Ruptured Urethra in a Female

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The occurrence of ruptured urethra is described in a young female following blunt trauma. Pelvic fractures and vaginal avulsion were also present.

Rupture of the female urethra is a very rare occurrence, usually associated with vaginal laceration and less commonly with rectal injuries. It commonly follows fractured pelvis, and the rupture is not simply at one level. Frequently, the injury involves a considerable length of the urethra.

We report on the management and follow-up of a patient with ruptured urethra and vagina associated with a pelvic fracture following a car accident. A review of the literature is then presented.

Case Presentation
The patient was a 12-year-old female who had been hit by a passing vehicle while crossing the street. She presented to an emergency room with fracture of both ischia and right pelvis.

Exploratory laparotomy revealed no intraperitoneal or rectal injuries. A pelvic retroperitoneal haematoma was explored and showed the bladder to be completely separated from a severed distal urethra. The urethral stump, still attached to the bladder, was brought down and resutured to the meatus over a Foley catheter and was pulled down on traction, as in Banks’ procedure. A suprapubic catheter was left for drainage. No repair of the vaginal laceration was attempted.

One month after surgery, the urethral Foley catheter was removed but the patient could not void normally. Reconstruction of the urethra and bladder neck, as in the Young Dee-Leadbetter fashion, failed. When the patient was referred to our hospital for further management, she was 12 years of age and it was 4 years after the car accident. During examination under general anaesthesia the urethral meatus could be visualized. A size 3F feeding tube was passed through to the bladder. Cystoscopy of the bladder through the suprapubic opening revealed a normal mucosa and adequate funnelling of the bladder neck. Vaginoscopy identified a scarred abnormal vault. Bimanual examination revealed the uterus to be full. Needle aspiration showed thick fluid, then contrast material was instilled to uterus showing a 2 cm separation between it and the vagina. Reconstruction of the vagina was performed through an abdominoperineal approach, the scar tissue was excised and the edges were approximated over a size 24F Silastic catheter. The urethra was dilated to size 14F gauge.

The catheters were removed 2 weeks after the procedure and the patient was continent and able to pass urine through the urethra. She was discharged, to dilate her vagina with a size 26F catheter and her urethra with a size 10F Silastic catheter. No evidence of urethro-vaginal fistula was present. The patient will need repeated and careful follow-up for a long time.

Discussion
Genitourinary involvement in blunt trauma ranges from 2.5% to 8%. Urethral injuries comprise a very small fraction of total genitourinary involvement. In a study of 9660 patients in a New York trauma centre, 23 cases of injured urethra were found, and only two of these were in female patients. In another study of 251 cases of trauma to the genitourinary tract, Dr Waterhouse reported...
only two females that had avulsion of the bladder neck and urethra and both were treated by Banks' procedure. Stricture of the urethra and bladder neck developed in both girls and required secondary repair and Y-V plasty.  

In 1975, a review of trauma cases from England reported two female urethral injuries resulting in urethrovaginal fistula. In one patient, a wide dissection of the vagina away from the fistula was performed. This resulted in a urethral stricture and the girl remained practically incontinent. Another patient was managed by a flap bladder and a Y-V plasty but the patient was left completely incontinent.  

In another review of 186 cases of blunt trauma and fractured pelvis, two females with urethral and vaginal ruptures were reported. Both these patients died.  

The fact that the female urethra is so rarely damaged by trauma can be explained by the fact that it is shorter than the male's. It is around 4 cm long and is normally characterized by marked distensibility. The female urethra passes through the urogenital diaphragm at its distal portion and this is why avulsions reported occur in the distal part. Also, the proximity of the female urethra to the anterior aspect of the vaginal vault is responsible for the fact that vaginal lacerations are almost always also present.  

Conclusion  
Traumatic urethral injury in women is very rare. It occurs less frequently than in men. Urinary incontinence, urethral stricture and fistula formation are potential complications of the injury. Surgical repair is difficult and associated with unsatisfactory results. Experience in treating this condition is limited because of its rarity. Long-term follow-up is needed to evaluate and treat potential complications.  

References  