Spontaneous closure of urethrovaginal fistula associated with pelvic fracture

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ABSTRACT
Female urethral injury following pelvic fracture is a rare entity. Due to the absence of large series, management guidelines are still not standardized. Patients can have associated urethrovaginal or vesicovaginal fistula, management of which poses a major challenge to the reconstructive urologist. Spontaneous closure of fistula produced by gynecological or obstetrical injuries have been described in the literature. Spontaneous closure of fistula caused due to pelvic fracture has not been described.

Key words: Mitrofanoff procedure, pelvic fracture, spontaneous closure, urethrovaginal fistula, vesicovaginal fistula

INTRODUCTION
Trauma to the female urethra following pelvic fracture is a rare entity.[1-3] These patients can have associated urethrovaginal or vesicovaginal fistula, requiring early or delayed surgical repair. Spontaneous closure of the fistula associated with obstetric or gynecological injury has been described in the literature. To the best of our knowledge, spontaneous closure of the fistula associated with pelvic fracture has not been described.

CASE REPORT
A 45-year-old female sustained pelvic fracture with urethral injury due to a road traffic accident. Initial resuscitation, orthopedic management with internal fixation of the pubic bone, and suprapubic urinary diversion were done elsewhere. Suprapubic catheter was removed after 3 weeks. She was leaking urine from the vagina after the removal of the suprapubic catheter. She consulted us after 3 months of the initial injury with history of continuous leakage of the urine per vaginum. On pelvic examination, urine was seen emanating from the vagina and a scar was felt in the proximal vagina. Cystogram demonstrated the urethrovaginal fistula [Figure 1]. She was advised to get admitted for further management but she refused. She came after 15 days with acute urinary retention and cessation of the urinary leak per vaginum. Initial suprapubic urinary diversion was done followed by examination under anesthesia. Dense fibrosis with scarring was felt in the proximal vagina. On filling the bladder with methylene blue through the suprapubic catheter, no leakage was seen.

Figure 1: Cystogram demonstrating urethrovaginal fistula
leak was demonstrable through the vagina. Retrograde urethrocytoscopy was not possible due to complete urethral obliteration. Antegrade cystoscopy revealed normal bladder wall along with complete obstruction and scarring at the level of bladder neck. A Mitrofanoff procedure was performed using the tapered ileal segment as intraoperatorically, the appendix was found to be very short. She was discharged in satisfactory condition and is doing well till the last follow-up.

DISCUSSION

Female urethral injury during pelvic fracture is rare because of the short length of the relatively mobile urethra which lies behind and is protected by the pubic bone. Orkin et al., have reported 6% incidence of urethral injury in a review of 2,000 cases of pelvic fracture.[1] Children outnumber the adults in such injuries perhaps because of greater compressibility of the less ossified bones.[2] There can be a urethral contusion, longitudinal urethral laceration or urethral transaction in such cases. In cases of female urethral disruption related to pelvic fracture, the management is not standardized. Immediate repair of the pelvic fracture with the urethral and vaginal injuries is advocated since suprapubic drainage with the spontaneous evolution of these lesions usually leads to complete obliteration of the urethra, urethrovaginal fistula, and various degrees of vaginal stenosis as was seen in our patient.[3,4]

Primary endoscopic realignment of the separated urethral ends over a catheter, avoiding tissue dissection or sutures in the traumatized area is an alternative approach recommended by others. However, with realignment, the likelihood of development of a urethral or bladder neck stricture has been reported to be quite high, needing delayed surgical reconstruction.[5] The reconstructive surgery is also more extensive, often requiring a bladder neck construction through transpubic approach.

Delayed reconstruction with vaginal and bladder wall flaps have been described. They have good success in expert hands.[5] Our patient presented late with a completely obliterated urethra with an initial urethrovaginal fistula which later spontaneously got obliterated. The extent of the injury precluded reconstructive surgery and required a catheterizable channel in the bladder. In the cases of fistulas formed due to obstetric or gynecological injuries, spontaneous healing is described in the literature, especially in those cases where the fistula is small and early, with prolonged bladder drainage is provided.[6] Our case does bring out a fact that is less emphasized in the medical teaching that while persistence of fistula is often attributed to the distal obstruction, closure of fistula does not necessarily mean restoration of normal anatomy but could be a development of proximal obstruction. To the best of our knowledge, we are describing the first case of spontaneous closure of the urethrovaginal fistula associated with pelvic fracture. The possible explanation for the spontaneous closure in this case is probably because of progressive scarring leading to entrapment of the fistula and encasement of the bladder neck in the dense scar. This can also be a marker of extensive urethral injury and the likelihood of complete urethral obliteration as opposed to a short segment stricture.

CONCLUSION

In female urethral injury due to pelvic fracture, early primary repair should be attempted to avoid subsequent devastating complications like urethrovaginal fistula or urethral obliteration. Delayed repair in expert hands can lead to acceptable results but is likely to involve extensive reconstruction. However, complete obliteration of the urethra extending up to the bladder neck often precludes reconstructive surgery and may require a catheterizable channel in the bladder. Spontaneous closure of the urethrovaginal fistula can occur if there is extensive and dense scarring around the fistulous area.

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