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Abdominal/pelvic trauma

Anatomy, embryology, pathophysiology

- ■ Injuries depend upon patient composition, blunt versus penetrating injury, mechanism of injury, and strength of forces.
- ■ Blunt trauma etiologies: motor vehicle crash, falls, assault, and sports resulting in deceleration/shear forces, crushing forces, and increased intraabdominal pressure.
- ■ Major cause of preventable death is intraabdominal hemorrhage.

Techniques Radiography

- ■ Rapid and portable, facilitating use in the critically ill patient for detection of:
 - ■ Intrapertoneal free air (although challenging on supine radiograph).
 - ■ Displaced pelvic/hip fractures.
 - ■ Foreign bodies, such as bullet fragments, which could preclude future magnetic resonance imaging (MRI).
- ■ Insensitive to most organ or soft tissue injuries and detection of hemorrhage.

Ultrasonography

- Rapid and portable. Good for intraabdominal hemorrhage detection and testicular trauma evaluation. Otherwise, role is limited because a comprehensive abdominopelvic evaluation is time consuming and requires a skilled sonographer. Ultrasound (US) is highly operator dependent.
- Focused assessment with sonography for trauma (FAST): Quick ultrasound protocol to detect hemorrhage in four locations: perihepatic/hepatorenal (right upper quadrant view), perisplenic (left upper quadrant view), pelvic (suprapubic view), and pericardial (subxiphoid view). Stable patients with positive FAST need a computed tomography (CT) scan. Not all clinically relevant injuries result in hemoperitoneum.

Computed tomography

- **CT**
CT is widely available in the emergency setting and is the workhorse to assess abdominopelvic trauma because of rapid image acquisition (whole body in seconds) and sensitivity/specificity for hemorrhage, intraperitoneal free air, internal organ injury, vascular injury, and bony fracture.
- **IV Contrast**
Intravenous contrast helps to identify vascular and solid organ injuries.
- **Limitations**
Patient must be stable enough to travel to the CT scanner (unlike US or radiography).

Magnetic resonance imaging

- ■
Typically used to answer a specific targeted question or follow up on known findings rather than serve as a screening test for injuries, for example:
- ■
Presence of radiographically occult hip fracture.
- ■
Assessment of spinal trauma.
- ■
Assessment of pancreatic or biliary injury.
- ■
Limitations: long examination times, patients must be hemodynamically stable, not portable, limited availability (especially in the emergency setting), and patient specific contraindications (i.e., unknown metallic foreign body, MRI unsafe device). MRI is insensitive to key findings, such as intraperitoneal free air or pneumothorax (unlike CT).

Protocols
Protocol considerations
Computed tomography

- ■
Oral contrast: not routinely administered. Increased risk of aspiration. Patients may be unable to ingest contrast because of injuries. May delay diagnosis of life-threatening injuries.
- ■
Intravenous contrast (typical volume 100–150 cc).
 - ■
Not required to detect hemoperitoneum or other hemorrhage (but required for diagnosis of active bleeding).
 - ■
Crucial for evaluation of the vasculature, solid organs, and urinary system.
 - ■
Optimal image quality requires careful timing. Multiphase imaging often needed.
 - ■
Angiographic phase (25–30s delay) for vessel evaluation.
 - ■
Portal venous phase (65–80s delay) for intraabdominal organ assessment.
 - ■
Delayed phase (5–10 min delay) to distinguish contrast extravasation from pseudoaneurysm (early delay) or for urinary tract injuries (late delay).
- ■
Intravesical contrast: instill at least 300 cc of dilute contrast via Foley catheter into the bladder using gravity drip 40 cm above patient to evaluate suspected bladder injury.
- ■
Radiation dose.
 - ■
Use sufficient radiation to diagnose injuries. Use the lowest dose that still provides diagnostic image: the ALARA (as low as reasonably achievable) principle.
 - ■
Radiation dose reduction with automated tube current modulation, iterative reconstruction, and delayed imaging only when portal venous phase lesion exists.

Magnetic resonance imaging

- ■
Fracture assessment includes a combination of noncontrast T1-weighted and fluid sensitive (STIR or fat suppressed T2-weighted) images in multiple planes. Spine imaging uses additional gradient echo T2*-weighted (for hemorrhage) and diffusion-weighted imaging (for cord injury) images.
- ■
Optimal MRI protocols for intraabdominal organ evaluation vary based upon the organ of interest. Intravenous contrast may be helpful depending upon the indication.

Sample abdominal computed tomography protocol

- ■
Portal venous phase abdominopelvic CT without oral contrast.
- ■
Delayed phase (5–10 minute) CT if injury is identified on portal venous phase.
- ■
Subsequent CT cystogram for concern of bladder injury.
- ■
Multiplanar image reconstruction; 2.5 to 5 mm slice thickness in soft tissue and bone kernel.
- ■
Consider separate arterial phase acquisition or split phase contrast injection with combined arterial/portal venous phase acquisition.

Specific disease processes
Hepatobiliary trauma (figs. 38.1–38.3)

- ■
Active extravasation in stable patients requires diagnostic angiography and embolization.
- ■
Most isolated liver injuries are managed nonoperatively unless the patient is unstable.
- ■
Isolated gallbladder injury is uncommon. Findings are nonspecific: decompressed gallbladder, pericholecystic fluid, and gallbladder wall thickening.
- ■
Blunt injury to the extrahepatic bile ducts is rare. The major complication is bile leak.



Fig. 38.1
Coronal contrast-enhanced computed tomography (CT) in a 27-year-old woman with a linear hypodense defect caused by a liver laceration (arrow).
(From Boland GW. *Gastrointestinal Imaging: the Requisites* , ed 4. Philadelphia: Saunders; 2014.)

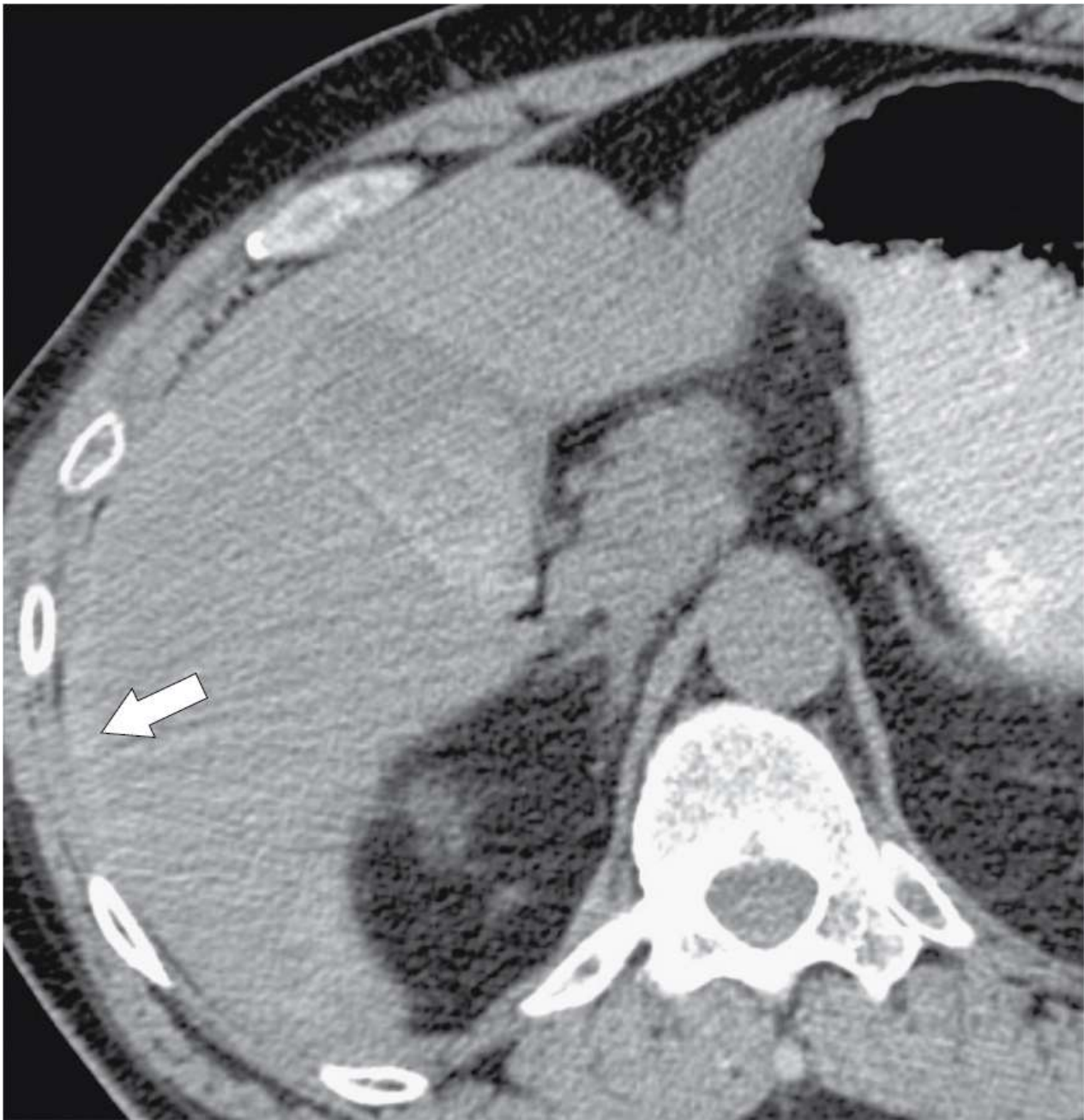


Fig. 38.2
Axial noncontrast computed tomography in a 55-year-old man with recent trauma and liver laceration and a sliver of hyperdense acute blood surrounding the liver margin (arrow).
(From Boland GW. *Gastrointestinal Imaging: the Requisites* , ed 4. Philadelphia: Saunders; 2014.)

