

A 34-year-old man comes to the emergency department after a snowmobile accident. The patient was turning a corner when he lost control of the vehicle and hit a tree stump. The snowmobile flipped, and the patient was thrown off about 3 m (10 feet). He was wearing a helmet and did not lose consciousness but was dazed for several minutes. He also started to experience left upper back pain. The patient has no nausea or abdominal pain. Blood pressure is 131/76 mm Hg and pulse is 98/min. Heart sounds are normal with no murmur. Bilateral breath sounds are clear. The abdomen is soft and nontender with normal bowel sounds. He has no spinal tenderness or deformity but has tenderness in the left costovertebral area. Neurological examination is normal. Bedside ultrasound examination reveals no pericardial or intra-abdominal fluid collection. The patient is able to urinate normally with clear urine. Urinalysis shows 50-100 erythrocytes/hpf. Complete blood count, serum electrolytes, and creatinine are within normal limits. Chest x-ray is normal. Which of the following is the most appropriate next step in management of this patient?

- ☐ A. CT scan of the abdomen/pelvis
- ☐ B. Reassurance and analgesics
- ☐ C. Retrograde cystourethrogram
- ☐ D. Urgent exploratory surgery
- ☐ E. Urinary catheter insertion

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- ☒ A. CT scan of the abdomen/pelvis [61%]
- ☐ B. Reassurance and analgesics [16%]
- ☐ C. Retrograde cystourethrogram [19%]
- ☐ D. Urgent exploratory surgery [1%]
- ☐ E. Urinary catheter insertion [2%]

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Explanation:

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After a snowmobile accident, this patient has costovertebral pain and hematuria concerning for **blunt genitourinary trauma (BGT)**. Unlike blunt abdominal or blunt thoracic trauma, BGT is rarely life-threatening unless the kidneys or renal vasculature are involved. However, due to their retroperitoneal location and the protection afforded by the ribs, these structures are infrequently injured in BGT. When injury does occur, the most common renal lesions are **contusions**, lacerations, and renovascular injuries (eg, pedicle avulsion, renal artery dissection).

Evaluation of BGT should include a focused genitourinary examination in addition to evaluation for abdominal or thoracic trauma. All patients should undergo **urinalysis**, and hemodynamically stable patients with evidence of **hematuria** should undergo further imaging with a **contrast-enhanced CT scan** of the abdomen and pelvis (**Choice B**). Hemodynamically unstable patients with evidence of renal trauma should undergo

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Other studies that should be considered in patients with BGT include plain radiographs to evaluate for fractures, ultrasound to evaluate for testicular injuries, and retrograde cystourethrograms to evaluate for urethral injury and bladder rupture. However, patients requiring retrograde cystourethrograms typically have gross hematuria, difficulty urinating, and blood at the meatus (urethral injury) or suprapubic pain (bladder rupture) (**Choice C**).

(**Choice D**) Unless severe, most renal injuries due to BGT can be managed nonoperatively. This patient is hemodynamically stable and has a negative bedside ultrasound, thereby significantly reducing the likelihood of severe renal injury.

(**Choice E**) Classically, the insertion of urinary catheters is avoided in patients with BGT until a urethrogram can be performed (due to the risk of further worsening urethral injuries).

Educational objective:

Evaluation of blunt genitourinary trauma should include urinalysis and contrast-enhanced CT scan of the abdomen and pelvis in hemodynamically stable patients with evidence of hematuria. Hemodynamically unstable patients with evidence of renal trauma should undergo intravenous pyelography prior to surgical evaluation.

References:

1. **Renal trauma from recreational accidents manifests different injury patterns than urban renal trauma**

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Educational objective:

Evaluation of blunt genitourinary trauma should include urinalysis and contrast-enhanced CT scan of the abdomen and pelvis in hemodynamically stable patients with evidence of hematuria. Hemodynamically unstable patients with evidence of renal trauma should undergo intravenous pyelography prior to surgical evaluation.

References:

1. **Renal trauma from recreational accidents manifests different injury patterns than urban renal trauma.**
2. **Computed tomography of blunt renal trauma.**

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