

## Original Research Article

# Same Different Surgical Treatment of Bladder Injuries in Abdominal Polytrauma

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**Abstract:** Combinations of pelvic and abdominal injuries occur in 26-50% of prisoners with MT. To 55% of pelvic injuries are accompanied by abdominal trauma. Retrospective and prospective analysis of 68 patients was carried out for the period from 2001 to 2012. Combination of abdominal trauma with bladder injury was observed in 68 patients, of them in 49 (72.1%) with pelvis bones fractures, 11 with injuries of thoracic organs, 9 with cranial injuries, 8 with injuries of extremities, 7 with spinal column injuries. Results: 47 (69.1%) patients with combined intraperitoneal traumas underwent median laparotomy for peritonitis with suturing of bladder wall rupture. In 21 (30.9%) patients intraperitoneal bladder injuries were opened by median suprapubicectoperitoneal approach. Lethality in abdominal multitraumas with bladder injuries made 16.2% (11 patients). In 9 patients lethal outcome was caused by multiple and combined trauma of the skull, chest, extremities and abdomen (liver, spleen, intestine) and urinary peritonitis in 2 patients. In early and timely diagnostics and rational operative intervention both in intra and ectoperitoneal bladder injuries adequate drainage of paravesicular cellular tissue and small pelvis contribute to decrease of various complications and lethality.

**Keywords:** Bladder injuries in abdominal polytrauma, different surgical treatment.

## INTRODUCTION

Combinations of pelvic and abdominal injuries occur in 26-50% of prisoners with MT [1, 2]. To 55% of pelvic injuries are accompanied by abdominal trauma [3, 4]. Lethal outcome of these patients ranges from 18 to 56% [5].

Injuries of urogenital system organs make 1-3 % of cases among the traumas of the other organs [6, 7]. Bladder injury is of particular significance in combined traumatism problem [8]. Bladder trauma is considered to be one of the most severe among urinary organs injuries. Its lethal outcome achieves 40-80 % [9] according to early and late complications such as bleeding, shock, urinals infiltration uroheamatomata, emboly and sepsis.

According to some data of a number of patients who underwent urinary bladder trauma ectoperitoneal rupture was observed in – 53.2%, intraperitoneal in – 41.1%, combined injuries in – 5.7% of patients. Bladder rupture occurred as a result of home accident in – 43.9%, traffic accident in – 42.1%, occupational accident in – 12% and sporting accident in – 2% of patients.

Bladder injuries are especially severe [10]. They are accompanied by high lethal outcome and result in loss of working capacity. Bladder injuries can be open and closed [11, 12, 13] – 32.6%, [14] – 30.8%, [15] – 40%, [16] – 80%, [17] – 10.5%.

In peace time closed injures of bladder are mainly observed and they are divided to intra and ectoperitoneal ones [18, 19]. Particular group is presented by so-called autogenetic injuries associated with various manipulations of diagnostic medical character (cauterization cystoscopy).

## AIM OF RESEARCH

To study and summarize the results of surgical treatment of bladder injuries in abdominal polytrauma.

## MATERIAL AND METHODS

Retrospective and prospective analysis of 68 patients was carried out for the period from 2001 to 2012. Of them 40 patients with bladder injuries were treated at the in - patient department of emergency urological department of RSCUMA Samarkand branch and 28 patients in Samarkand Urban Medical Unit. There were 51 (75%) male patients and 17 (25%), female patients aged 14-76years (39.5 years on the average). 57 (83.8%) patients were admitted to the in-patient department during 6-12 hours, 11 (16.2%) during 12-24 hours after getting trauma.

39 (57.4%) patients had traumas due to traffic accident, 15 (22.1%) had catatraumas, 10 (14.7%) had home accident traumas, 3 (4.4%) had occupational traumas and 1 (1.8%) had iatrogenic bladder injury.