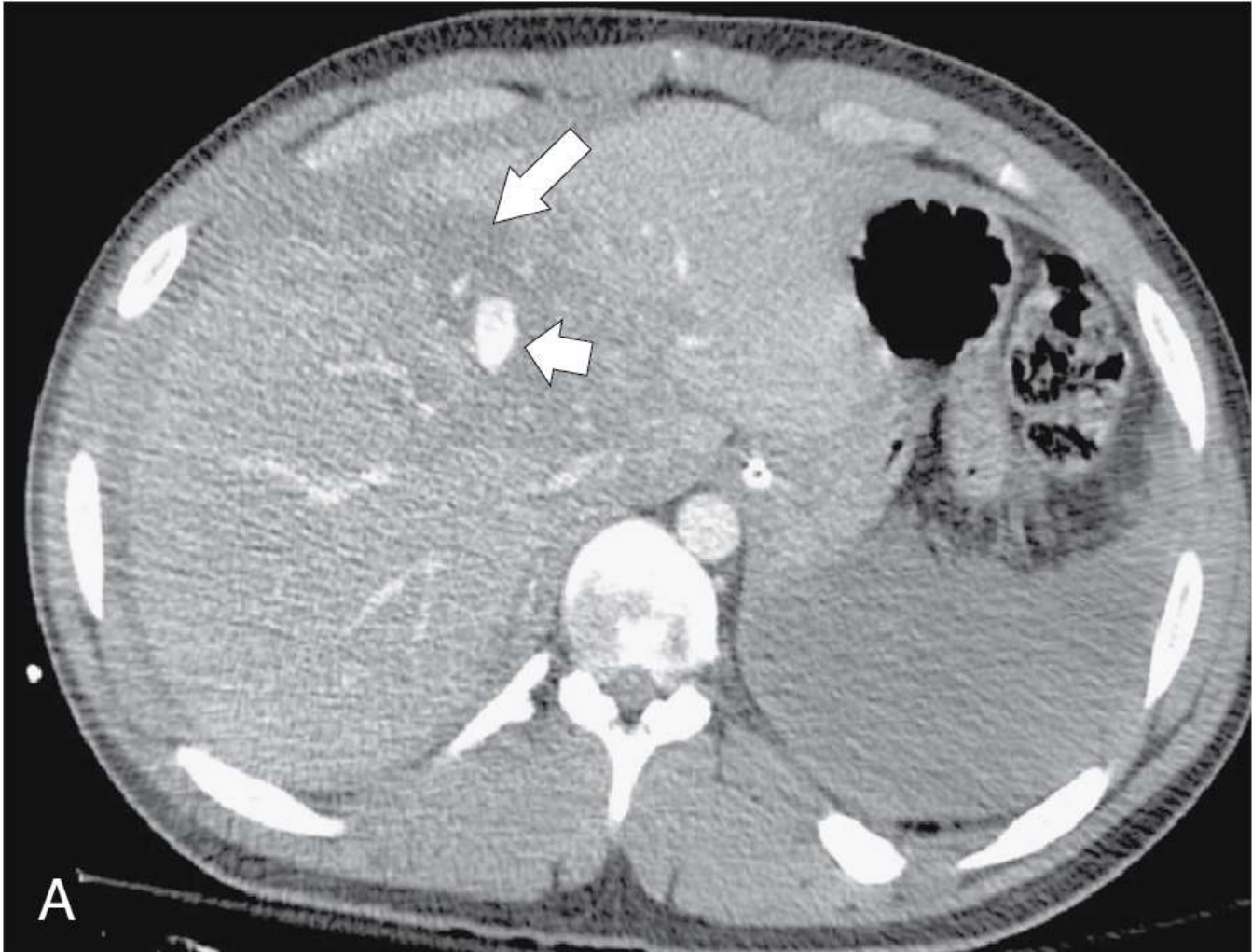


Fig. 38.3

Axial (A) and coronal (B) contrast-enhanced computed tomography in a 30-year-old man after a motor vehicle injury, which demonstrates a fractured liver (*arrows*), hemorrhage, and pseudoaneurysm formation (*small arrows*).
(From Boland GW. *Gastrointestinal Imaging: the Requisites* , ed 4. Philadelphia: Saunders; 2014.)



Splenic trauma (figs. 38.4–38.6)

- ■
Most frequently injured organ in abdominal blunt trauma.
- ■
Injury can lead to large volume hemoperitoneum and hemodynamic compromise.
- ■
Most injuries are managed nonoperatively. Active extravasation, large volume hemoperitoneum, pseudoaneurysm, and arteriovenous fistula predict failure of conservative management. Endovascular treatment preferred over surgery.
- ■
Delayed postcontrast CT distinguishes pseudoaneurysm from active extravasation.
- ■
Sentinel clot sign: with large volume hemoperitoneum and multiple solid organ injuries, it is a challenge to identify a bleeding source. Densest blood (sentinel clot) resides near the bleeding source (see Fig. 38.4).

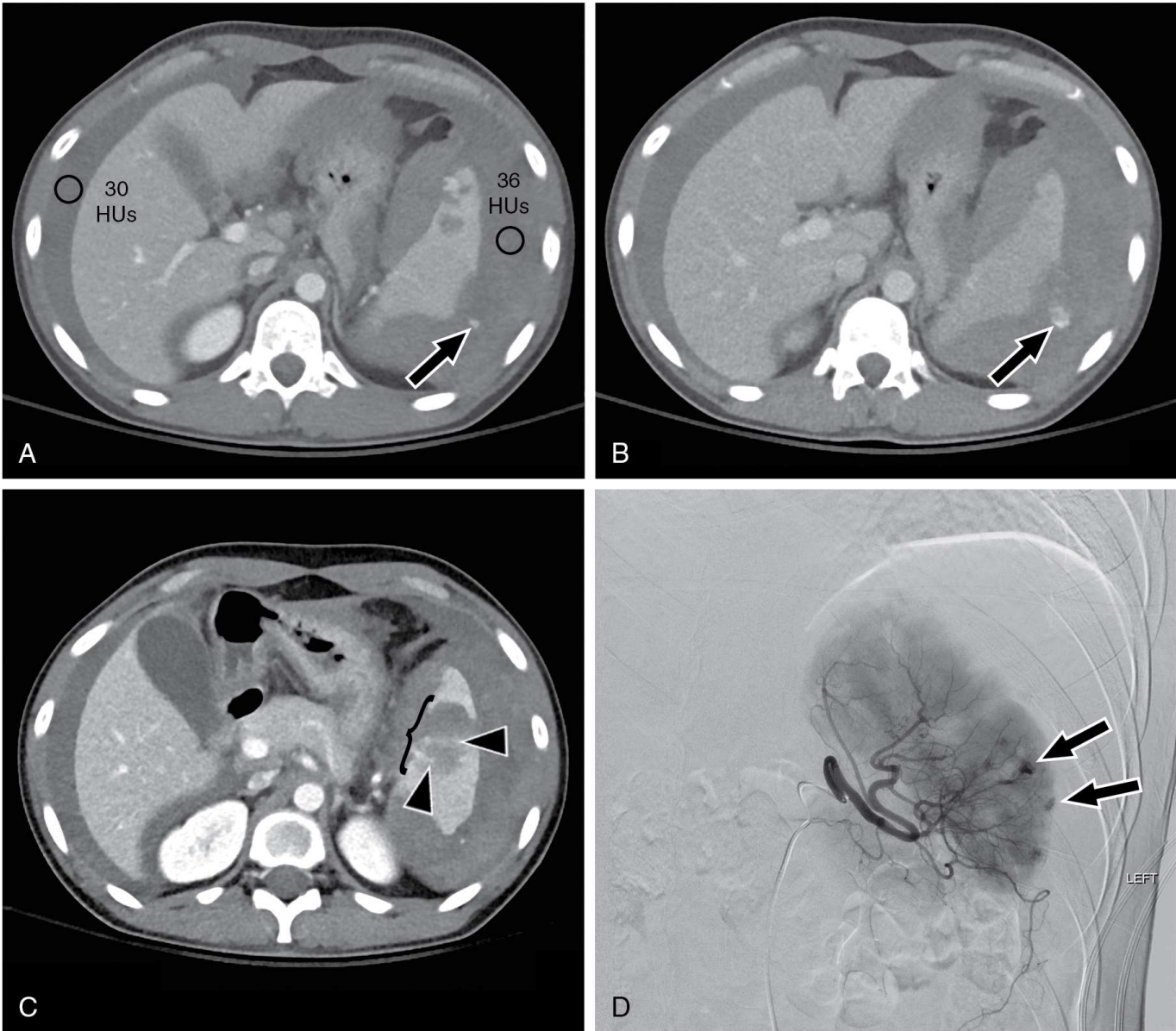


Fig. 38.4 27-year-old woman presented following assault with (A) axial portal venous phase contrast enhanced computed tomography (CT) showing moderate volume hemoperitoneum of higher attenuation near the spleen, 36 Hounsfield units (HUs) more than the liver, suggestive of splenic injury (sentinel clot sign). An indeterminate focus of hyperattenuation (arrow) expands on delayed phase imaging (B), indicative of active extravasation. C, Portal venous phase CT shows a 3.9 cm (bracket) splenic laceration involving the segmental vessels (arrowhead). D, Selective splenic artery angiogram shows areas of active extravasation (arrows) corresponding to the prior CT findings.

