Key Differential Diagnosis Issues

- No absolute size criteria, but gallbladder (GB) considered distended when > 5 cm in diameter or 10 cm in length
- GB contracts and empties in response to vagal stimulation and cholecystokinin (secreted in response to fatty foods)
  - Vagal stimulation causes GB contraction; cholecystokinin causes GB contraction and relaxation of sphincter of Oddi
- Normal emptying requires patent cystic duct and common bile duct (CBD)

Helpful Clues for Common Diagnoses

- Causes can be divided into 5 major categories
- **Decreased Vagal Stimulation**
  - Vagotomy, anticholinergic medicines, or diabetic neuropathy can reduce vagal stimulation and result in GB distension
- **Decreased Cholecystokinin Secretion**
  - Prolonged fasting, hyperalimentation, and low fat (and high alcohol) diet result in diminished cholecystokinin secretion & consequent GB distension
- **Obstructed Flow of Bile**
  - Cystic/common duct calculus, tumors of GB, bile ducts, ampulla, or pancreas, or CBD strictures resulting from chronic pancreatitis can obstruct bile flow from GB, resulting in distension
  - Courvoisier law: Massive distension of GB in patient with painless jaundice raises concern for malignant obstruction
  - Calculous cholecystitis often presents with distended GB due to obstruction of cystic duct by stone
- **Inflammation of GB by Intrinsic or Adjacent Process**
  - AIDS cholangiopathy, hepatitis, pancreatitis, or perforated duodenal ulcer may cause secondary GB inflammation and distension
- **Acalculous Cholecystitis**
  - Most often diagnosed in critically ill or ICU patients (particularly when not eating)
  - Distended GB with wall thickening, pericholecystic fluid, and positive sonographic Murphy sign

Helpful Clues for Less Common Diagnoses

- **Gallbladder Hydrops**
  - Distended GB with simple fluid contents resulting from chronic obstruction (usually due to stones)
  - No wall thickening, pericholecystic fluid, or Murphy sign
  - May result in right upper quadrant pain without fever
- **Gallbladder Empyema**
  - Distended GB filled with infected material (pus) due to acute cholecystitis with intraluminal infection
  - Usually associated with other features of cholecystitis (wall thickening, pericholecystic fluid, etc.)
  - Fluid within GB appears complex with internal debris
- **Choledochal Cyst (Mimic)**
  - Choledochal cysts may extend into porta hepatis and mimic GB
  - Other upper abdominal cysts (hepatic, renal, pancreatic) can also theoretically mimic appearance of GB