NOTES
SPLEEN PATHOLOGY

GENERALLY, WHAT IS IT?

PATHOLOGY & CAUSES

- Injuries/medical procedures/illnesses
  - Impair splenic function/lead to spleen removal

SIGNS & SYMPTOMS

- Asplenia → frequent infections
- Traumatic rupture → shock, referred pain to left shoulder

DIAGNOSIS

DIAGNOSTIC IMAGING

Ultrasound/CT scan
- Splenic rupture, asplenia

LAB RESULTS
- Impaired blood filtration

OTHER DIAGNOSTICS

Enlarged spleen
- Palpable (increased risk of rupture)

TREATMENT

MEDICATIONS

Asplenia
- Immunization/antibiotic prophylaxis

SURGERY

Splenic rupture
- Splenectomy
  - If hemodynamically unstable

OTHER INTERVENTIONS

Splenic rupture
- Strict bed rest, 1–3 days
  - Conservative; if hemodynamically stable

ASPLENIA

osms.it/asplenia

PATHOLOGY & CAUSES

- Absence of normal spleen → immunodeficiency
- Splenic macrophages loss → inability to clear opsonized bacteria from blood
- T-cell independent antibodies deficiency
- Increased infection risk, severity from polysaccharide encapsulated bacteria
  - *Haemophilus influenzae* type b, *Streptococcus pneumoniae*, *Neisseria meningitidis*, Group B streptococcus, *Klebsiella pneumoniae*, *Salmonella typhi*

TYPES

Acquired asplenia

- Splenectomy
  - Surgical procedure, spleen partially/completely removed (following trauma, cancer, hemoglobinopathies, massive enlargement)
- Auto-splenectomy
  - Underlying disease → focal venous occlusion → repeated infarction → gradual perivascular fibrosis → loss of function (e.g. sickle-cell disease, pneumococcal septicaemia, systemic lupus erythematosus)

Congenital asplenia (rare)

- Heterotaxy syndrome (situs ambiguus) → disruption to splenic development during embryogenesis → no spleen/formation of multiple ineffective spleens → functional asplenia
- Isolated congenital asplenia → ribosomal mutation → failure of spleen development

Functional asplenia

- Splenic tissue present, functionally impaired (e.g. sickle-cell disease, isolated congenital asplenia)

Hyposplenism

- Reduced splenic function, less severe

SIGNS & SYMPTOMS

- Recurrent infection
- Sickle cell disease
  - Enlarged palpable spleen

DIAGNOSIS

DIAGNOSTIC IMAGING

- Abdominal ultrasound, CT scan/MRI
- Radionuclide scan
  - Assess for function

LAB RESULTS

- Thrombocytosis (elevated platelet count), leukocytosis (elevated white cell count)
- Howell–Jolly bodies
  - Erythrocytes containing basophilic DNA fragments
- Target cells
  - Erythrocytes with increased ratio of surface membrane area to volume

TREATMENT

MEDICATIONS

Antibiotics

- Antibiotic prophylaxis (penicillins)
- Early antibiotic prescription at first sign of infection (common/otherwise)

Vaccination

- Pneumococcal polysaccharide vaccine
- Haemophilus influenzae type b vaccine
- Meningococcal conjugate vaccine
- Influenza vaccine

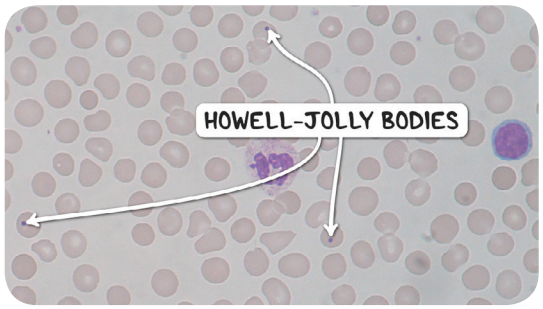

Figure 58.1 A peripheral blood smear with erythrocytes containing Howell–Jolly bodies. Howell-Jolly bodies represent a damaged or absent spleen which has failed to filter these red blood cells.

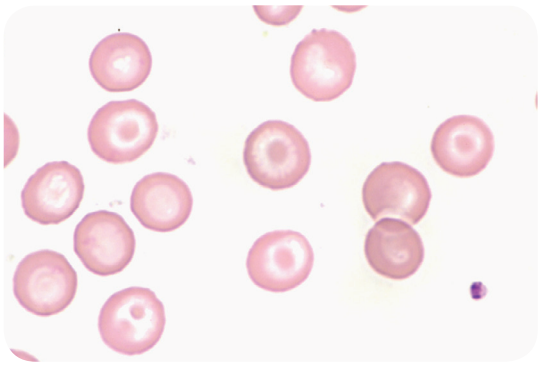

Figure 58.2 A peripheral blood smear containing target cells; erythrocytes that have become deformed and damaged, yet have not been cleared by an absent spleen.