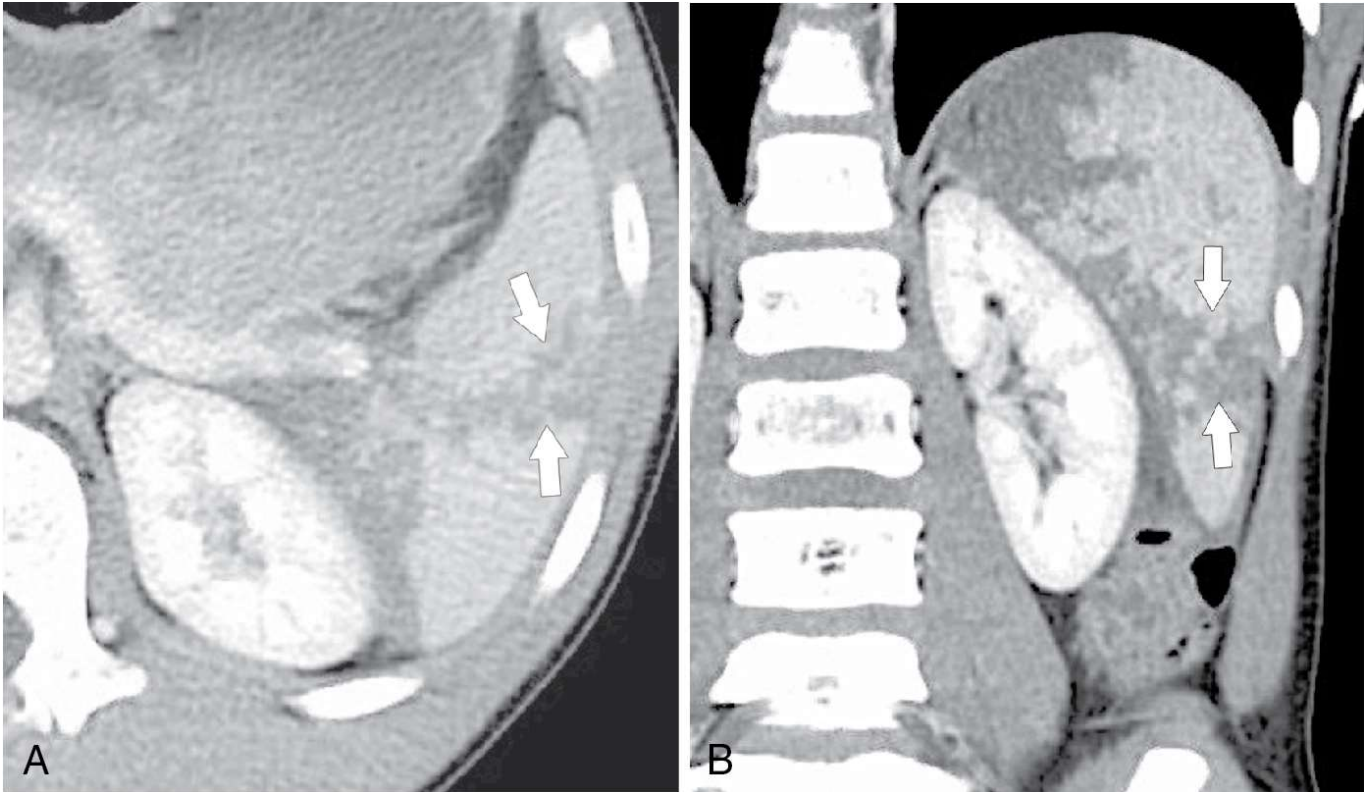


Fig. 38.5 Axial (A) and coronal (B) contrast-enhanced computed tomography in a 24-year-man who has a motor vehicle injury with splenic fracture (arrows) and perisplenic hemorrhage. (From Boland GW. *Gastrointestinal Imaging: the Requisites* , ed 4. Philadelphia: Saunders; 2014.)



Fig. 38.6
Axial contrast-enhanced computed tomography in a 56-year-old woman after a motor vehicle injury with splenic trauma and active arterial extravasation (*large arrow*) and abdominal hemorrhage (*small arrow*).
(From Boland GW. *Gastrointestinal Imaging: the Requisites* , ed 4. Philadelphia: Saunders; 2014.)

Pancreatic trauma (fig. 38.7)

- ■
Severe mechanism of injury is required; isolated pancreatic injuries are rare.
- ■
Pancreatic body is most vulnerable to injury, most commonly from crush mechanism.
- ■
Pancreatic duct injury: main cause of morbidity/mortality. Treat with surgery or endoscopy.
- ■
Clinical findings (leukocytosis, elevated serum amylase, abdominal pain) may not present for a few days. Imaging findings are often subtle!
- ■
Look for pancreatic laceration (thin hypoenhancing band through the pancreatic parenchyma) of greater than 50% of pancreatic width to suggest duct injury.
- ■
Consider magnetic resonance cholangiopancreatography to characterize.

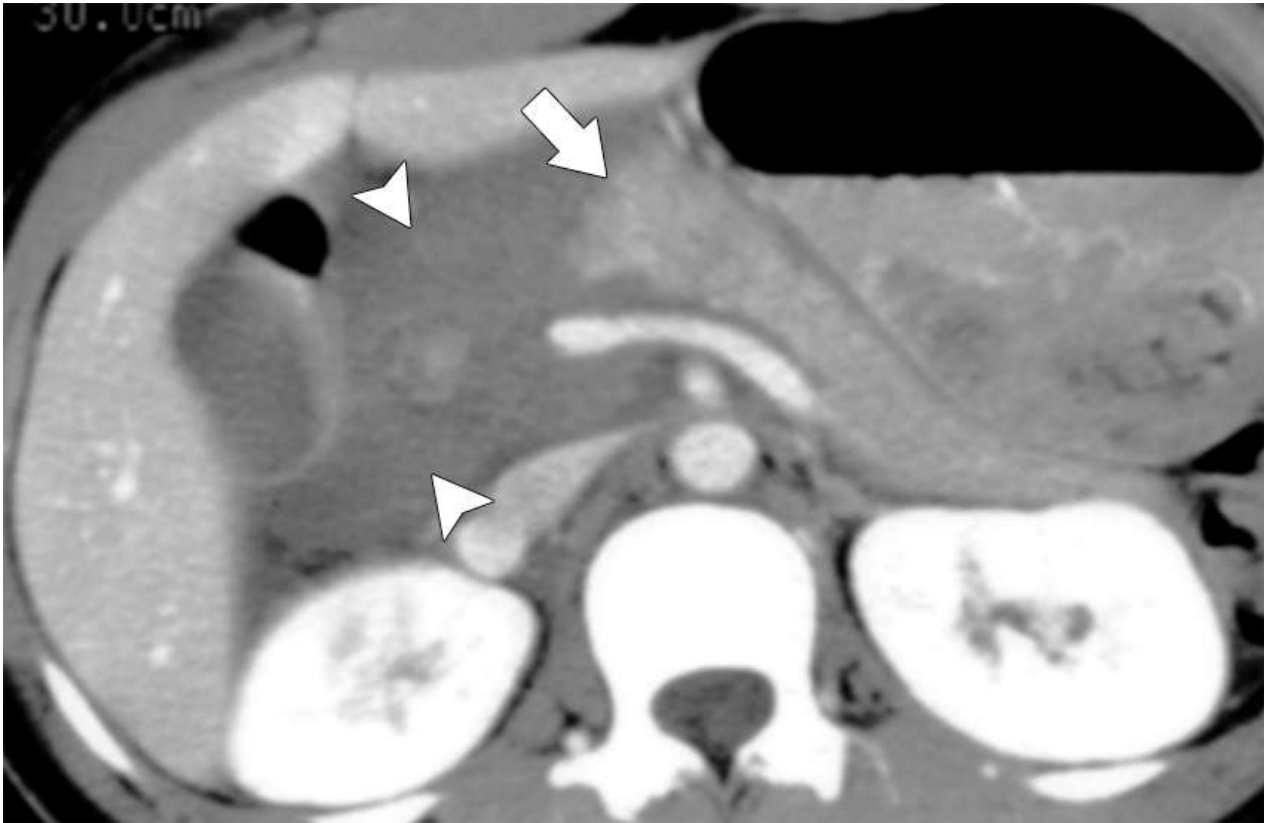


Fig. 38.7
Axial contrast-enhanced computed tomography in a 38-year-old man with a pancreatic fracture (*arrow*) and diffuse hemorrhage (*arrowheads*).
(From Boland GW. *Gastrointestinal Imaging: the Requisites* , ed 4. Philadelphia: Saunders; 2014.)

Renal trauma (figs. 38.8–38.11)

- ■
Injured in 3% to 10% of cases of blunt trauma (less than liver or spleen).
- ■
Contusions: ill-defined focal parenchymal hypoenhancement.
- ■
Laceration: irregular linear hypodensity extending to the renal surface.
- ■
Subcapsular hematoma: crescentic blood products beneath the renal capsule with mass effect on the underlying parenchyma. When hypertension results, it is termed Page kidney.
- ■
Perirenal hematoma: extracapsular blood in the perirenal retroperitoneum.
- ■
Pelvicalyceal injury: assess for urine leak on delayed (renal excretory) phase; around 10 minutes.
- ■
Infarct: well-demarcated wedge shaped hypoenhancement. Consider arterial transection, occlusion, or dissection. Main renal artery injury results in ipsilateral absent enhancement of the whole kidney.

