Acute Chest Pain	
Sources	**BCH EBG** (chest pain)**, CHOP Clinical Pathway,** Uptodate
Differential	• **Can't miss:** Acute coronary syndrome, pericarditis, pneumothorax, pulmonary embolism, aneurysm • **MSK**: costochondritis, musculoskeletal strain/trauma, precordial catch (Texidor's twinge) • **Cardiac** (1% of children) ▪ Ischemia: severe aortic and pulmonary stenosis, hypertrophic or dilated cardiomyopathy, history of Kawasaki disease and subsequent coronary thrombosis, anomalous coronary arteries, familial dyslipidemia and medication or drug induced vasospasm (i.e. cocaine abuse) ▪ Arrhythmia: SVT or ventricular tachyarrhythmias ▪ Inflammatory: myocarditis, pericarditis ▪ Mitral valve prolapse ▪ Aortic dissection (consider in Marfan, Ehlers-Danlos, Turner, or Noonan) • **Pulmonary**: pneumonia, asthma, upper respiratory infection causing coughing, hyperventilation, pneumothorax, pleuritis and pulmonary embolism • **GI**: GERD, esophagitis, esophageal spasm. Also consider foreign body ingestion, gastritis, pancreatitis, cholecystitis, peptic ulcer disease, Mallory-Weiss tears, Boerhaave syndrome and hiatal hernias • **Psych**: anxiety, panic attacks • **ID**: Shingles (herpes zoster infection) • **Heme**: Severe anemia, Sickle cell anemia-related VOE or acute chest syndrome
History	• Location, chronicity, duration, frequency, severity, quality, radiation of pain • Precipitating or alleviating factors • Association with exertion, syncope, or palpitations • History of inflammatory disorders, hypercoagulable states, connective tissue disease • Family history of early thromboembolic disease, sudden death, drowning or congenital heart disease.
Physical Exam	• Complete cardiorespiratory and abdominal exam • Examination of skin overlying area of pain • Palpation for reproducible pain • Concerning findings: ▪ Non-innocent heart murmurs (>III/VI in intensity, diastolic, harsh quality, no positional change or louder standing than supine) ▪ Clicks, rubs or gallops ▪ Abnormal S2 ▪ Stigmata of connective tissue disease ▪ Hepatomegaly ▪ Pallor, diaphoresis, or poor perfusion
Studies	• EKG • CXR for suspected pulmonary or cardiac disease • CT w/PE protocol if high suspicion for PE • Consider CBC, inflammatory markers, D-dimer, troponin, BNP as indicated

Acute Scrotal Pain	
Sources	**CHOP Clinical Pathway,** Brenner, JS, Ojo A. UpToDate: Causes of scrotal pain in children and adolescents
History	• Pain (Onset, Duration, Location, Migration, Severity) • Anorexia/Nausea (Last meal) • Vomiting (Time of onset, Last episode, Number of episodes) • Urine (Dysuria, Quantify urine output, Hesitancy, Urgency, Hematuria) • Sexual History (Sexually active?, History of STIs, Urethral discharge) • Fever • Trauma

Acute Scrotal Pain continued on next page →

Acute Scrotal Pain			
Physical Exam	• Abdomen (Focal tenderness, Guarding/rebound, CVA tenderness) • Genital (Tanner stage, Inguinal canal abnormality, Scrotal tenderness, Lie of testicles, Tenderness of testicles, Abnormal color of scrotum, Differences in size, Presence/absence of cremasteric reflex)		
Studies	• Imaging: Scrotal US with doppler • Labs: UA and UCx, GC/CT in sexually active patients. • Urgently consult urology if there is suspicion for torsion, without waiting for imaging results		
Condition	**Definition/Pathogenesis**	**Clinical Presentation**	**Treatment**
Testicular Torsion	• Rotation of the spermatic cord of the testis → diminished blood flow → infarction • ~30% of acute scrotal pain is testicular torsion	• Acute, severe pain • Swollen, high-riding testis, diffusely tender, possibly w/ horizontal lie • Absent cremasteric reflex • Overlying erythema	• Surgical emergency: surgical exploration, detorsion and fixation of the bilateral testes • Pain control
Torsion of the Testicular Appendage	Rotation of appendix testis (small vestigial structure on the anterosuperior aspect of the testis) → localized infarction	• Localized pain to upper pole of the testis only • Classic "blue dot" sign	• Pain medication, scrotal support and rest • Pain should resolve in a few days, if not patient needs re-evaluation
Epididymitis	Inflammation of the epididymis	• Indolent pain and swelling of epididymis • Dysuria • Penile discharge • Fever • US: Increased blood flow	• Supportive care • Sexually active adolescents: treat like STD • In prepubertal children, may be bacterial or aseptic (traumatic, viral) • Antibiotics if UCx positive
Orchitis	• Inflammation of the testes • Viral (mumps, rubella, coxsackie, echovirus, lymphocytic choriomeningitis virus, parvovirus) and bacterial (brucellosis) infections	• Generalized scrotal swelling, pain, and tenderness • Erythema and shininess of the overlying skin • Increased blood flow on US	• Supportive care • Support of the inflamed testis • NSAIDs and ice packs
Trauma	Blunt vs. penetrating trauma → can cause hematocele, hematoma, testicular rupture, or traumatic epididymitis	• Swelling, pain, and tenderness • Bruising or abrasions • High index of suspicion for concomitant torsion	• Penetrating wounds, rupture, or large hematoceles require surgical repair • Antibiotics for wounds • Otherwise, supportive care
Vasculitis	Occasionally occurs as part of IgA vasculitis or HSP	• Acute or insidious pain • Signs of systemic illness (fever, abd pain, rash) • US can distinguish from torsion	• Supportive care • NSAIDs and ice packs • Steroids helpful in severe HSP
Incarcerated Inguinal Hernia	Herniation of bowel or omentum into the scrotum	• Pain and scrotal mass • Audible bowel sounds • US shows herniated bowel	• Surgical intervention • Pain control