Urologic Trauma Management Guidelines

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PURPOSE: To define guidelines for the management of urologic trauma and outline the procedures for various diagnostic studies in the assessment of urologic trauma.

EQUIPMENT: N/A

GUIDELINE: Patients with complex genitourinary tract trauma should have Urology Service consultation. Such injuries include complex bladder injuries (bladder neck, trigone, involvement of ureteral orifices or extraperitoneal bladder injuries requiring repair), high grade renal lacerations (collecting system or grade IV or V), ureteral injuries, testicular/complex scrotal injury or at the discretion of the Trauma Surgery Faculty.

A. Indications for radiological evaluation for genitourinary tract trauma, include the following:
   1. Gross Hematuria
   2. Blood at the urethral meatus
   3. Any blunt or penetrating trauma with likelihood of urological injury (e.g. APC pelvic fracture, trans pelvic missile trajectory).
   4. Any genital injury

B. Urethral Injuries
   1. Signs/Symptoms:
      a) Blood at the urethral meatus
      b) Perineal/scrotal swelling or ecchymosis
      c) Inability to place a Foley catheter in trauma setting
   2. Suspected urethral injury management
      Retrograde urethrogram should be obtained

C. Gross hematuria following blunt trauma (stable patient)
   1. Foley should be placed prior to axial imaging
   2. Contrast enhanced CT of the abdomen and pelvis w/ delayed images are required for evaluation of the renal and ureteral collecting system.
   3. A CT cystogram may be required in addition to the CT urogram to evaluate for injury to the bladder

In the unstable patient with gross hematuria who required urgent abdominal exploration, there should be no delay in operative exploration. Confirmation of contralateral kidney should be made prior to nephrectomy. An intra-operative determination can be made for the need of a cystogram or further post-operative imaging.

D. Scrotal trauma with degloving or concern for ischemic testicle
   Scrotal ultrasound with color – flow Doppler images to assess blood flow.

E. Renal Lacerations: observe all stable patients; if unstable or on-going blood loss may consider Angio-embolization with IR vs immediate nephrectomy if requires exploratory laparotomy.
   1. Grade I – III or Grade IV (with vascular infarct only) – reimage only for worsening symptoms or laboratory findings.
   2. Grade IV (collecting system) or Grade V – reimage (contrast CT with delayed images) in 48 hours

F. Bladder Injury - evaluation
   1. Radiology Cystogram Guidelines.
   2. CT cystography is the procedure of choice and should be considered at the time of other CT evaluations of the patient to minimize patient transport. Water – Soluble contrast medium should be administered through indwelling bladder catheter.

G. Bladder Injuries – management
   1. Intraperitoneal
      a) All intraperitoneal bladder injuries (diagnosed either by imaging or at the time of exploration) should be repaired.
      b) Urology should be consulted for injuries to the ureteral orifices, bladder neck, or the trigone
      c) Unless otherwise indicated, no drain (other than the Foley catheter) is required following repair.
   2. Extraperitoneal
      a) Most extraperitoneal bladder injuries (diagnosed radiographically) can be managed by catheter drainage alone. A repeat cystogram 10-14 days following injury should be obtained prior to removing the catheter.
      b) Urology should be consulted for operative repair
      c) Indications for operative repair of extraperitoneal bladder injury include
         i. Requirement to operatively violate the Space of Retzius by Orthopedic Surgery for pelvic fracture repair
         ii. Bony fragments or other foreign body (e.g. bullet) in the wall of the bladder
         iii. Rectal or vaginal involvement of the bladder laceration
         iv. Severe hemorrhage or the inability to adequately drain the bladder due to clot formation
         v. Bladder neck disruption
         vi. Injuries diagnosed during operative exploration for other trauma related indications
   3. Follow up studies
      a) Low risk – simple repair, stable/healthy patient
         i. No follow-up imaging required
         ii. Foley may be removed in 5 days
      b) Moderate / High risk - complex injuries/repairs, suspect persistent leak, high risk patients (immunosuppressed etc…) routine follow-up cystography performed at 7–10 days after repair

APPROVAL:

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