GB and extrahepatic biliary tract

- Disorders of gallbladder
  - Cholelithiasis (gallstones)
  - Cholecystitis
- Disorders of extrahepatic biliary ducts
  - Choledocholethiasis
  - Cholangitis
  - Extrahepatic biliary atresia
- Tumors
  - Carcinoma of the gallbladder
  - Cholangiocarcinoma (bile duct carcinoma)

Cholelithiasis (Gallstones)

- **Incidence:**
  - 10% – 20% of adult populations in the west (higher in Latin America and lower in Asia).

- **Types:**

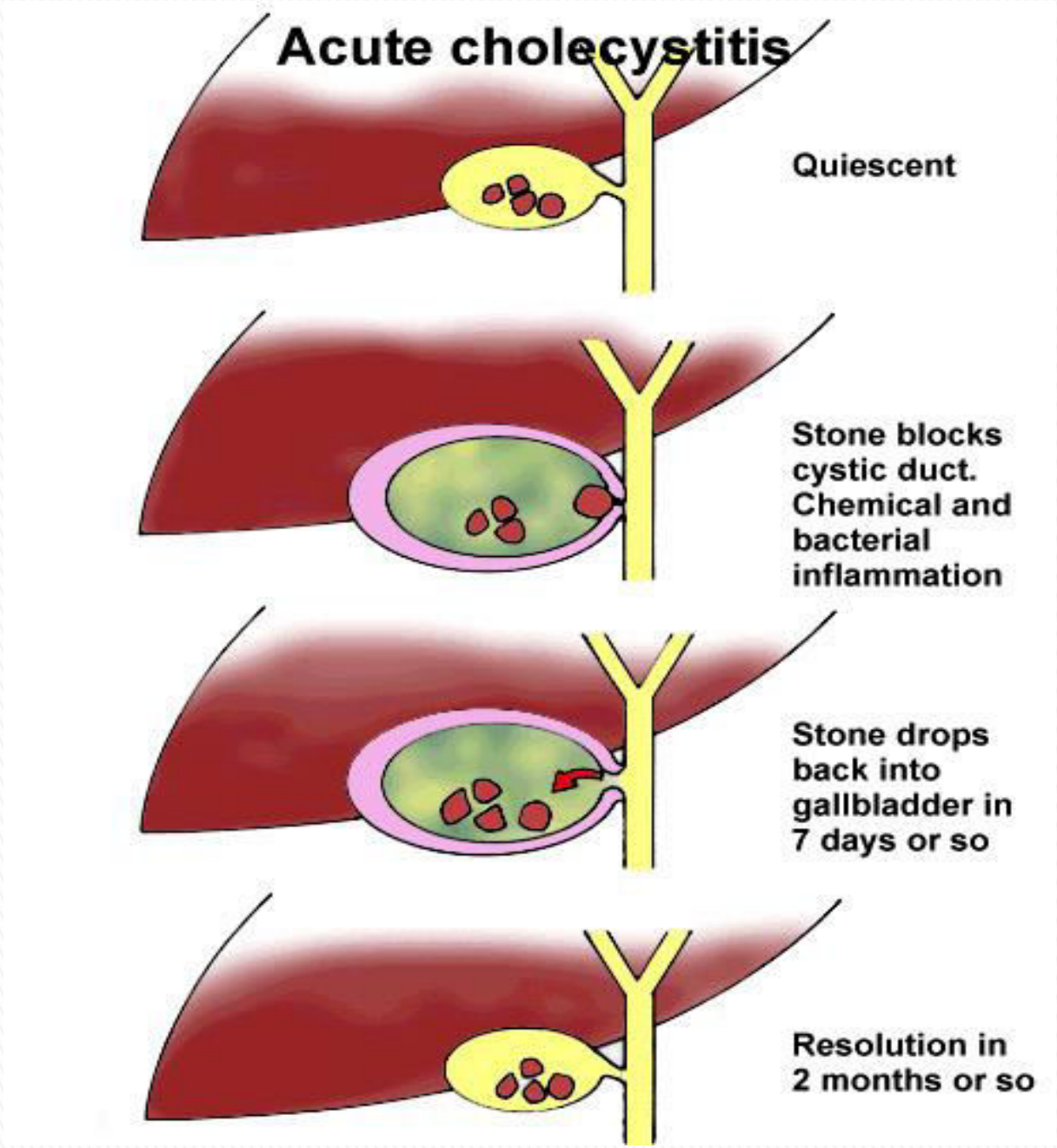
1. ***Cholesterol stones (80%).***
2. ***Pigment stones.***

Clinical features of cholelithiasis:

- Asymptomatic (70 – 80%)*.
- Remainder become symptomatic (rate of 1%–3%/year).
- RUQ pain, either constant or "colicky".