Diagnosis of both intraperitoneal 47 ( 69.1%) patients and ectoperitoneal 21 (30.9%) bladder injuries was based on the findings of anamnesis, examination, palpation and percussion (localization of trauma, disturbance of urination, haematuria, urethrorrhagia, dullness under the pubis, sings of pelvic bones fractura, etc). For diagnosis of bladder injury we used [20] test in 39 patients, bladder catheterization in 65 patients, US in 55, radio-opaque blader examination (cystography) in 41, CT in 11 patients.

In unclear cases we performed videolaparascopy (in patients) for bladder injuries diagnosis. With this, trauma of intra-abdominal bladder part was established in laparoscopy according to presence of the organ wall defect (covered by omentum, intestine), bleeding into peritoneum in small pelvis area, discharge of urine of blood color into abdominal cavity. The amount of hemorrhagic fluid in patients achieved 2-3 liters during 10-12 hours after getting trauma. In 3 cases introduction

of coloring substance into the bladder helped us to make a correct diagnosis. With this, vitreous edema of paravesicular and small pelvis cellular tissue was revealed, its color indicated to injury of ectoperitoneal bladder part.

**RESULTS**

The character, contents and volume of the operation are determined by general condition of the patient first of all, combination of injury with abdominal cavity (intra or ectoperitoneal the type of bladder injury) and the degree of injury.

Combination of abdominal trauma with bladder injury was observed in 68 patients, of them in 49 (72.1%) with pelvis bones fractures, 11 with injuries of thoracic organs, 9 with cranial injuries, 8 with injuries of extremities, 7 with spinal column injuries. Assessment of bladder injury severity according to AIS 90 is presented in the Table 1.

**Table 1: Assessment of bladder injury severity, American Association for the Surgery of Trauma**

Degree of injury	Type of injury	Decoding of injury	AIS90	Number of patients
1 <sup>st</sup> degree	Hurt	Hurt or haematoma	2	-
	Rupture	Tear without lumen opening	3	-
2d degree	Rupture	Ectoperitoneal rupture < 2 sm	4	8
3d degree	Rupture	Ectoperitoneal tear > 2 sm	4	49
		Intraperitoneasl tear < 2 sm		
4 <sup>th</sup> degree	Rupture	Intraperitoneal tear > 2 sm	4	10
5 <sup>th</sup> degree	Rupture	Tear extended to bladder cervix or urethra orifice	4	1
TOTAL				68

The degree of injury increases to 1 in plural injuries.

47 (69.1%) patients with combined intraperitoneal traumas underwent median laparotomy for peritonitis with suturing of bladder wall rupture with extraperitonization according [21] method, epicystostomy, sanation and drainage of the abdominal cavity, pericystic space and small pelvis.

In 21 (30.9%) patients intraperitoneal bladder injuries were opened by median suprapubic ectoperitoneal approach. Of them in 14 patients pericysticurohaematoma was emptied and in 5 patients loosely located bone fractures were removed. Bladder cavity was opened on its anterior surface independently of injury localization. Two – layer sutures were placed on bladder walls ruptures. Cystostomy with bladder ventrofixation according to Krasulin and obligatory drainage of paravesicular cellular tissue in iliac areas or according to Mac-Uorter-Bualsky technique were performed in all patients of this group.

Bladder ventrofiation means its anchoring of its to the muscles of anterior abdominal wall above and

beneath the place of Foley catheter insertion by means of two catgut sutures.

Of 57 (83.8%) patients admitted to the in-patient department in early terms (6-12 hours), in 2 patients urinary peritonitis developed in postoperative period that resulted in lethal outcome. Whereas of 11 (16.2%) patients admitted in 12-24 hours after getting trauma in 6 (54.6%) – patients dynamic intestinal obstruction and in 2 (18.2%) patients urosepsis were revealed.

Lethality in abdominal multitraumas with bladder injuries made 16.2% (11 patients). In 9 patients lethal outcome was caused by multiple and combined trauma of the skull, chest, etremities and abdomen (liver, spleen, intestine) and urinary peritonitis in 2 patients.

**CONCLUSION**

In early and timely diagnostics and rational operative intervention both in intra and ectoperitoneal bladder injuries adequate drainage of paravesicular cellular tissue and small pelvis contribute to decrease of various complications and lethality.

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