tula represents abnormal communications between a major artery and the mid or distal portion of the ureter. Frequently the fistula occurs between the external iliac artery and the ureter. This entity is a diagnostic challenge for the radiologist given the intermittent nature of the bleeding. Thus, various techniques have been used in attempt for its diagnosis: cystoscopy , intravenous urography, ureterography, abdominal and pelvic CT, renal arteriography, and selective iliac arteriography. Selective iliac arteriography although presents low sensitivity (less than 50%), is considered the most sensitive technique. The cause of false negative examination is due to the fact of examining the patient when the fistula is partially occluded by a thrombus(quiescent phase). True positive findings are arterial pseudoaneurysms at the point where the ureter crosses the iliac artery and gross extravasation of contrast material into the ureter. Classic treatment of this entity is based on open surgery, which is usually unsuccessful and frequently associated with increased morbidity and mortality. In patients explored surgically without a preoperative diagnosis, the mortality rate is 64% in comparison to 8%, when the correct diagnosis is made pre-operatively.

Option treatments are quite variable: nephrectomy or nephroureterectomy, ureteral reconstruction, ureterostomy (surgical or percutaneous) or pyelonephrostomy, ligation of the ureter, embolization of the renal artery, renal irradiation, and autotransplantation. Recently a sonographically guided percutaneous nephrostomy followed by antegrade insertion of multiple metallic coils into the ureteral lumen just proximal to the fistula was reported. Vascular surgical procedures includes local reconstruction (i.e., arteriorrhaphy, patch closure, interposition graft, bypass), ligation with or without extra anatomic bypass (if arterioureteral fistulas arise from either common or external iliac artery), and ligation of the internal iliac artery.

Recently successful endovascular treatment of arterioureteral fistula using graft covered stent have been described and it seems to be a promising alternative to surgical procedures because presents less morbidity and mortality. Long-term follow-up after this endovascular treatment technique is needed.

References

1. Marco Perez LM, Vigues Julia F, Trilla Herrera E, Dominguez Elias J, Ponce Campuzano A, Gonzalez Satue C, et al.: Hematuria secondary to arterioureteral fistula. Endovascular treatment. Actas Urol Esp. 2001; 25: 668-671.
2. Sherif A, Karacagil S, Magnusson A, Nyman R, Norlen BJ, Bergqvist D: Endovascular approach to treating secondary arterioureteral fistula, Scand J Urol Nephrol. 2002; 36: 80-82.

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UROGENITAL TRAUMA

Management of bulbous urethral disruption by blunt external trauma: the sooner, the better?

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Objectives: To investigate whether the incidence of urethral stricture is different according to the primary mode of management, we retrospectively reviewed the record of patients with bulbous urethral disruption by external blunt trauma.

Methods: A total of 95 patients with blunt bulbous urethral injuries were included in the study. Sixty-five underwent immediate urethral realignment and 30 underwent initial suprapubic tube placement followed

by delayed management. The urethral injuries were interpreted as partial or complete disruption on the basis of the retrograde urethrographic findings.

Results: Urethral stricture developed in 12 patients (18.5%) who underwent immediate management and in 12 patients (40.0%) who underwent delayed management (P = 0.025). Of the patients with partial disruption, no significant difference was found in the urethral stricture incidence between the two groups. However, of the patients with complete disruption, urethral stricture developed in 10 (31.3%) of 32 patients who underwent immediate management and 11 (68.8%) of 16 patients who underwent delayed management (P = 0.014). In addition, the degree of urethral stricture in the patients who underwent delayed management was more severe than in those who underwent immediate urethral realignment (P = 0.023).

Conclusions: Our findings suggest that better outcomes can be obtained when immediate urethral realignment is successful in patients with bulbous urethral disruption. Additional research, including prospective randomized trials, is needed to confirm these findings.

Editorial Comment

This is only one of many studies that shows that early endoscopic realignment of blunt posterior urethral injuries is a good idea. In this series, the rate of stricture formation was halved in those who were realigned. Other series show similar benefit.