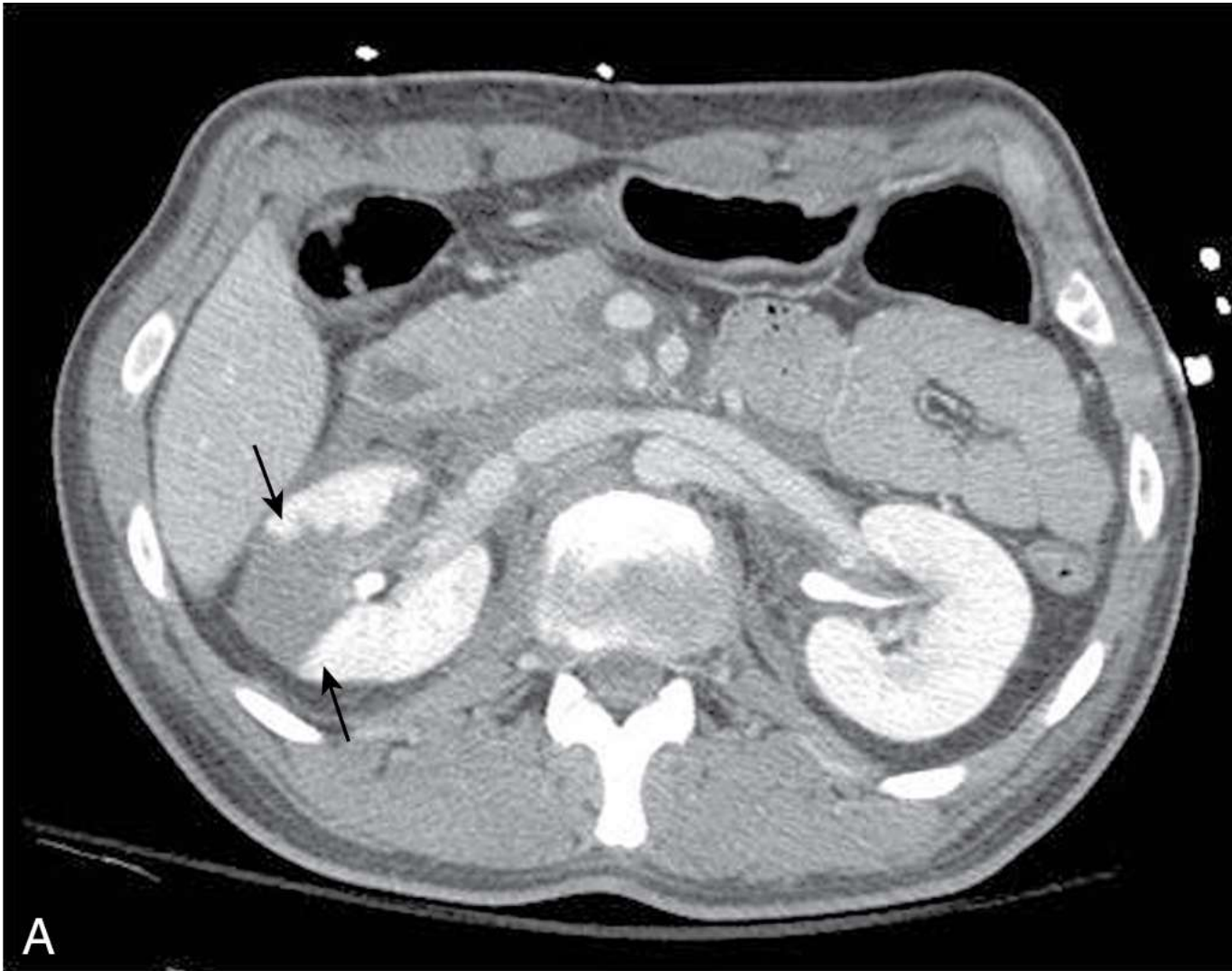
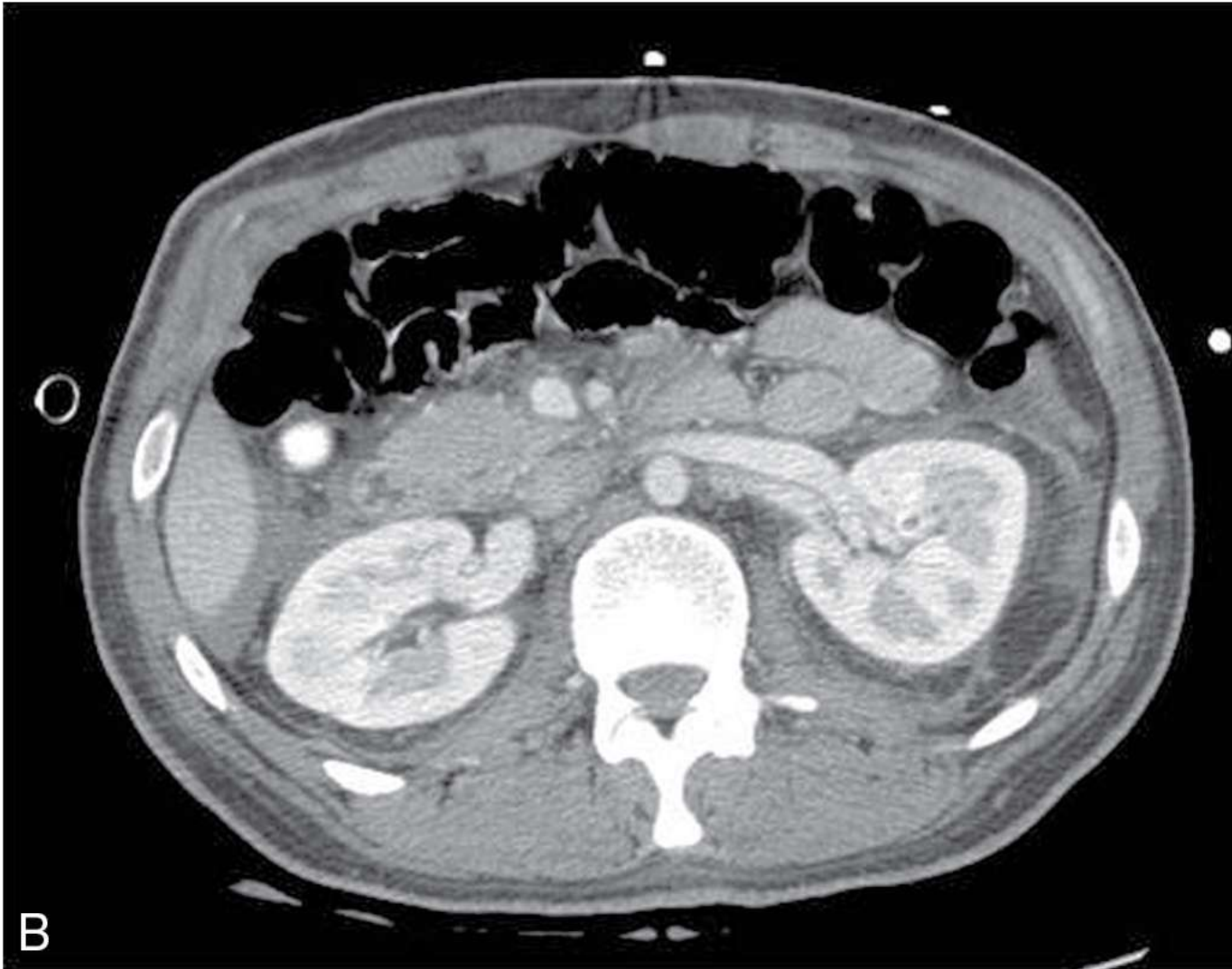
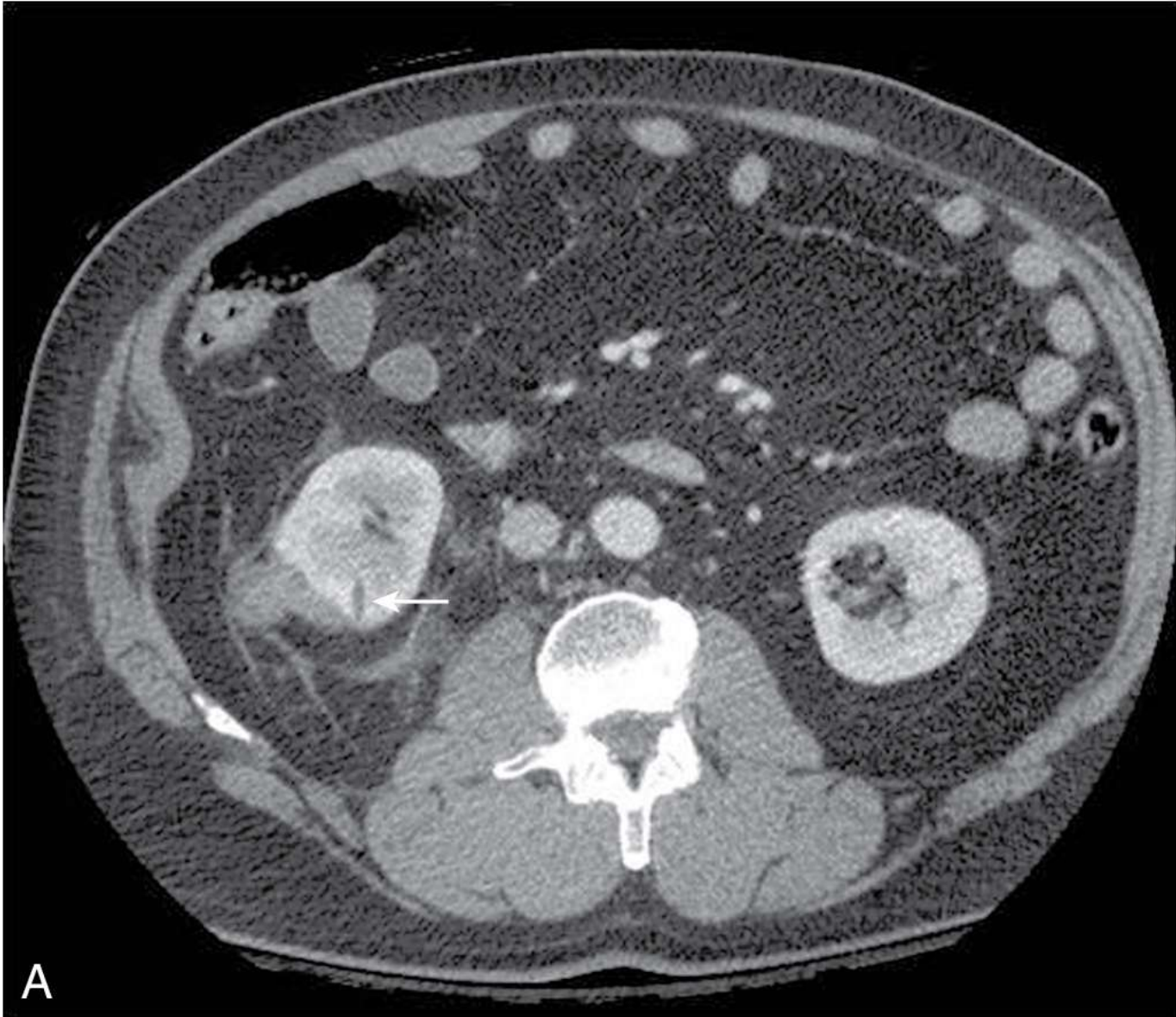


