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## Intraoperative haematuria during lumbar spine surgery in prone position: A diagnostic dilemma

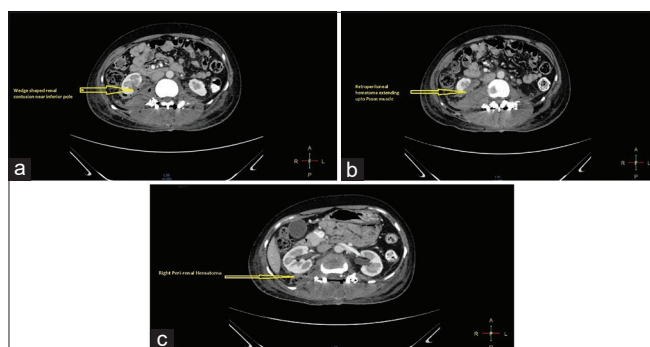
Sir,

Haematuria may be a sign of an underlying disorder such as malignancy, calculi or infection. It is also a manifestation of inappropriate transfusion, urethral rupture or azotemia.<sup>[1]</sup> Intraoperative haematuria especially in prone position is a very difficult situation for an anaesthesiologist to evaluate and manage due to unavailability of sufficient tools for assessment of the origin of haematuria in the operating room. It may also add to the surgical blood losses and contribute to morbidity and mortality. After obtaining patient consent, we report a case of intra-operative haematuria in a patient undergoing lumbar spine surgery in the prone position.

A 35-year-old female, suffered a fall from the fourth floor of an under-construction building with impact on her feet. Her previous medical and surgical history was unremarkable. Extended focused assessment with sonography in trauma (e-FAST) at the time of admission was negative. Baseline routine investigations including coagulation profile were normal. Computed tomography (CT) of spine revealed burst fracture of L1 vertebra. Patient was paraplegic with urinary catheter *in situ* for bowel and bladder incontinence. On the fourth day of admission, she was posted for trans-foraminal fixation of L1 vertebral fracture. After administering general anaesthesia, she was positioned prone and surgery was started. Following 30 min of commencement of surgery, frank

hematuria was noted, which accounted for ~400 ml fresh blood in the urinary bag and tubing. Bolus of ringer lactate (500 ml) was rushed intravenously. Surgery was stopped and urinary catheter was flushed with 250 ml of normal saline after taking urology opinion telephonically. Following the flushing, frank haematuria reduced, however blood tinged urine continued to drain throughout the surgery. As haemodynamic parameters were stable, surgery was resumed. Haemodynamic parameters remained stable throughout the intraoperative period. As patient's haemoglobin remained ~11 gm/dl, no blood transfusion was done intra-operatively. In the immediate postoperative period, an ultrasound abdomen done by the bedside reported thickening of the posterior wall of urinary bladder with mild free fluid in the pelvis. Computed Tomography (CT) urogram was also done, which revealed retroperitoneal haematoma extending up to the right psoas muscle and a right peri-renal haematoma with renal contusion [Grade II injury according to American Association for the Surgery of Trauma (AAST)] [Figure 1a-c] with clots in the urinary bladder.<sup>[2]</sup> The patient was managed conservatively. Visible haematuria stopped on second postoperative day. Further post-operative course remained uneventful and patient was discharged on eight day. Patient was followed telephonically; currently she is able to walk without support for 2 months after the discharge. However, she still has bowel-bladder involvement, she has to strain while voiding urine and passing stool.

Prevalence of renal trauma among trauma patients ranges from 0.3% to 3.25%. Fall from height is the second most common trauma associated with blunt renal injury after the motor vehicle accident.<sup>[3]</sup> e-FAST is less sensitive to diagnose and define renal injury



**Figure 1:** (a) Renal contusion at inferior pole of right kidney. (b) Retroperitoneal haematoma extending upto right psoas muscle. (c) Right peri-renal haematoma

and hence these injuries are often missed.<sup>[4]</sup> CT should be performed when the mechanism of injury or the physical examination findings are suggestive of renal injury (i.e., rapid deceleration in this patient).<sup>[5]</sup>

In this patient, Foley catheter was inserted 4 days back, so urethral injury was an unlikely cause of haematuria. Pulling urethral catheter at some stage during patient's positioning can provoke haematuria, but it is usually mild and self-limiting.<sup>[6]</sup> We postulate that in this patient, positioning the patient in prone position may have led to dislodgement of clot in right kidney which presented as gross haematuria.

To conclude, as anaesthesiologists, we should be aware of the possibility of renal injury particularly in patients presenting with vertical deceleration injury, even if it is missed at primary/secondary survey. These renal injuries may present as haematuria later on.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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#### Conflicts of interest

There are no conflicts of interest.

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#### REFERENCES

1. Bolenz C, Schröppel B, Eisenhardt A, Schmitz-Dräger BJ, Grimm M-O. The investigation of hematuria. *Dtsch Arztebl Int* 2018;115:801-7.
2. Kozar RA, Crandall M, Shanmuganathan K, Zarzaur BL, Coburn M, Cribari C, *et al.* Organ injury scaling 2018 update: Spleen, liver, and kidney. *J Trauma Acute Care Surg* 2018;85:1119-22.
3. Voelzke BB, Leddy L. The epidemiology of renal trauma. *Transl Androl Urol* 2014;3:143-9.
4. Mohammadi A, Ghasemi-Rad M. Evaluation of gastrointestinal injury in blunt abdominal trauma "FAST is not reliable": The role of repeated ultrasonography. *World J Emerg Surg* 2012;7:2.
5. Erlich T, Kitrey ND. Renal trauma: The current best practice. *Ther Adv Urol* 2018;10:295-303.
6. Ghaffary C, Yohannes A, Villanueva C, Leslie SW. A practical approach to difficult urinary catheterizations. *Curr Urol Rep* 2013;14:565-79.

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