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The use of Allium™ stent in management of a gunshot injury with incomplete tear of the proximal part of the right ureter

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Introduction & Objectives: Injuries to the ureter resulting from external trauma are very uncommon. This type of injury is associated with a high mortality rate due to the involvement of concomitant multiorgan damage. Wound management depends primarily on the location and severity of the injury. Here we present a successful example of Allium™ stent usage in a management of a very rare type of injury with positive results.
The case involves a Caucasian male, 46 years of age, the victim of multiple gunshot injury. Three bullet wounds were identified, of which one bullet struck the abdomen and caused a multiple organ injury. The first surgery revealed a perforation of the duodenum and 2 perforations of the small bowel. Upon the second surgery, urea and creatinin were found in the excretion of abdominal drains. A CT scan identified an incomplete tear of the proximal part of the right ureter. The lesion was temporarily managed by insertion of a percutaneus nephrostomy. We decided to use an Allium™ stent for definitive delayed repair, because it should be ideal for long-term ureteral stenting and be easy to remove.

Results: 33 days post-trauma the lesion of the right ureter was endoscopically repaired. With a cystoscope, the previously inserted JJ stent was partially pulled out through the penile meatus and a guiding wire was retrogradely inserted through it, but could not pass through the lesion. Therefore it was inserted through the PNS, where it smoothly held down to the bladder. An Allium™ ureteral stent was placed on the guiding wire and inserted through the penile meatus retrogradely. Under the control of a X-ray intensifier it was then positioned correctly and activated. The PNS was then repositioned and a nephrostogram was recorded, where no extravasation of contrast was seen, also the ureter had an appropriate width of the lumen.
With the stent inserted for 132 days, he was then again admitted for the removal of it. A rigid ureterorenoscope was introduced and advanced to the proximal part of the ureter,where the stent was placed. In an attempt to remove it with a rigid grasping forceps, traction was applied to the distal end of the stent, when it started to tear apart. The extraction was difficult and the stent was finally removed in 2 pieces. A retrograde pyelography shoved no extravasation of contrast.

Conclusions: 183 days post-trauma the patient was feeling well. An i.v. urography and plain abdominal X-ray were performed, where no calcinations were seen, the renal pelvis was bilateral not dilated, the flow of the contrast was evenly distributed and arrived both sides timely to the bladder, the ureters were thin, with no extravasation, all laboratory results were in the range of normal. We demonstrated that the use of Allium™ stent for repair of incomplete proximal ureteral injuries that result from penetrating trauma, is a safe and effective method, but the removal is not always easy and can be very challenging.