

Operative Management of Wartime Genitourinary Injuries at Balad Air Force Theater Hospital, 2005 to 2008

Steven J. Hudak and Samuel Hakim*

From the Urology Service, Department of Surgery, Brooke Army Medical Center, Fort Sam Houston and Urology Flight, Wilford Hall Medical Center (SH), Lackland Air Force Base, Texas

Abbreviations and Acronyms

AFTH = Air Force Theater Hospital

GSW = gunshot wound

GU = genitourinary

IED = improvised explosive device

OIF = Operation Iraqi Freedom

Submitted for publication November 21, 2008.
Study received institutional review board approval.

The opinions expressed in this document are solely those of the authors and do not represent an endorsement by or the views of the United States Air Force, the United States Army, the Department of Defense or the United States Government.

* Correspondence: Urology Flight, 859 MSGS/MCSU, Wilford Hall Medical Center, 2200 Bergquist Dr., Suite 1, Lackland Air Force Base, Texas 78236 (telephone: 210-292-5755; FAX: 210-292-7199; e-mail: Samuel.Hakim@lackland.af.mil).

Purpose: We detail the 3-year experience of operative combat urology of genitourinary surgeons stationed at Balad Air Force Theater Hospital, Balad, Iraq.

Materials and Methods: We performed an institutional review board approved, retrospective review of operative logs of the 9 urologists deployed to Balad Air Force Theater Hospital from June, 1 2005 to June 1, 2008. All operative cases performed by the urologists deployed to this facility were reviewed. Patients were grouped by injury location and operative approach. Analysis included the calculation of relative injury rates by location and the incidence of organ preservation.

Results: During the 36 months reviewed 273 patients underwent a total of 361 operative and 25 endoscopic procedures for 1 or more genitourinary injuries. Of the patients 227 (83.1%) had wounds to the lower genitourinary tract, 39 (14.3%) had wounds to the upper genitourinary tract and 7 (2.6%) had upper and lower genitourinary injuries. Exploration, débridement and repair of soft tissue injury to the external genitalia were the most commonly performed procedures. Of the 88 testicular injuries explored testicular salvage was achieved in 45 (51.1%). Nephrectomy was required in 17 of the 27 operative renal injury cases (63.0%).

Conclusions: Most genitourinary injuries treated at Balad Air Force Theater Hospital involve the lower genitourinary tract. The high frequency of genital trauma often requires staged reconstructive procedures. Acceptable renal and testicular salvage rates are attainable. This study highlights the diverse array of surgical treatment modalities needed to manage genitourinary trauma during Operation Iraqi Freedom.

Key Words: wounds and injuries, urogenital system, war, reconstructive surgical procedures, Iraq

THERE is a paucity of data regarding the management of wartime GU trauma during the last 40 years. A recent comprehensive review revealed little information on GU trauma during United States related conflicts since the 1960s.¹ Data on GU trauma during OIF have been limited to a 1-year retrospective review of the United States Army trauma registry.² While this registry provides valuable data on combat injuries, it does not record data specific to each GU organ, nor does it detail what treatment modal-

ities were used by urologists to manage GU trauma.

The 332nd Expeditionary Medical Group in Balad, Iraq is the first AFTH since the Vietnam War. It is 1 of only 2 level III facilities in Iraq, the highest level of care available, and it is responsible for all United States casualty evacuations out of the theater of operations. There has been a urologist as part of the trauma team since its inception in 2004. We report management for GU trauma at Balad

AFTH from 2005 to 2008. We define the patterns of GU injury and the surgical management required in a modern wartime setting.

MATERIALS AND METHODS

Institutional review board approval was obtained to review the operative logs from United States Air Force urologists deployed to Balad AFTH. We retrospectively reviewed these operative logs, which were obtained during 36 consecutive months from June 1, 2005 to June 1, 2008. Records from 2004 and early 2005 were not available. The records reviewed included individual logs from 7 of the 9 urologists and the hospital computerized surgical scheduling system database for the remaining 2. All operative cases performed by the 9 urologists deployed to this facility during this time were reviewed. GU procedures performed by nonGU surgeons were not included in analysis.

