extranodal extension of the metastatic focus, and therefore, it is recommended that this be assessed and reported as well (4).

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UROGENITAL TRAUMA

Renal gunshot wounds: clinical management and outcome

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Background: To analyze our experience with renal gunshot wounds (GSW).
Methods: We analyzed our prospective trauma database for patients with renal GSW.
Results: Two hundred one patients (206 renal units) with renal GSW were collected from our database. Preoperative imaging (1-shot intravenous pyelogram, dedicated intravenous pyelogram, or computed tomography) was performed in 68.7% (n = 140). Gross or microscopic (>5 red blood cell/high power field) hematuria was present in 88.7%. Injury to other organs was present in 96.5% (194 of 201), with >1 organ involved in 74.6% (other than kidney). The liver was the most commonly injured organ. Using the American Association for the Surgery of Trauma grading system, there were 46 grade 1 (G1), 21 G2, 62 G3, 51 G4, and 26 G5 injuries. The trend to observe without renal exploration has not changed significantly during the past three decades (1978-1989 = 32.8%, 1990-1999 = 39%, 2000-2007 = 30.4%). Ninety-five renal units (excluding nephrectomy) underwent repair with associated small or large bowel injuries without any known complications, including 14 patients with mesh used during renal repair. The renal salvage rate was 85.4% (n = 176 of 206) with two delayed nephrectomy procedures for persistent bleeding after initial repair. The total number of nephrectomy procedures was 30 of 206 renal units. Postoperative imaging was obtained in 32.8% (55 of 201) patients, and there were no known cases of postinjury hypertension. Overall survival was 90.6% (182 of 201), with 2 intraoperative and 17 postoperative deaths. There were no postoperative infections related to renal reconstruction. Isolation of renal vessels was obtained in all patients before opening Gerota's fascia with no deaths secondary to urologic intervention.

Conclusion: Selective observation and various operative techniques can yield high renal salvage rates approximating 85% after GSW.

Topical haemostatics in renal trauma--an evaluation of four different substances in an experimental setting

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Background: Damage control is valuable in hemodynamically unstable trauma patients. To improve the hemostasis of packing, topical hemostatic agents have been suggested. The effects of such agents are unclear in trauma situations. The purpose of this study was to investigate the hemostatic capacity, and the stability of the hemostatic clot, of four substances with different mode of action in an experimental traumatic bleeding model.
Methods: A standardized heminefrectomy was performed in 180 heparinized and normotensive Sprauge-Dawley rats. Four different substances were studied (separately and in combinations) in a randomized fashion: gelatin (sponge and matrix), bovine thrombin, freeze-dried recombinant factor VIIa (rFVIIa), and microporous polysaccharide hemospheres. Eight treatment groups (15 animals/group) were considered, primary endpoint was hemostasis within 20 minutes of observation. The effective treatment groups were evaluated in a second set in the same experimental model, but with a prolonged observation time after hemostasis (60 minutes) to control the stability of the clot.
Results: Those animals treated with gelatin in the comparative study, with and without thrombin or rFVIIa, obtained hemostasis. Thrombin and rFVIIa alone did not have any hemostatic capacity. Only 20% to 25% of the animals obtained hemostasis with microporous polysaccharide hemospheres alone or in combination with rFVIIa. In the prolonged observation study, gelatin alone and in combination with thrombin or rFVIIa was studied. On average, 34% (20%-54%) of the animals rebled with no significant difference between the treatment groups.
Conclusions: Gelatin-containing products provided a fast hemostasis in this experimental model. One third of the animals rebled, regardless of whether thrombin or rFVIIa was added. Further studies are demanded to confirm these results clinically

Editorial Comment

The above two articles on gunshot wounds to the kidney and the other on haemostatic agents are both very timely and raise many controversies and unanswered questions. Although the authors hold on to the dogma of a one-shot IVP before any renal exploration, I have generally found little utility it its use. In our hands, the IVP is usually a "fuzzy-gram" and adds little to the decision making. While Morey et al published some value in the IVP in helping to grade the renal injury, as to high or low grade, we have not had such luck. In our trauma center, if the patient is stable enough to undergo imaging, we take the patient to the CT scanner and get an accurate read as to the grade of renal and associated injuries. If the patient is so unstable that no imaging can be done and needs to be rushed to the OR, this patient is typically a "damage control" patient where fancy and time consuming renal reconstructions are a disservice to the patient. It is our feeling that a damage control patient with a kidney injury needs to be observed, temporized by packing or the like, or undergo a quick nephrectomy. In such an unstable patient, a one-shot IVP will not help you or allow you to change your intra-operative decision making. Furthermore, an easy way to assess contralateral kidney function is to place a vessel loop to occlude the ipsilateral injured kidney ureter, give indigo, and look for blue in the Foley. Blue indicates at least a partially functional contralateral kidney. The notion that we should do a one-shot IVP on all patients to prevent taking out a solitary kidney that has a 0.1% incidence makes no sense to me. While we