Techniques: Many techniques have been described. I first attempt to place a flexible cystoscope in the bladder - this is successful in a small but notable percentage. Next I dilate the suprapubic tract with flexible urethral dilators, place the flexible cystoscope into the bladder over a wire, and attempt anterograde passage of the scope. Placement of the guidewire down through the proximal urethral stump is often successful, and a Council catheter can then be “railroaded” into the bladder from below. If this fails, I have a second surgeon perform rigid urethroscopy from below, turn off the light on the anterograde scope, and attempt to advance the flexible scope from above towards the light. If this fails, I stop and try again another day.

Timing: Timing of attempted realignment can be difficult. Unstable or very ill patients may need to be temporized with a suprapubic tube, and brought to the operating room only when more stable, or undergoing other procedures. Some series show that even delayed realignment up to 20 days after injury is helpful. If the first attempt at realignment fails, I suggest bringing the patient back 2 or 3 days later and trying again. I limit my attempts to about 45 minutes, reasoning that continued attempts might be harmful, although no data exists to prove this.

Complications vs Benefits: Some practitioners worry that endoscopic realignment might have some sort of unexpected complication, such as infection of the hematoma, or pelvic damage from the use of irrigation during cystoscopy. This has not ever been reported, and certainly these theoretical complications are outweighed by the real benefits from the procedure. Benefits include the possibility that the urethra will heal, even when completely disrupted, without the need for secondary delayed urethroplasty. When urethroplasty is required, it is clear that the procedure is much easier after endoscopic realignment because the scar defect between the normal urethral ends is shorter and the ends are often in reasonable apposition.

Do not attempt early open realignment: We must always emphasize that the data shows that immediate open realignment is not a good idea. It increases the incontinence rate, the impotence rate, and can be associated with life threatening bleeding when the pelvic hematoma is entered. Even in cases of rectal injury, where laparotomy, rectal closure and colostomy may be required, placement of a urethral catheter across the defect without primary suturing may be most prudent.

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Renal injury and operative management in the United States: results of a population-based study.

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Background: To evaluate the extent to which nonoperative renal trauma management has been adopted, we determined the incidence of renal injury and the rate of operative management across the United States.

Methods: International Classification of Diseases, Ninth Revision diagnosis and procedure codes identified patients with renal injuries in an 18-state administrative database representing 62% of the U.S. population.

Results: Of 523,870 patients hospitalized for trauma in 1997 or 1998, 6,231 (1.2%) had renal injuries (4.89 per 100,000 population). Sixty-four percent of patients with injuries that were classified had contusions/hematomas, 26.3% had lacerations, 5.3% had parenchymal disruption, and 4% had vascular injuries. Eleven percent of renal trauma patients required surgical management of their kidney injuries, of whom 61%, or 7% of patients with renal injuries overall, underwent nephrectomy. Injury Severity Score, mechanism, and renal injury severity were independent predictors of nephrectomy.

Conclusion: The nephrectomy rate in community and academic centers reflects renal and global injury severity. Prospective trials are indicated to determine whether, in the traumatized patient with severe kidney injury, renal preservation could lead to improved outcomes compared with nephrectomy.

Editorial Comment

The most quoted statistic is that 10% of all serious injuries involve the kidney. However, in this review of half a million American trauma patients, the real incidence was closer to 1%. Subset analysis showed different renal injury rates depending on the cause of trauma: firearms 3.5%, motor vehicle accidents 2.2%, bicycle accidents 1.9%, pedestrian accidents 1.5%, stab wound 0.8% and falls 0.5%. Most injuries were renal contusions (64%) although 26% had lacerations, 5% had parenchymal disruption and 4% had vascular injuries. 13% of lacerations were treated with renorrhaphy, and 10% with nephrectomy, while 25% of vascular injuries required nephrectomy.

Patients with vascular injuries, when operated on, had an 84% nephrectomy rate - which seems understandable in light of the potential for exsanguination or renal nonfunction after these injuries. Of those being operated on for lacerations, the nephrectomy rate as an appallingly high 64%.

There are lessons from this huge series:

1) Renal injury rates are lower than we thought
2) Vascular injuries, when operated on, usually result in nephrectomy
3) Renal lacerations (too) frequently result in nephrectomy when operated on. Because of this, I believe that expectant management is the preferred approach, as surely some of these 64% lost kidney might be saved either by more judicious use of renorrhaphy or by avoiding retroperitoneal exploration altogether.

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