Fig. 38.8
Renal contusion. A, Enhanced axial computed tomography image at the level of the kidneys, obtained at the time of acute traumatic injury, shows a reasonably well-defined area of decreased attenuation in the interpolar right kidney (arrows). The appearance could be caused by contusion or branch renal artery injury. B, An image obtained at the same level 1 week later shows normal perfusion of the involved region without any parenchymal changes. The self-limited nature of the findings is consistent with renal parenchymal contusion.
(From Zagoria RJ, Brady CM, Dyer RB. *Genitourinary Imaging: the Requisites* , ed 3. Philadelphia: Elsevier; 2016.)





A

Fig. 38.9 Renal laceration with subcapsular and perinephric hematoma. Enhanced axial (A) and sagittal (B) reconstructed images obtained at the time of acute traumatic injury show a linear defect in the lower pole of the right kidney, consistent with a parenchymal laceration (*arrow* in A and B). The associated subcapsular hematoma and perinephric bleeding are better illustrated in B (*arrowhead*). The renal injury was managed conservatively in this otherwise stable patient. (From Zagoria RJ, Brady CM, Dyer RB. *Genitourinary Imaging: the Requisites* , ed 3. Philadelphia: Elsevier; 2016.)

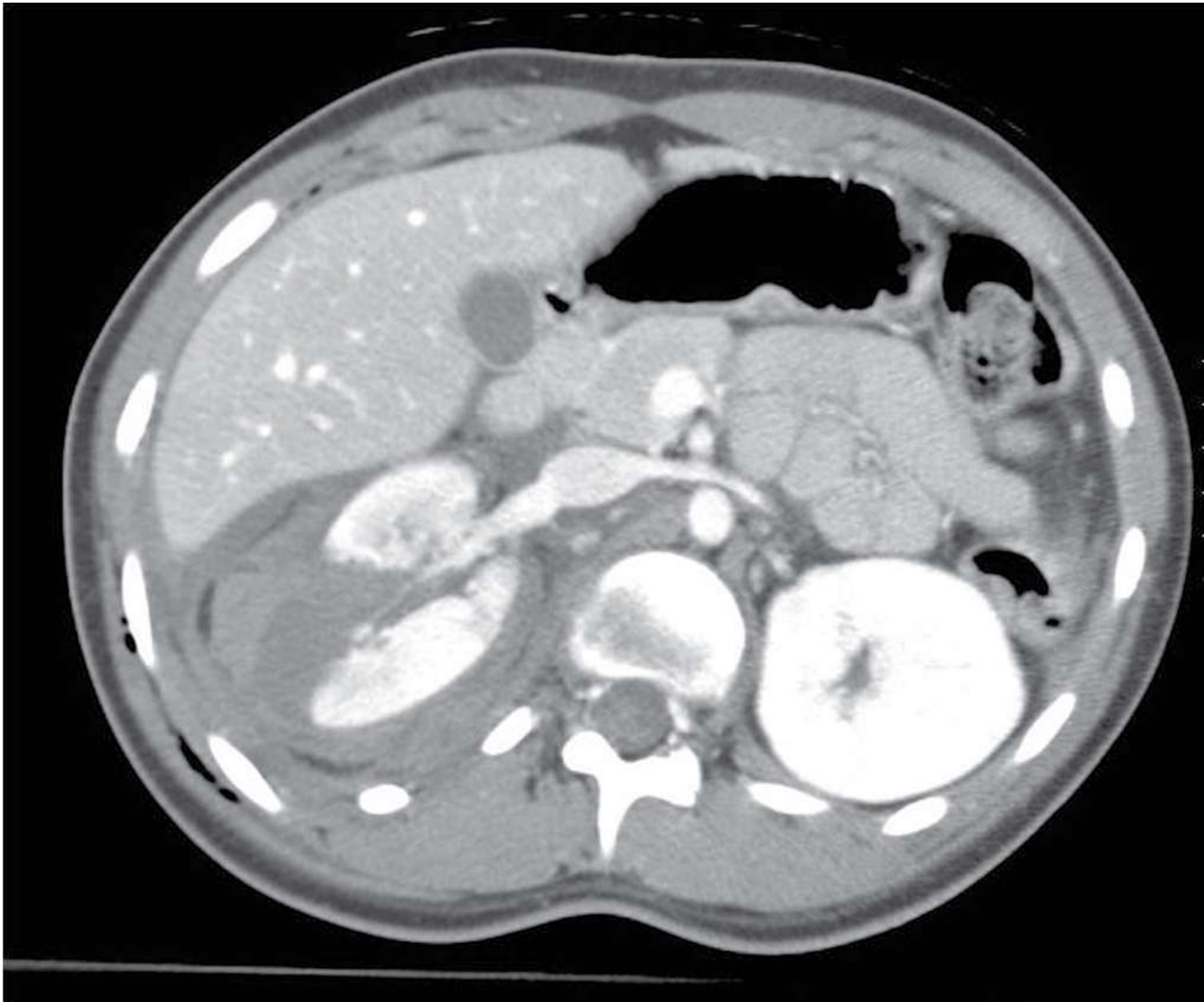


Fig. 38.10

Renal fracture. An enhanced axial computed tomography image through the kidneys shows a parenchymal injury in the right kidney that extends from the lateral margin through the renal hilum, centrally, creating separate anterior and posterior portions of the renal parenchyma. There is extensive perirenal bleeding. Note the subcutaneous emphysema in the right flank from thoracic injury. Ongoing hemodynamic instability necessitated nephrectomy in this case. (From Zagoria RJ, Brady CM, Dyer RB. *Genitourinary Imaging: the Requisites* , ed 3. Philadelphia: Elsevier; 2016.)



Fig. 38.11 Shattered kidney. Enhanced axial computed tomography image through the mid-right kidney (A) and an image through the right lower renal pole (B) reveal numerous linear defects that have created a large number of parenchymal fragments, many separated by intervening hematoma, consistent with a shattered kidney. This degree of parenchymal injury often requires urgent nephrectomy to control blood loss, as was the case in this patient. (From Zagoria RJ, Brady CM, Dyer RB. *Genitourinary Imaging: the Requisites* , ed 3. Philadelphia: Elsevier; 2016.)



Bladder trauma (fig. 38.12)

- ■
Some 83% to 97% of patients with bladder injuries from blunt trauma also have pelvic fractures. Some 10% of patients with pelvic fractures will have bladder injury.
- ■
Mucosal injury (contusion) is not radiologically apparent.
- ■
Intraperitoneal bladder rupture: 30% of bladder injuries. Impact to full bladder results in bladder dome rupture into the peritoneum. Cystography shows intraperitoneal contrast outlining small bowel or in the paracolic gutters. Requires surgical repair.
- ■
Extraperitoneal bladder rupture: 60% of bladder injuries. Associated with pelvic fractures. Does not require surgery. Subdivided into simple and complex.
 - ■
Simple: contrast extravasation fills the pelvic extraperitoneal space (space of Retzius).
 - ■
CT cystogram appearance on axial images: molar tooth sign.
 - ■
Complex: contrast extends into the abdominal wall, scrotum, penis, or perineum.
- ■
Gross hematuria and pelvic fractures require fluoroscopic cystogram or CT cystogram.
- ■
Similar sensitivity for bladder injury, in the range of 85% to 100%.
- ■
For fluoroscopic cystography, 10% of leaks are identified on postdrainage image.
- ■
CT cystography requires retrograde filling of bladder with contrast. Renally excreted contrast does not provide enough bladder pressure to exclude leak.