Complications:

- Acute & chronic cholecystitis.
- Choledocholethiasis, cholangitis & pancreatitis (esp. small stones).
- Empyema, perforation, fistulae, gallstone ileus.
- Carcinoma of gallbladder.



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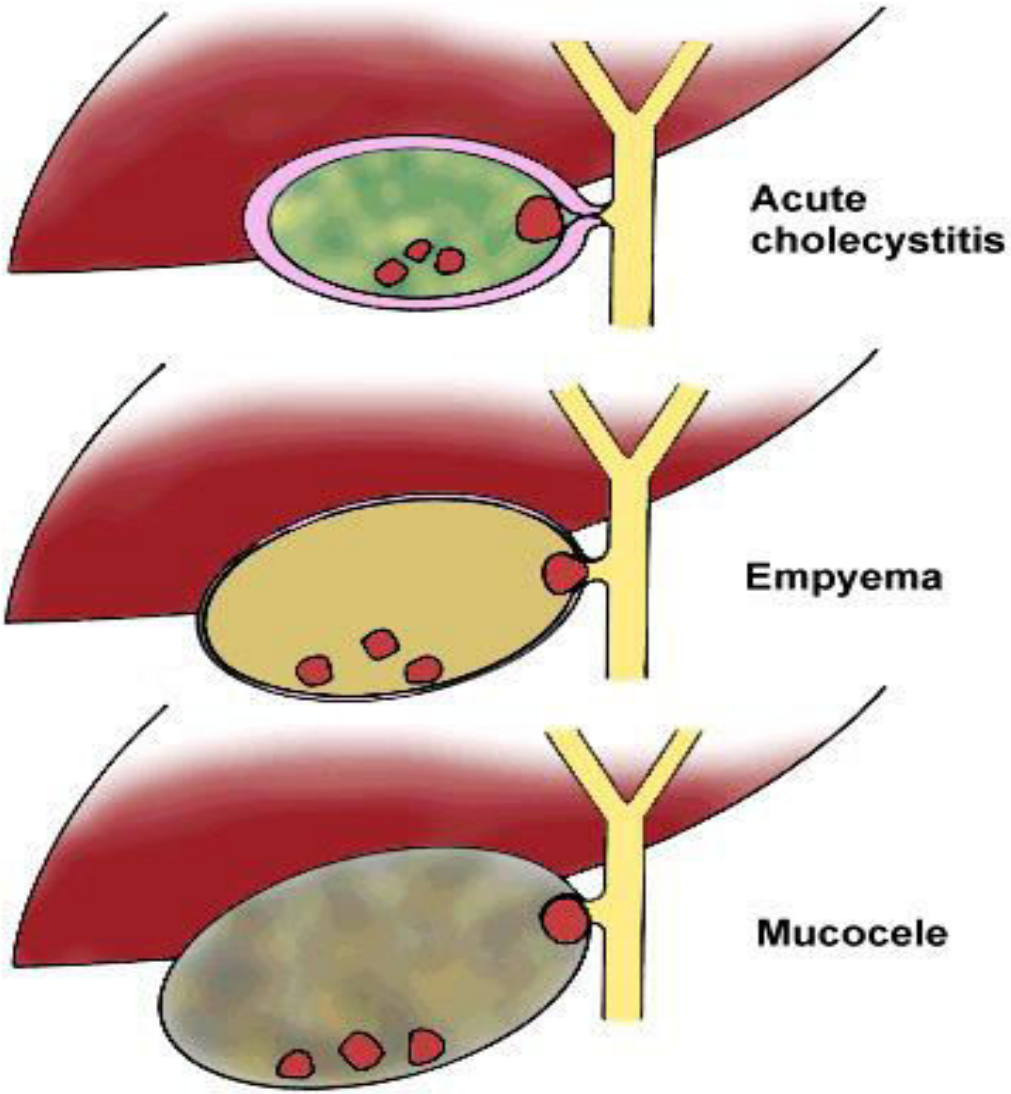
Empyema and Mucocele



