

A Case Study of Approach in a Paediatric Patient of Grade V Renal Trauma with Urinary Extravasation

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Abstract

Objective: To review the role of non operative management in paediatric Grade V renal trauma case and importance of placement of ureteral stent. **Case Presentation:** 9 year old male child presented with h/o fall from height sustaining injury over the right side of abdomen. On examination he had abdominal tenderness, tachycardia with B.P. 100/60 mm of Hg. CT-Angiography showed grade V upper polar renal vascular injury with complete shearing of the upper pole of the right kidney with urinary extravasation. Patient was managed conservatively with bed rest, intravenous fluids and underwent DJ stenting. After one month of injury, repeat CT angio showed no urinary extravasation with intact renal parenchymal architecture and good functioning lower pole of the right kidney. **Conclusion:** Non operative management is possible in selected cases in children with Grade V renal trauma patients. Patients with increasing urinary extravasation can be salvaged with ureteral stents.

Key words: Paediatric; Urinary extravasation; Non-operative; Ureteral stent.

Objective

To review the role of non operative management in paediatric Grade V renal trauma case and importance of placement of ureteral stent.

Case Presentation

A 9 year old male child presented with alleged h/o fall from the height sustaining injury over the right side of the abdomen and gross hematuria. On examination he had tachycardia (Pulse - 100/min) and Blood pressure of 100/60mm of Hg. He had abdominal tenderness with mild guarding. There were no external visible marks on the abdomen. His blood parameters revealed Hb of 9.3 mg%, W.B.C. Count of 11,500/cmm and

S. creatinine of 1.2 mg%. His CT- Angiography showed grade V upper polar renal vascular injury with complete shearing of the upper pole of the right kidney with urinary extravasation (Fig 1).

The child was managed conservatively in form of continuous monitoring of vital parameters, abdominal girth. He was advised complete bed rest, nil by mouth and was given intravenous antibiotics, blood transfusion and intravenous fluids. The repeat CT scan after 48 hrs. showed similar findings but with increased urinary extravasation (Fig 2). The patient underwent therefore RGP and DJ stenting. Post DJ stenting abdominal girth reduced, patient improved clinically and was discharged on 14th day on broad spectrum antibiotics. After one month of injury, repeat CT angio showed no urinary extravasation with intact renal parenchymal architecture and good functioning lower pole of the right kidney.(Fig 3). His S. creatinine improved to 0.6 mg%. After 20 months of follow up he is absolutely asymptomatic with preserved renal function.

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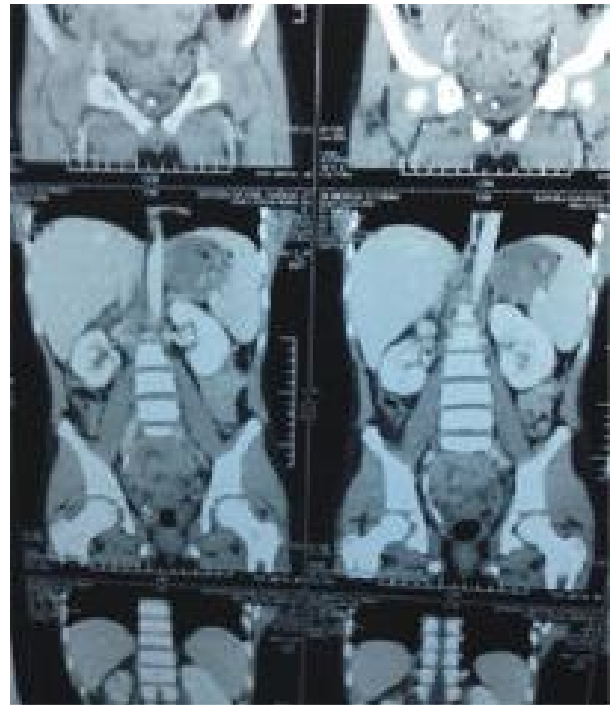
Fig 1: Grade V Upper Polar Renal Vascular Injury with Complete Shearing of the Upper Pole of the Right Kidney with Urinary Extravasation



Fig 2: The Repeat CT Scan after 48 Hrs Showed Similar Findings but with Increased Urinary Extravasation



Fig 3: No Urinary Extravasation with Intact Renal Parenchymal Architecture and Good Functioning Lower Pole of the Right Kidney One Month



Discussion

Renal trauma is the most common urological trauma and is involved in 1-20% of trauma cases.[1] The severity of the renal trauma varies and therefore the management options likewise can vary. In recent times conservative approach has become more common with the advent of better imaging techniques.

CT scan remains the mainstay investigation in all the renal trauma patients. A systemic review and meta-analysis of non operative management of non vascular grade IV paediatric renal trauma concludes that the non operative approach was highly successful, with partial renal preservation achieved in 95% of patients.[2] A recent 10 year retrospective review from an emergency hospital reported an emergency nephrectomy rate of over 80% for grade V renal injuries. Conservative management has been found to be more common place at level I trauma centres.[3] A recent study from Egypt and Canada showed that non operative

management in Grade V with blunt renal trauma in children is progressively gaining acceptance.[4] Prompt surgical intervention is required for those with major vascular injuries.

In our patient due to increase in the urinary extravasation after 48hrs. ureteral stenting was done. It helped in improving the patient clinically. The ureteral stent was removed 4 weeks post injury. Studies have shown that ureteral stents are safe and effectively used to treat persistent or recurrent urinary extravasation resulting from major blunt renal trauma in selected patients.[5,6]

Conclusion

Non operative management is possible in selected cases in children with Grade V renal trauma patients. Patients with increasing urinary extravasation can be salvaged with ureteral stents.

References

1. Campbell D Tait and BK Somani. Renal Trauma: Case Reports and Overview. *Urology*. Vol:2012, Article ID 207872, 4 pages.
2. EC Umbreit, JC Routh, and DA Husmann. Nonoperative management of non vascular grade IV blunt renal trauma in children: meta-analysis and systematic review. *Urology*. 74(3).
3. F Aragona, P pepe, D Patan, P, Malfa, L D'Arrigo, and M Pennisi. Management of severe blunt renal trauma in adult patients: a 10-year retrospective review from an emergency hospital. *BJU International*. 2012; 110(5): 744-748.
4. Eassa W, El-Ghar MA, Jednak R, El-sherbiny M. Non operative management of grade 5 renal injury in children: Does it have a place? *European Urology*. 2010; 57(1): 154-163.
5. Haas CA, Reigle MC, Selzman AA, Elder JS, Spirnak JP. Use of ureteral stents in the management of major renal trauma with urinary extravasation: Is there a role? *J Endourol*. 1998; 12(6): 545-9.
6. Russell RS, Gomelsky A, McMahon DR, Andrews D, Nasrallah PF. Management of grade IV renal injury in children. *J Urol*. 2001; 166(3): 1049-50.