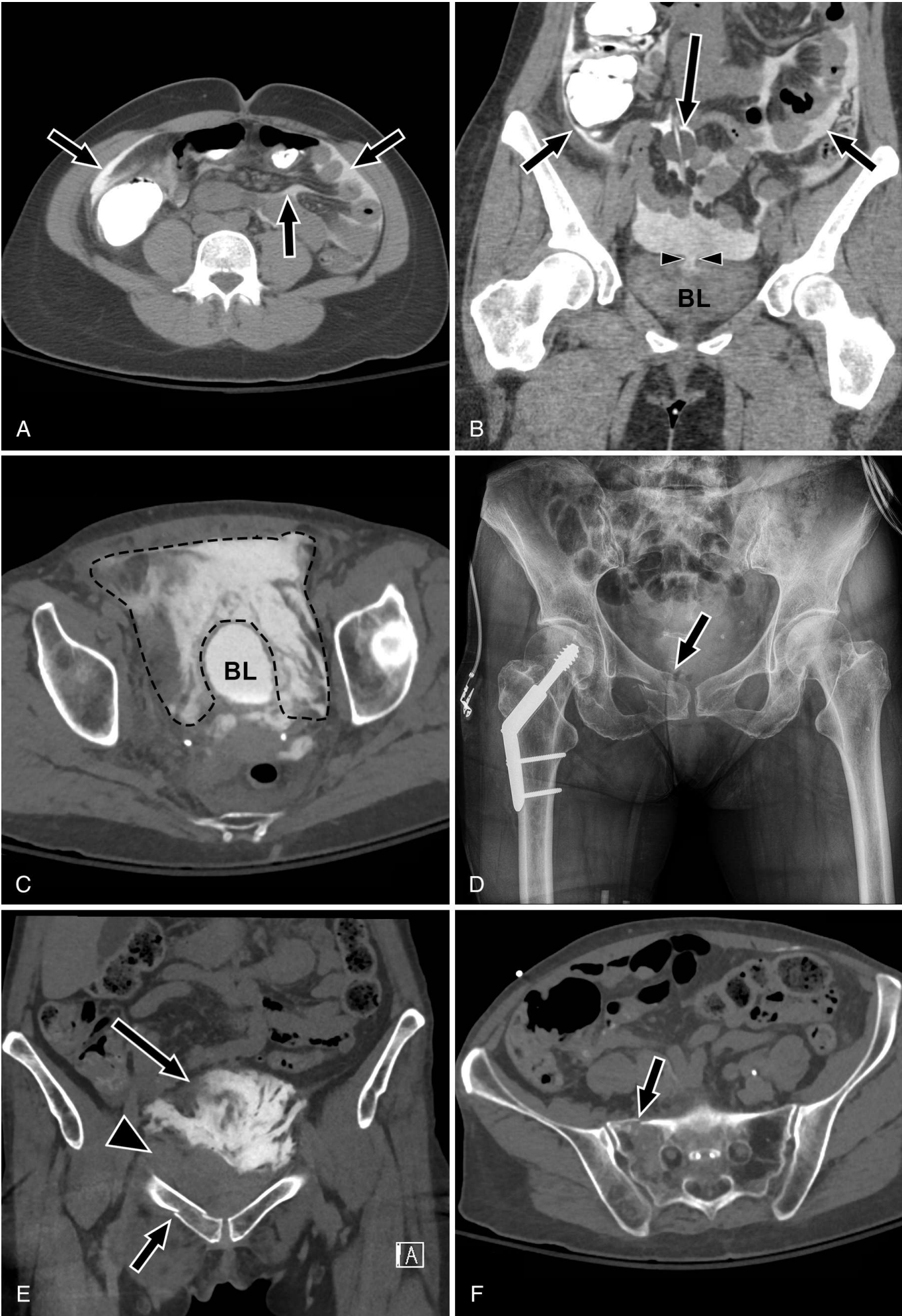


Fig. 38.12 Intraperitoneal and extraperitoneal bladder rupture. 27-year-old woman with intraperitoneal bladder rupture after a fall with axial (A) and coronal reformatted (B) computed tomography (CT) cystogram images showing intraperitoneal contrast (arrows) outlining loops of small bowel, extending into the right paracolic gutter and tracking along the mesentery. The coronal image (B) also shows the defect in the bladder (BL) dome (arrowheads) through which the Foley catheter had subsequently passed (long arrow). C–F, 80-year-old woman struck by a car, with pelvic fractures and extraperitoneal bladder rupture. C, Axial CT cystogram image shows extraventricular contrast and hemorrhage in the space of Retzius in the shape of a molar tooth (dashed line). D, Frontal pelvic radiograph shows right pubic rami fractures (arrow), which are confirmed on (E) coronal reformatted CT (arrow). Adjacent hemorrhage (arrowhead) and contrast extravasation (long arrow) are also shown. F, Axial CT image at the level of the pelvis shows a right sacral fracture (arrow), consistent with a lateral compression pelvic fracture injury pattern.

Urethral trauma (figs. 38.13 and 38.14)

- Anterior urethra (typically bulbar) injuries from straddle injury, direct perineal impact, or iatrogenic from instrumentation.

Posterior urethra (typically membranous) injuries from blunt trauma with pelvic fractures.

- ■
Clinical signs: blood at meatus, perineal bruising, high-riding/nonpalpable prostate.
- ■
Fluoroscopic retrograde urethrogram is performed for diagnosis.

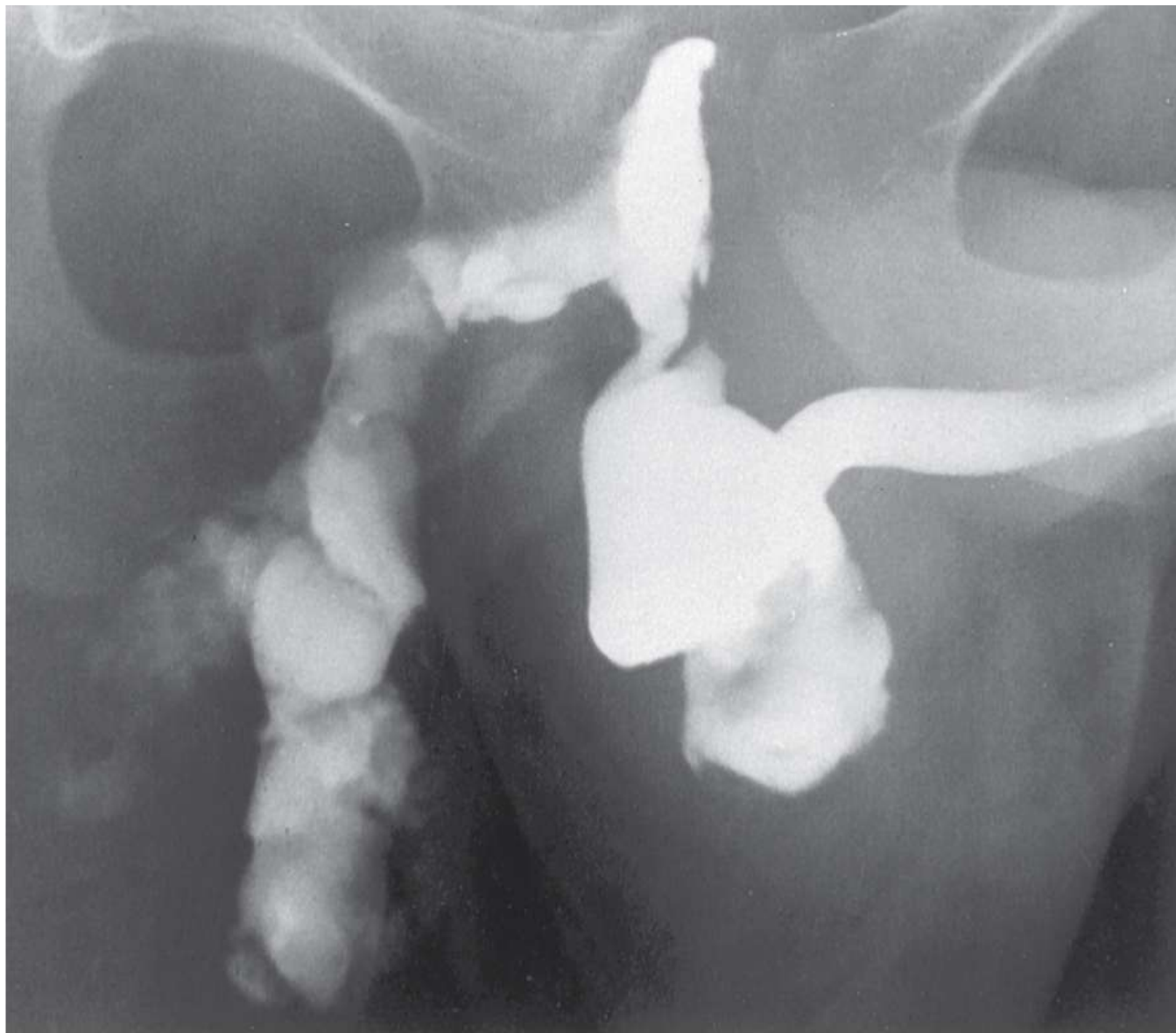


Fig. 38.13

Type 3 complete tear of the posterior urethra. Retrograde urethrogram demonstrates extravasation of contrast material into the perineum from the prostatic urethra. There is also a tear of the bulbar urethra. Type 3 tear is likely the most common injury in patients with urethral transection resulting from pelvic fracture. Note diastasis of the symphysis pubis.

