

## UROGENITAL TRAUMA

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### **Renovascular injury: an argument for renal preservation**

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**Background:** Renovascular injury is uncommon among children. This study hypothesized that preservation of the severely injured kidney can be achieved safely without renal insufficiency, postinjury hypertension, or the need for hemodialysis.

**Methods:** Retrospective chart review of renal injuries seen between 1997 and 2001 at a level 1 pediatric trauma center was conducted. Severity of injury was graded by the American Association for the Surgery of Trauma Organ Injury Severity Scale. The outcome variables included the need for hemodialysis, impaired renal function (creatinine), and postinjury hypertension.

**Results:** In this study, 34 children presented with grade 1, 2, or 3 injury (74%), whereas 13 children presented with grade 4 or 5 renovascular injury (28%). The children with unilateral renovascular injury who underwent either nephrectomy or renal preservation had comparable outcomes with no hypertension, hemodialysis, or renal insufficiency in either group.

**Conclusions:** The treatment outcomes were not different between the patients who underwent renal preservation and those who had immediate nephrectomy. The authors conclude that renal preservation should be attempted for all children with grade 4 or 5 renovascular injury.

### **Editorial Comment**

In adults the consensus seems to be that major renovascular injury is probably going to result in nephrectomy (see article below). Those with complete avulsion are usually bleeding briskly and need speedy vascular control to save their life; those with renal artery thrombosis nearly always eventually require nephrectomy even if revascularization is attempted (see paper below) and it is starting to be seen that even venous lacerations have a high nephrectomy rate even in the best hands (1). This pediatric series of 13 patients with grade IV (7 patients) or grade V (6 patients) renovascular injury, supports observing these patients without nephrectomy if possible. Six children in this series who had no treatment seemed to do as well as 4 that had nephrectomy for their injury. Even one child with bilateral hilar injuries (usually listed as a reason to attempt vascular repair) was observed without vessel repair (although he later developed renovascular hypertension). Unfortunately, the authors do not specify the outcomes of those with grade IV injuries compared to grade V. Obviously those with grade V avulsions should be expected to do much worse! In any case, this paper is further evidence that you should at least initially consider expectant management of renal trauma - in a pediatric subset with nonexsanguinating renovascular trauma.

### **Reference**

1. Santucci RA, Wessells H, Bartsch G, Descotes J, Heyns CF, McAninch JW, Nash P, Schmidlin F: Evaluation and management of renal injuries: consensus statement of the renal trauma subcommittee. *BJU Int.* 2004; 93: 937-54.

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**Outcome after major renovascular injuries: a Western trauma association multicenter report**

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**Background:** Major renal vascular injuries are uncommon and are frequently associated with a poor outcome. In addition to renal dysfunction, posttraumatic renovascular hypertension may result, although the true incidence of this complication is unknown. The objective of this study was to describe the factors contributing to outcome after major renovascular trauma. We hypothesized that the highest percentage of renal salvage would be achieved by minimizing the time from injury to repair.

**Methods:** This was a retrospective chart review over a 16-year period conducted at six university trauma centers of patients with American Association for the Surgery of Trauma grade IV/V renal injuries surviving longer than 24 hours. Postinjury renal function with poor outcome was defined as renal failure requiring dialysis, serum creatinine greater than or equal to 2 mg/dL, renal scan showing less than 25% function of the injured kidney, postinjury hypertension requiring treatment, or delayed nephrectomy. Data collected for analysis included demographics, mechanism of injury, presence of shock, presence of hematuria, associated injuries, type of renal injury (major artery, renal vein, segmental artery), type of repair (primary vascular repair, revascularization, observation, nephrectomy), time from injury to definitive renal surgery, and type of surgeon performing the operation (urologist, vascular surgeon, trauma surgeon).