RUPTURED SPLEEN

osms.it/ruptured-spleen

PATHOLOGY & CAUSES

- Splenic rupture → break in splenic structural integrity → large amount of blood leaks into abdomen → shock → death

CAUSES

Traumatic

- Significant force to spleen → rupture
- Blunt trauma to abdomen
- Penetrating trauma (e.g. gunshots/ stabwounds)

Non-traumatic

- Splenomegaly → capsule thins, decreases structural integrity
- Infectious diseases
  - Malaria, infectious mononucleosis
- Medical procedures
  - Colonoscopy
- Hematological disease
  - Non-Hodgkin's lymphoma, acute lymphoblastic leukemia
- Malignancy
  - Angiosarcoma
- Medications
  - Anticoagulants
- Pregnancy
- Enlarged spleens more vulnerable to traumatic rupture

SIGNS & SYMPTOMS

- Abdominal pain, epigastric tenderness, pain in left flank
- Kehr's sign
  - Blood in peritoneal cavity → irritation of surrounding tissues → pain referred to tip of left shoulder
- Hypovolemic shock
  - Tachycardia, hypotension, tachypnea, pallor, anxiety

DIAGNOSIS

DIAGNOSTIC IMAGING

Emergency ultrasound

- Free blood in peritoneum

CT scan with contrast

- Free blood in peritoneum
- Spleen → inhomogeneous hypodense regions

OTHER DIAGNOSTICS

Procedural

- Peritoneal lavage → free blood drawn from peritoneum

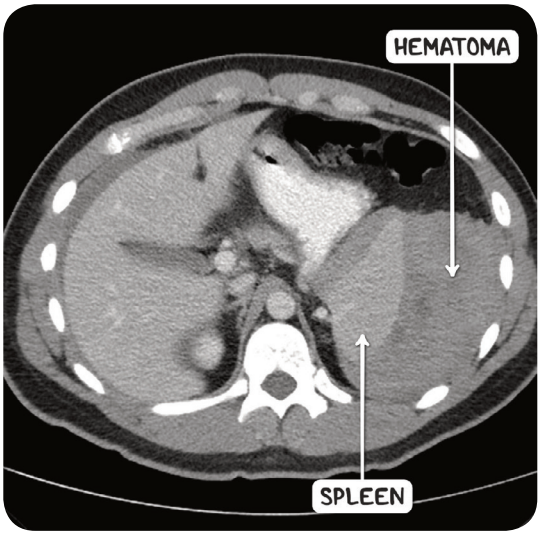

Figure 58.3 An abdominal CT scan in the axial plane demonstrating a large perisplenic hematoma. This hematoma has formed as a result of splenic rupture, most likely as a result of trauma.

TREATMENT

SURGERY

Splenectomy

- Hemodynamically unstable/emergency/ grade IV, V injury

OTHER INTERVENTIONS

Strict bed rest, 1–3 days

- Conservative (hemodynamically stable)
- Follow-up CT scan in seven days

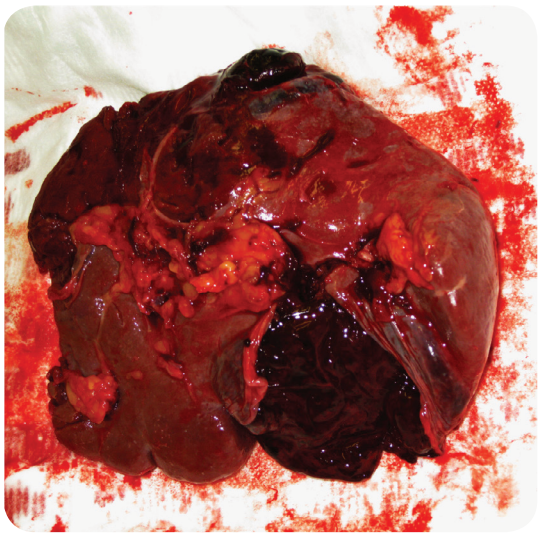

Figure 58.4 The gross pathology of a spleen ruptured by trauma. The capsule is torn, revealing the dark red splenic parenchyma.

SPLENIC INJURY SCALE

GRADE	SUBCAPSULAR HEMATOMA	LACERATION
I	< 10% surface area of spleen	< 1 cm parenchymal depth
II	10–50% surface area	1–3 cm parenchymal depth
III	> 50% surface area/visibly expanding	> 3 cm parenchymal depth
IV	> 50% surface area/ visibly expanding	N/A
V	Completely shattered spleen	N/A