(From Zagoria RJ, Brady CM, Dyer RB. *Genitourinary Imaging: the Requisites*, ed 3. Philadelphia: Elsevier; 2016.)

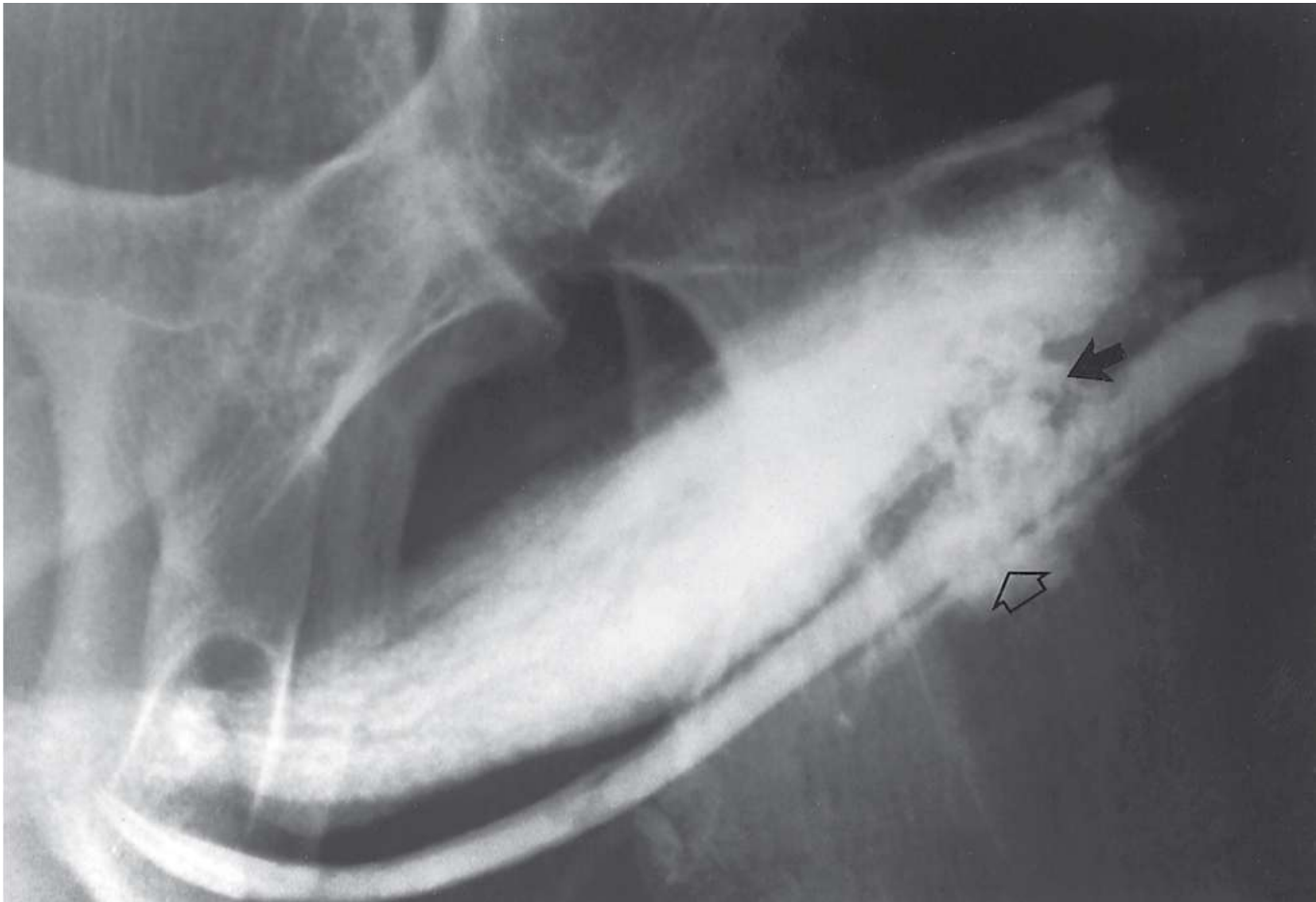


Fig. 38.14
Partial tear of the anterior urethra after blunt trauma to the perineum. Retrograde urethrogram demonstrates extravasation of contrast material into the corpus spongiosum (open arrow) and the corpus cavernosum (solid arrow) from a tear of the penile urethra.
(From Zagoria RJ, Brady CM, Dyer RB. *Genitourinary Imaging: the Requisites* , ed 3. Philadelphia: Elsevier; 2016.)

Bowel trauma (fig. 38.15)

- ■
Rare, approximately 5% of cases of severe trauma. Small bowel>colon>stomach.
- ■
Signs include: extraluminal air, oral contrast extravasation (although not routinely administered for CT), bowel wall defect. Less specific signs are segmental/focal wall thickening, mesenteric fat stranding, and abnormal bowel wall enhancement.
- ■
Duodenal hematoma can result in gastric outlet obstruction.



Fig. 38.15
Axial (A) and coronal (B) contrast-enhanced computed tomography in a 29-year-old man with duodenal rupture after a motor vehicle accident. There is periduodenal fluid and blood because of duodenal rupture (arrows).
(From Boland GW. *Gastrointestinal Imaging: the Requisites* , ed 4. Philadelphia: Saunders; 2014.)



Skeletal trauma

- ■ Hip fracture predisposes to femoral head avascular necrosis (AVN) because of disruption of vascular supply traversing the intracapsular femoral neck and head. Extracapsular fractures involve the intertrochanteric and subtrochanteric regions. Often detected by radiography, although MRI is useful to identify radiographically occult fractures.
- ■ Complete femoral head fracture: uncommon. Associated with posterior hip dislocation (with or without posterior acetabular fracture).
- ■ Femoral neck fracture: location may be subcapital, transcervical, or basicervical.
- ■ Intertrochanteric: much lower risk of AVN.
- ■ Subtrochanteric: 5 cm of femur inferior to the lesser trochanter. Risk factors: young patients with high energy trauma, elderly patients with minor trauma (insufficiency fracture), and completed stress fracture (i.e., from bisphosphonates).
- ■ Pelvic fracture is often related to high energy trauma (except in osteoporotic patients). Major complication is pelvic hemorrhage; endovascular management with embolization is often preferred. May be associated with bladder or urethral injuries.
- ■ Initial frontal radiograph can identify characteristic injury patterns. Sacral fractures are difficult to detect by radiograph. CT is often performed to characterize fractures. MRI is best modality to assess ligamentous structures.
- ■ The pelvis is a rigid ring and almost always fractures in at least two places.
- ■ Anterior-posterior (AP) compression: 20% to 30% of pelvic fractures. From motor vehicle accidents, falls, or crush injury. High risk for bleeding. Type 2 and 3 may be associated with L5 transverse process fracture.
- ■

Lateral compression: 50% to 70% of pelvic fractures. From side impact motor vehicle crash or falls. Often stable (see Fig. 38.12).

- Vertical shear: 14% of pelvic fractures. Fall on extended leg. Unstable.
- Lumbar spine: evaluated with CT; MRI is used to assess ligamentous, muscular, or spinal cord injury. Numerous classification systems exist including Denis (Denis, 1983) and Arbeitsgemeinschaft für Osteosynthesefragen (AO) (Magerl, 1994). Typical lumbar fracture types include:
 - Burst: because of axial loading. Involves height loss of the anterior and posterior vertebral body. Fracture fragments may be displaced and cause spinal cord injury.
 - Wedge: compression fracture of the anterior half of the vertebral body. Commonly seen in older patients with osteopenia.
 - Chance: horizontal separation injury through the vertebral column and posterior elements/facets/ligaments. May be osseous, ligamentous, or a both. Often near at or near the level of the thoracolumbar junction. Associated with flexion from seatbelt (without shoulder strap) injuries. Associated duodenal/pancreatic injuries are common.

Testicular trauma

- Uncommon: less than 1% of traumas, often in young men (10–30 years old).
- Right testis more commonly injured because of superior location compared with left.
- Ultrasound is preferred test for evaluation, MRI can be used as adjunct.
- Testicular rupture: focal discontinuity of the tunica albuginea or heterogeneous testicular echotexture with abnormal contour.
- Emergent surgical exploration for testicular rupture or possibly large (>5 cm) hematocele.

Hypoperfusion complex (fig. 38.16)

- Collapsed inferior vena cava (IVC); suggestive of hypovolemia.
- Hyperenhancing: thickened bowel, kidneys, adrenal glands.
- Hypoenhancing spleen.
- Pancreatic enlargement.
- Retroperitoneal/peripancreatic edema.