All patients with operative GU trauma were included in the study, comprising allied and insurgent forces as well as Iraqi military forces, police and noncombatants. Data on nonoperative management for GU injury, ie low grade renal trauma, were not available. Data on the presence or absence of personal body armor were not available. When available, data on injury to other organ systems were noted. Patients were stratified by injury location (upper and/or lower GU tract). Operative procedures were stratified as open vs endoscopic and appropriately grouped for review. Reoperative procedures for the same injury were excluded from study, so that the totals listed adequately reflect the incidence of GU injury observed in this theater of war.

RESULTS

During the 3-year study period 273 patients underwent a total of 361 operative and 25 endoscopic procedures for 1 or more GU injuries. Of the patients 227 (83.2%) had wounds to the lower GU tract (bladder, urethra and/or external genitalia). Wounds to the upper GU tract (kidney and/or ureter) were found in 39 patients (14.3%). Seven patients (2.6%) had upper and lower GU injuries. Of the 215 patients with adequate surgical records 169 (78.6%) required surgical treatment for concomitant injuries to other organ systems.

Injury Management

Lower GU tract. Of the 361 operative procedures performed 258 (71.5%) involved the external genitalia, 20 (5.5%) involved the urethra and 36 (10.0%) involved the bladder. A total of 314 procedures (87.0%) involved the lower GU tract (see [table](#)). Exploration, débridement and repair of isolated soft tissue injuries to the penis and/or scrotum were the most commonly performed procedures (127 of 314 or 40.4%). Scrotal exploration and/or repair for penetrating injury not involving the testis or adnexa was performed in 80 patients. Of the 88 testicular injuries testicular salvage was achieved in 45 (51.1%). Of the 87 penile injuries 40 (46.0%) required penoplasty and/or cor-

Surgical management for GU injury at Balad AFTH, 2005 to 2008

Operation	No. Procedures
Renal surgery:	
Renorrhaphy	10
Nephrectomy	17
Ureteral surgery:	
Ureteroneocystostomy	6
Ureteroureterostomy	6
External ureteral drainage	7
Transureteroureterostomy	1
Total No. upper GU operations	47
Bladder exploration/repair	36
Urethral surgery:	
Urethroplasty	17
Primary urethral realignment	3
Genital surgery:	
Orchioplasty	45
Orchiectomy	43
Exploration +/- or scrotal injury repair, no testicular injury	80
Exploration +/- or penile injury repair, no glanular/urethral/corporal injury	47
Glanular +/- or corporal repair	40
Testicular adnexa repair	3
Total No. lower GU operations	314

poroplasty, while 47 (54.0%) required débridement and the repair of superficial injuries alone.

Repair of urethral injury was performed in 17 patients. Of interest, most urethral injuries were caused by direct injury to the genitalia, often requiring concomitant repair of the other superficial and deep structures of the penis. Primary realignment of posterior urethral distraction was successful in 1 of the 3 patients in which it was attempted. Suprapubic tubes were placed in patients with a devastating urethral injury not amenable to primary repair or realignment.

Exploration and/or repair of bladder injury was performed in 36 patients. Injury to nonGU organs was particularly common in this group. Six distal ureteral injuries required ureteral reimplantation. The use of urethral and/or suprapubic catheters after bladder injury repair was at the discretion of the operative surgeon.

Upper GU tract. There were 47 operative cases (13.0%) involving the upper urinary tract (see [table](#)). Of the 27 operative renal injury cases nephrectomy was required in 17 (63.0%). Renorrhaphy was completed successfully in 10 patients. Low grade renal injury was typically managed nonoperatively by observation and serial imaging but these patients were not included in this review.

There were 20 ureteral injuries requiring open repair, comprising 5.5% of all GU operative procedures (see [table](#)). Primary reconstruction was achieved in 13 cases and temporary ureteral externalization was required in 7. Ureteroscopy was done to rule out occult ureteral injury in 3 patients.

Download English Version:

<https://daneshyari.com/en/article/6160068>

Download Persian Version:

<https://daneshyari.com/article/6160068>

[Daneshyari.com](https://daneshyari.com)