**Results:** Eighty-nine patients met inclusion criteria; 49% were injured from blunt mechanisms. Patients with blunt injuries were 2.29 times more likely to have a poor outcome compared with those with penetrating injuries. Similarly, the odds ratio of having a poor outcome with a grade V injury (n = 32) versus grade IV (n = 57) was 2.2 (p = 0.085). Arterial repairs had significantly worse outcomes than vein repairs (p = 0.005). Neither the time to definitive surgery nor the operating surgeon's specialty significantly affected outcome. Ten percent (nine patients) developed hypertension or renal failure postoperatively: three had immediate nephrectomies, four had arterial repairs with one intraoperative failure requiring nephrectomy, and two were observed. Of the 20 good outcomes for grade V injuries, 15 had immediate nephrectomy, 1 had a renal artery repair, 1 had a bypass graft, 1 underwent a partial nephrectomy, and 2 were observed.

**Conclusion:** Factors associated with a poor outcome following renovascular injuries include blunt trauma, the presence of a grade V injury, and an attempted arterial repair. Patients with blunt major vascular injuries (grade V) are likely to have associated major parenchymal disruption, which contributes to the poor function of the revascularized kidney. These patients may be best served by immediate nephrectomy, provided that there is a functioning contralateral kidney.

**Editorial Comment**

This is not the newest paper, but it is one of the best. It establishes that “conservative” management of adult renovascular injury probably means “nephrectomy instead of vascular repair”. In a multicenter series of 89 patients with renovascular injuries, 3 of 4 patients that had a primary repair had a “poor” result, while only 3 of 18 of those with a primary nephrectomy had a poor result. In general, an attempted bypass graft was 15 times more likely to result in a poor result for the patient than nephrectomy. These data again support at least a trial of nonoperative treatment of the patient, and failing that, a “conservative” approach by performing nephrectomy instead of vascular repair. In this dataset, some patients who were initially observed eventually needed the kidney to be removed, but this could be achieved after a few days when the patient was

stable. Two patients developed renovascular hypertension, but these patients had vascular repair instead of kidney removal.

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## **PATHOLOGY**

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### **Current practice of diagnosis and reporting of PIN and glandular atypia among genitourinary (GU) pathologists**

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**Background:** Although there is a sizable body of literature relating to PIN and atypical glands suspicious for cancer, many areas remain unresolved and practice patterns are varied.

**Design:** A questionnaire was sent to 93 GU pathologists in countries around the world with the purpose to survey current practices of diagnosing and reporting prostate needle biopsies with PIN and atypia.

**Results:** The response rate was 69%. The term PIN was universally acknowledged for preneoplastic lesions. However, if cytological or architectural atypia were pronounced, 44% would use intraductal carcinoma.

PIN was graded by 83%, usually as low/high grade PIN (LGPIN/HGPIN) or, more commonly, as HGPIN only. Lesions that may qualify for LGPIN were never mentioned (58%) or only rarely mentioned in the descriptive part of the report (25%). Architectural patterns of PIN were usually not specified (81%) and those who specified never commented on their significance. The majority (75%) did not comment that HGPIN is premalignant and 63% would not recommend a repeat biopsy. With invasive cancer also present, 69% would still mention HGPIN. Basal cell stains were used in <5% of HGPIN cases (67%). HGPIN would be diagnosed by 56% in the absence of prominent nucleoli, most commonly based on prominent pleomorphism (53%), marked hyperchromasia (47%) or mitotic figures (28%). Among diagnostic criteria for HGPIN were different degrees of nucleolar prominence (52%), or nucleoli seen in at least 10% of cells (33%). Number of cores involved with HGPIN was specified by half of the respondents.

Lesions suspicious for but not diagnostic of carcinoma were reported as ASAP (47%) or atypia/atypical glands/suspicious (48%). Degree of suspicion of cancer in atypical acinar lesions was defined by 41%. Only 34% always recommended repeat biopsy, while 30% would do it depending on referring doctor and 13% depending on patient age.

**Conclusions:** For controversial areas relating to PIN and atypical glands, our survey provides information to general pathologists about how GU pathologists deal with these issues.

### **Editorial Comment**

This is a timely topic for the urologists on how pathologists report PIN and ASAP. Atypical prostate epithelium was described as early as 1926 (1). Since then the lesion was referred as atypical hyperplasia, atypical lesions, dysplastic lesions, intraductal dysplasia, carcinoma in situ and premalignant lesion among many other denominations. In 1989 (2), during an international workshop sponsored by the American Cancer