



## RENAL TRAUMA: PROFILE AND MANAGEMENT

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Chahal**ABSTRACT**

**AIMS AND OBJECTIVES:** To determine the pattern of renal injuries in blunt trauma abdomen and management protocols.

**MATERIALS AND METHODS:** All patients of blunt renal trauma above 15 years of age who fulfilled the inclusion criteria were included. Patients were studied for their management and outcomes.

**RESULTS:** A total of 18 patients were enrolled who had blunt renal injury. Mean age was 28.72 years. Most common mode of injury leading to renal injuries were motor vehicle accidents i.e. 13 cases out of 18 (72.2%). Associated liver injury was present in 11 out of 18 cases (61%). Mean hospital stay was 10.76 days. Hematuria occurred in 10 cases out of 18 i.e. 55.6%. There were 3 patients (16.7%) each of Grade I, Grade II, Grade III and Grade V renal injury. Grade IV renal injury was more common accounting for 6 cases out of 18 (33.3%). Grade I, II and III renal injury were managed conservatively. Out of 6 patients of Grade IV renal trauma, 5 were managed conservatively and one patient underwent angioembolization. Nephrectomy along with splenectomy was in one patient. complications like perinephric abscess formation, urinoma formation were noted

**CONCLUSION:** Majority of the patients of blunt trauma renal injury can be managed conservatively. High Grade injuries may require surgery or angioembolization in selected cases.

**KEYWORDS :****INTRODUCTION:**

The kidney is the most commonly injured organ of the genitourinary system during trauma. There is a general consensus on the conservative management of minor renal injuries; however, there remains a divergence of opinion on management of major renal trauma with strong advocates of conservative as well as aggressive surgical management. Also, there are not many documented studies which elaborate renal function outcome after renal trauma

**AIMS AND OBJECTIVES:**

To determine the pattern of renal injuries in blunt trauma abdomen and study the effect of management protocols in the outcome.

**MATERIALS AND METHODS:**

This prospective study was conducted in Department of Urology & kidney Transplant, Dayanand Medical College & Hospital and included all patients of blunt renal trauma who fulfilled the inclusion criteria. Patients were studied for their management and outcomes.

**RESULTS:**

A total of 18 patients were enrolled who had blunt renal injury. Mean age was 28.72 years. Majority of the patients were male i.e. 15 out of 18 (83.3%). Most common mode of injury leading to renal injuries were motor vehicle accidents i.e. 13 cases out of 18 (72.2%). Most common associated organ injured in renal trauma was Liver i.e. 11 out of 18 cases (61%). Mean hospital stay was 10.76 days. Ten (55.6%) patients had right kidney injury while 8 (44.4%) had left kidney injury. Hematuria was found to occur in 10 cases out of 18 i.e. 55.6%. There were 3 patients (16.7%) each of Grade I, Grade II, Grade III and Grade V renal injury. Grade IV renal injury was more common accounting for 6 cases out of 18 (33.3%). All Patient of Grade I, II and III renal injury were managed conservatively. Out of 6 patients of Grade IV renal trauma, 5 were managed conservatively and one patient underwent angioembolization. Out of 3 patients of Grade V renal trauma, one was managed conservatively, one patient had to be explored and nephrectomy along with splenectomy was done and one patient underwent angioembolization of the main

renal artery. None of the patients belonging to Grade I, II and III renal injury group had any urological complications. Three patients of Grade IV renal injury had complications out of which one patient had perinephric abscess formations and 2 patients had urinoma formation. One patient in Grade V group had perinephric abscess formation with fever. Both the cases of urinoma formation were treated with DJ stenting and they recovered well. One patient of perinephric abscess was treated with PCD insertion and the other one treated with I/V antibiotics.

**DISCUSSION:**

In our study, the mean age was 28.72 years ranging from 16 to 55 years. This age pattern was similar as observed by other authors<sup>1,2,3</sup>, this is probably because patient in this age group lead more active life and have more outdoor activities. Majority of the patients were male i.e. 15 out of 18 (83.3%). The incidence of abdominal trauma in male population is higher because in our country males are the bread earners of the family. Other authors studies from this part of world also observed male predominance. Most common mode of injury leading to renal injuries were motor vehicle accidents followed by fall from height<sup>4,5</sup>. Associated organ injured were liver, spleen, rib fractures along with renal trauma, head injury and pelvic fractures were also noted.

Most of the patients need 10 days of hospital stay, those who underwent intervention require at least 15 days due to the complications of renal trauma and interventions done to treat them. Garcia et al<sup>6</sup> in their study have shown that the average stay in hospital was 8 days while in the study by Moudouni et al<sup>7</sup> the mean hospital stay was 16.3 days. Patel et al<sup>8</sup> demonstrated mean hospital stay for the conservative group patients was 11.34 days.<sup>1</sup> The period of hospital stay may not be comparable as social customs, free medicare, literacy of the population, financial capability and availability of transport may determine the mean hospital stay over and above the actual clinical condition.

Hematuria occurs in most of cases having Grade II or above renal injury, but less common in Grade I renal injury. Hematuria associated with renal trauma is not a predictable

indicator of grade of renal injury. The degree of hematuria does not correlate with the severity of injury. Mild injuries including simple hematomas can produce gross hematuria<sup>1, 8</sup>. Grade IV renal injury is more common. Patient with Grade I, II and III renal injury are managed conservatively by bedrest with close monitoring, regular clinical examination, resuscitation with intravenous fluids, blood transfusion and twice daily checks for decreases in hematocrit and renal function. Nephrectomy rate in Grade III injury is very low (1.8%) in another study (3/171).<sup>9</sup> **Aragona and colleagues** found that among 21 patients with grade III blunt renal trauma the nephrectomy rate was 9% but when it was divided into two periods (2001–5, 2006–10) it was found that during the second period there were no nephrectomies. This is attributed to the growing use of angioembolization.<sup>4</sup> Most grade IV blunt renal injuries are treated nonoperatively.<sup>10</sup> The nonoperative group require fewer ICU days, significantly lower transfusion requirements, and had fewer complications. Complications like perinephric abscess formations or urinoma formation occur with Grade IV or V injury. These are managed with minimal invasive procedures like DJ stenting or percutaneous drainage.

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