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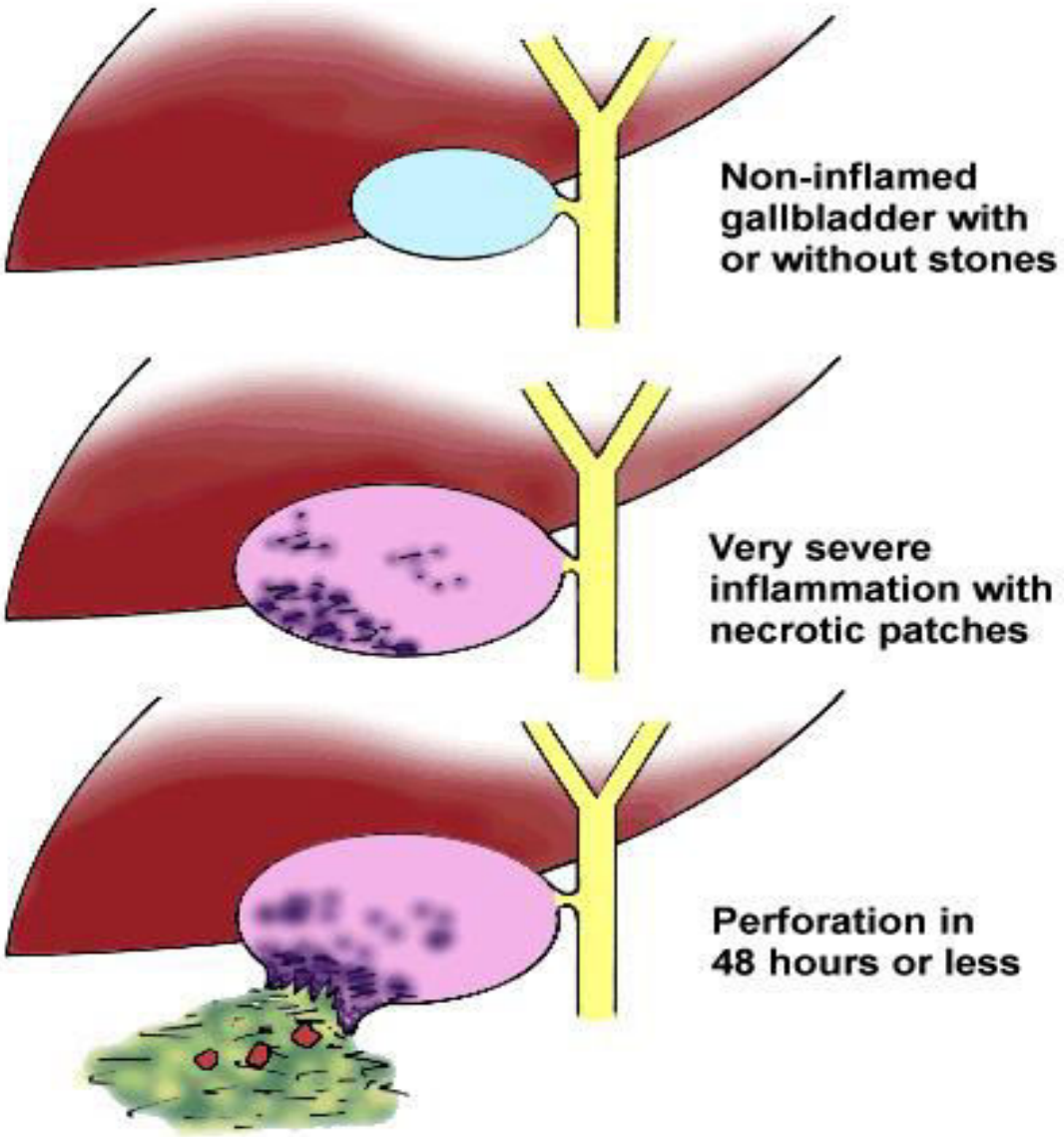
Perforation



