

URETHRA

PRIMARY TREATMENT OF URETHRAL TRAUMA*

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There are 4 kinds of injury to the lower urinary tract -

1. Perurethral (which in practice nearly always means iatrogenic),
2. Perineal, or fall-astride injuries.
3. Extraperitoneal injuries associated with fractures of the pelvis.
4. Intraperitoneal injuries following closed abdominal trauma.

Perurethral Injuries

The most common cause of injury to the urethra is the doctor: even experienced urologists can make a false passage sometimes, however careful they may be. They also know that the urethra will usually heal without any trouble, and that in doubt, the safe thing to do is to make a suprapubic cystostomy. A week or two later and we can see nothing wrong in the urethra at all.

We also know that a longitudinal incision in the urethra will heal with - at worst - a thin white line, and no narrowing of the urethra - and indeed - in some cases - internal urethrotomy can actually result not in stricture - but in permanent enlargement of the caliber of the urethra.

Perineal Injury

Here the bulbar urethra is forced up against the sharp inferior edge of the symphysis pubis which may or may not be fractured. The urethra may or may not be completely severed, but the ends of the bulbar urethra cannot retract because they are attached to the corpora cavernosa. As a result, even if there is a complete rupture, the ends will be near each other, and even if healing gives rise to a complete stricture (which is rare) it is a short one, and easily corrected by urethrotomy or a one-

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stage urethroplasty. The important consideration in this injury is to stop things from getting worse, and this means preventing extravasation of urine into the soft tissues of the perineum, for extravasated urine will be trapped within the fascial planes of the perineum and give rise to gangrene of the overlying skin. It is this disaster which dictates our management of this injury. At all costs, extravasation is to be prevented. A suprapubic tube is inserted as soon as possible after the accident. If by any unhappy chance there has already been some extravasation, then it must be drained.

After about 10 days, if one looks down the urethra, it is seldom that one can detect the site of the injury. I have had a patient whose urethra was transfixated by a piece of wood. After 3 weeks of suprapubic drainage it was impossible to see where the urethra had been damaged. This experience makes me very sceptical of the claims of those who advocate early intervention in such patients, especially those who advise performing the first stage of a 2-stage urethroplasty in such cases: urethroplasty is seldom needed, let alone one that needs to be done in 2 stages.

Extraperitoneal Injuries Associated with Fractures of the Pelvis

One can distinguish 2 main types of fracture of the pelvis with urethral injury.

Type 1.

In Type 1, the common anteroposterior fracture of the pelvis, the bones are little displaced, so that even if the urethra is completely torn across, its ends are not far apart. Provided that care is taken to preserve the lumen, then the urethra comes to have a typical S-shaped bend. This bend is not always narrow, and may need no treatment at all. In other cases, one may need to divide the obstructing baffles - a simple thing to do with a cold knife through the urethroscope - and the patient escapes any kind of urethroplasty. At worst, if the lumen has been lost, the stricture is still a very short one, and can easily be cured by a one-stage island patch skin inlay urethroplasty, or by end to end anastomosis.

Type 2.

In the second category there is wide displacement of the bony parts of the pelvis: one innominate bone rides up, carrying with it the bladder and prostate, while the other half-pelvis holds the bulbar urethra by its attachment to the corpus cavernosum which in turn is tethered to the ischial ramus. Ideally, the bony displacement should be corrected, and if the dislocated pelvis can be realigned, the ends of the urethra are approximated, and all that is necessary is to bring them together over a suitable splinting catheter. One may recognise this kind of injury in the plain X-ray: it is quite different from the first type, and in general the patient has suffered much more severe trauma, often has other injuries, and is in no condition to undergo any unnecessary surgery.

On the night of the accident all that is necessary is to insert a suprapubic cystostomy tube in order to empty out the bladder. Even this is not especially urgent. My colleagues in the resuscitation unit often ask whether any harm comes from attempting to insert a catheter in such patients. My advice is that so long as they use only a soft narrow catheter - no larger than 12 Ch - then they can do no harm.

Others ask whether they should be doing a urethrogram. It can do no harm so long as the procedure of doing the urethrogram does not subject the patient to unnecessary movement on and off an X-ray table, or to unnecessary delay in getting treatment for his other injuries.

This attitude to the early management of these massive injuries does not mean that one can afford to do nothing at all. On the contrary, I believe that the patient must be treated very actively, only I do not consider that it is necessary to do any treatment on the night of admission when he has other problems - often far more serious ones - to cope with.

In the later management of such injuries one needs to understand the anatomy. If there is a rupture of the urethra, then it is torn apart because the bladder and prostate have gone up with one half-pelvis, and the bulbar urethra has remained down with the other half - each held by its attachments to the innominate bone and the ischium.

To get the ends together the dislocation of the bones needs to be corrected. One way to do this is by means of a metal frame, which still leaves enough room for a Pfannenstiel incision through which the divided ends of the urethra can be approximated over a suitable splinting catheter.

If this is done, the patient may end up with normal anatomy. If it is not done - if no attempt is made to reduce the bone deformity or to get the divided ends of the urethra in approximation - then one is left with a long gap, filled with scar tissue, separating the two ends of the urethra. To cross this gap is a formidable task. My experience leads me to believe that the best technique is a modification of the transpubic end-to-end anastomosis, taking out a little window from the inferior edge of the symphysis pubis, and after mobilising the bulbar urethra, anastomosing it to the lower end of the prostatic urethra, end-to-end over a suitable splinting catheter.

What is not acceptable is to do nothing about reducing the gap, or about bringing the widely separated ends of the divided urethra together, for then the patient will have to undergo a urethroplasty. If an intelligent and well-planned surgical intervention is carried out within 2 weeks of the injury then there will usually be no stricture at all, and if there is one - it will be easy to treat, and urethroplasty is seldom if ever needed.

Intraperitoneal Rupture of the Bladder Following Closed Abdominal Injury

In very severe abdominal injuries there may be many lacerations of viscera as well as a fracture of the pelvis, and in the course of a routine laparotomy for internal hemorrhage, the bladder may be found to be torn. If so, it should be sewn up and drained with a catheter in the usual way.

Sometimes a distended bladder is burst by external violence: this is usually an injury of the drinker emerging from the pub who is run over by a car. Occasionally the violence is quite trivial. If the urine that leaks from the bladder into the peritoneal cavity is dilute and uninfected, it may give rise to very few signs: indeed, it may take 3 or 4 days before the patient develops signs of a chemical peritonitis. If detected early, all that is necessary is to insert a catheter, and allow the peritoneum to absorb the small amount of urine that has escaped. In later cases it is necessary to perform laparotomy, irrigate the peritoneum, and close the bladder formally.