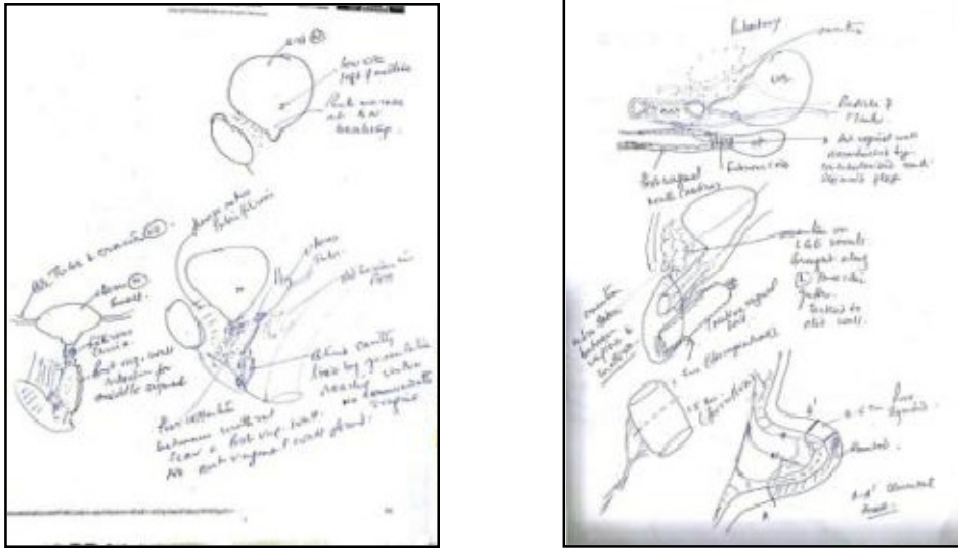
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Picture 1 showing pelvic fracture in case 4 on left and post op cystogram after Monti reconstruction of urethra on the right

Serial Number	Age	Mode of injury	Injury pattern	Management
1	5 monthsF	RTA	Grade 3 perineal tear extending into anal canal	Perineal repair,Diverting colostomy
2	6 monthsF	RTA	Grade 4 tear,Patulous anus,Fecal incontinence	Perineal repair,Diverting colostomy
3	4 yearsF	Fall	Grade 4 tear,Fracture pelvis	Perineal repair ,Diverting colostomy
4	8 yearsF	RTA	Shattered introitus,Rent in pouch of douglasFracture pelvis,Bladder neck injury,Soft tissue loss	SPC,Debridement of soft tissue wound. Double Monti to replace urethra and vagina with SSG done 6 months later
5	9 yearsF	Fall	Rectovaginal fistula ,2cm from anal verge	Diverting colostomy,Fistula healed spontaneously

Table 1 showing the epidemiological,etiology,pathology and management done in the five cases studied



Line diagram showing the Double Monti procedure done in case no 4.

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