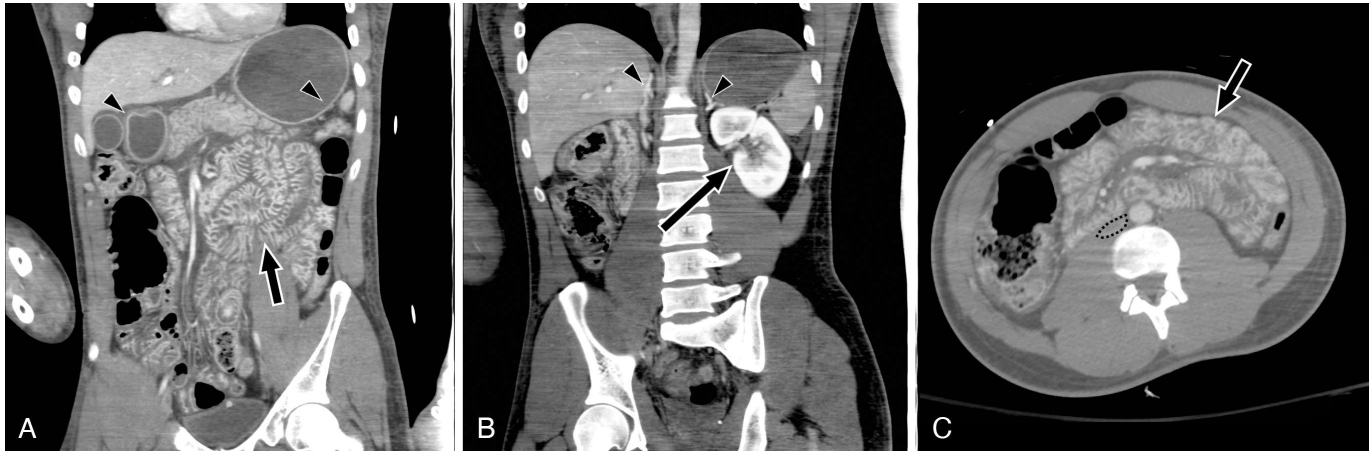


Fig. 38.16
Hypoperfusion complex. 29-year-old man with hypovolemic shock from fluid loss following near-total body third degree burns with characteristic contrast enhanced computed tomography (CT) findings of hypoperfusion complex. A, Coronal reformatted CT image shows diffuse small bowel wall thickening (arrow) and mucosal hyperenhancement of the small bowel (arrow) and stomach (arrowheads). No oral contrast was administered. A more posterior coronal

reformatted image (B) shows the characteristic hyperenhancement of the kidney (*long arrow*) and adrenal glands (*arrowheads*). C, Axial CT image at the level of the mid-abdomen shows a slit-like inferior vena cava (*dotted line*), suggestive of hypovolemia. Bowel hyperenhancement (*arrow*) is again shown.

Selected injury classification systems

*For brevity, grade 1 injuries are not explicitly stated, but are those injuries that are less severe than the listed grade 2 criteria. In each case, this will be denoted with an asterisk.

Liver

Graded 1–6 (6 is worst). If multiple injuries, increase grade by 1 up to grade 3 (Moore, 1995).

- Hematoma*: grade 2: subcapsular 10% to 50% surface area or intraparenchymal less than 10 cm; grade 3: larger than grade 2 or expanding.
- Laceration*: grade 2: capsular tear 1 to 3 cm depth and less than 10 cm in length; grade 3: over 3 cm depth; grade 4: parenchymal disruption of 25% to 75% of hepatic lobe or 1 to 3 segments; grade 5: more parenchymal disruption than grade 4.
- Vascular: grade 5: injury to major hepatic veins or IVC; grade 6: hepatic avulsion.

Spleen

Graded 1–5 (5 is worst). If multiple injuries, increase grade by 1 up to grade 3 (Moore, 1995).

- Hematoma*: grade 2: subcapsular 10% to 50% surface area or intraparenchymal less than 5 cm; grade 3: larger than grade 2, expanding, or ruptured.
- Laceration*: grade 2: tear 1 to 3 cm in depth and not involving trabecular vessel; grade 3: over 3 cm laceration or involving trabecular vessels; grade 4: involving segmental/hilar vessel resulting in more than 25% parenchymal devascularization; grade 5: shattered spleen or hilar vascular injury with total splenic devascularization.

Pelvic ring fracture

May include a combination of multiple subsequent patterns (Khurana, 2014).

- AP compression: pubic symphysis widening or pubic rami fractures (type 1—stable, rare) with disruption of the anterior sacroiliac ligaments (type 2—vertically stable, rotationally unstable) and disruption of the posterior sacroiliac ligaments (type 3—unstable).
- Lateral compression: superior/inferior pubic fractures with ipsilateral sacral impaction (type 1—stable), ipsilateral posterior iliac fracture (type 2—vertically stable, rotationally unstable), or contralateral AP compression injury pattern (type 3—unstable).
- Vertical shear: anterior (pubic fractures or symphyseal widening) and posterior (sacral fractures or sacroiliac joint disruption) injuries with vertical hemipelvic displacement, Unstable.

Acetabular fracture

Judet and Letournel system: 10 groups (Scheinfeld, 2015).

- Elementary fractures: anterior or posterior wall, anterior or posterior column, transverse.
- Combination fractures: T-shaped, transverse with posterior wall, posterior column with posterior wall, both column, anterior column/wall with posterior hemitransverse.

Intertrochanteric hip fracture

Evans-Jensen system: six groups (Sheehan, 2015).

- Types 1 and 2: two fracture fragments without and with displacement, respectively.
- Types 3 and 4: three fracture fragments with posterolateral or posteromedial cortex comminution, respectively.
- Type 5: four or more fragments.
- Type 6: reverse obliquity fracture.

Femoral neck fracture

Garden system: four groups (Sheehan, 2015).

- ■
Type 1: incomplete fracture (1).
- ■
Types 2–4: complete fracture without displacement (2), with partial displacement (3), or with complete displacement (4).

Femoral head fracture

Pipkin system: four groups (Sheehan, 2015).

- ■
Type 1: fracture inferior to the fovea centralis (nonweight bearing femoral head).
- ■
Type 2: fracture above fovea centralis (weight bearing femoral head, high risk of AVN).
- ■
Type 3: femoral neck fracture with type 1 or 2 (even higher risk of AVN).
- ■
Type 4: acetabular fracture with type 1 or 2.

Key elements of a structured report

- ■
Identify/describe all traumatic injuries.
- ■
Apply appropriate classification schema for injuries.
- ■
Identify and report clinically significant incidental findings.
- ■
Clear documentation of recommendations.
- ■
Critical finding discussion with care team when appropriate (with documentation).

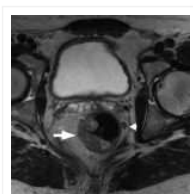
Suggested reading

- 1. Ahmed N, Vernick JJ: Management of liver trauma in adults. J Emerg Trauma Shock 2011; 4: pp. 114-119.
[View In Article](#)
- 2. Avery LL, Scheinfeld MH: Imaging of male pelvic trauma. Radiol Clin North Am 2012; 50: pp. 1201-1217.
[View In Article](#)
- 3. Avery LL, Scheinfeld MH: Imaging of penile and scrotal emergencies. Radiographics 2013; 33: pp. 721-740.
[View In Article](#)
- 4. Denis F: The three column spine and its significance in the classification of acute thoracolumbar spinal injuries. Spine (Phila Pa 1976) 1983; 8: pp. 817-831.
[View In Article](#)
- 5. Gupta A, Stuhlfaut JW, Fleming KW, Lucey BC, Soto J: Blunt trauma of the pancreas and biliary tract. Radiographics 2004; 24: pp. 1381-1395.
[View In Article](#)
- 6. Khurana B, Sheehan SE, Sodickson AD, Weaver MJ: Pelvic ring fractures. Radiographics 2014; 34: pp. 1317-1333.
[View In Article](#)
- 7. Linsenmaier U, Wirth S, Reiser M, Körner M: Diagnosis and classification of pancreatic and duodenal injuries in emergency radiology. Radiographics 2008; 28: pp. 1591-1602.
[View In Article](#)
- 8. Magerl F, Aebi M, Gertzbein SD, Harms J, Nazarian S: A comprehensive classification of thoracic and lumbar injuries. Eur Spine J 1994; 3: pp. 184-201.
[View In Article](#)
- 9. Moore EE, Cogbill TH, Jurkovich CJ, Shackford SR, Malangoni MA, Champion HR: Organ injury scaling. J Trauma 1995; 38: pp. 323-324.
[View In Article](#)
- 10. Ramchandani P, Buckler PM: Imaging of genitourinary trauma. AJR Am J Roentgenol 2009; 192: pp. 1514-1523.
[View In Article](#)
- 11. Richards JR, McGahan JP: Focused Assessment with Sonography in Trauma (FAST) in 2017. Radiology 2017; 283: pp. 30-48.
[View In Article](#)
- 12. Sheehan SE, Shyu JY, Weaver MJ, Sodickson AD, Khurana B: Proximal femoral fractures. Radiographics 2015; 35: pp. 1563-1584.
[View In Article](#)
- 13. Scheinfeld MH, Dym AA, Spektor M, Avery LL, Dym RJ, Amanatullah DF: Acetabular fractures. Radiographics 2015; 35: pp. 555-577.
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- 14. Soto JA, Anderson SW: Multidetector CT of blunt abdominal trauma. Radiology 2012; 265: pp. 678-693.
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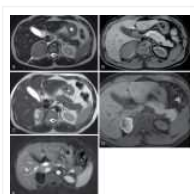
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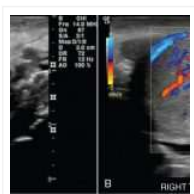
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