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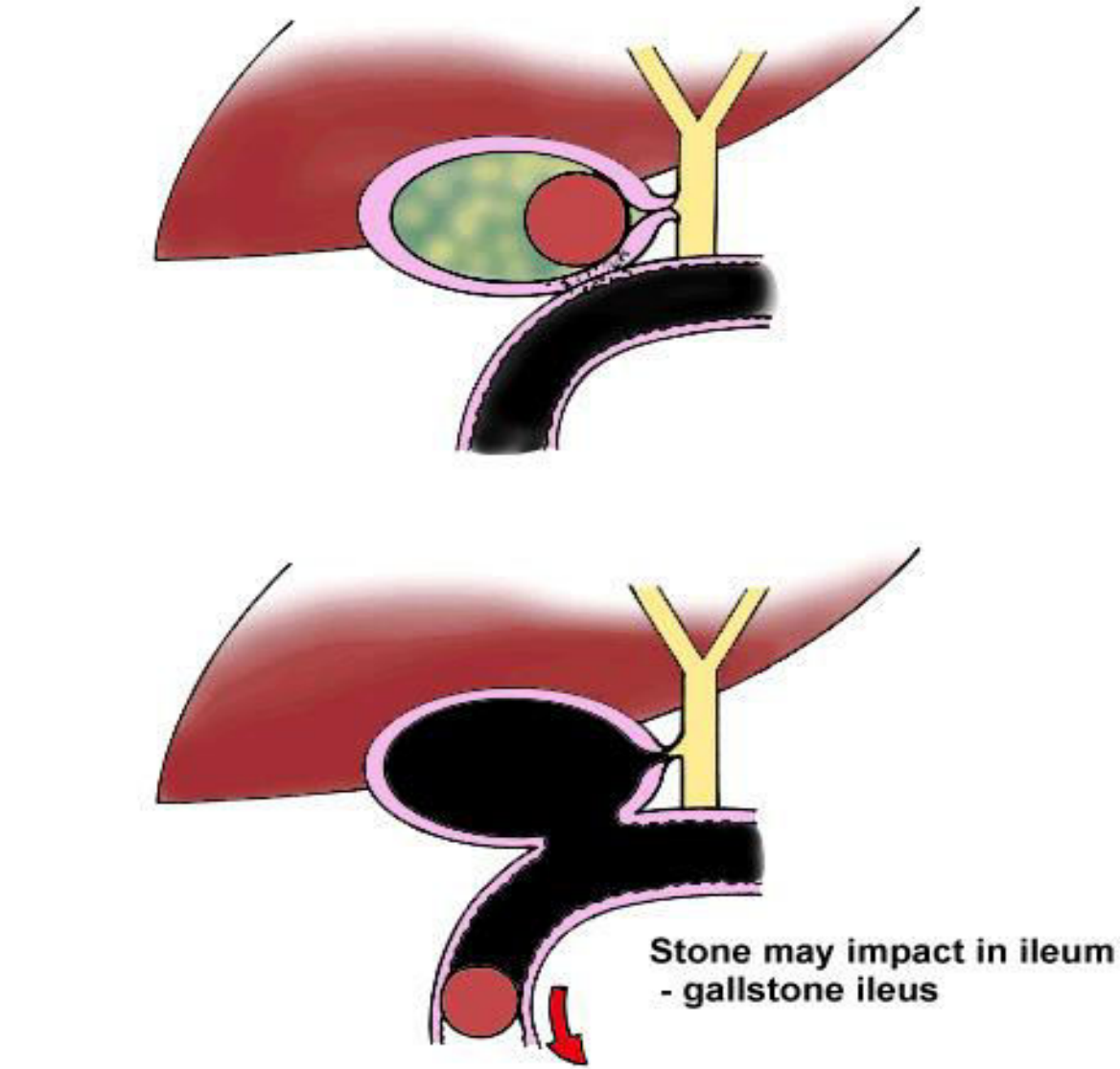
Fistula



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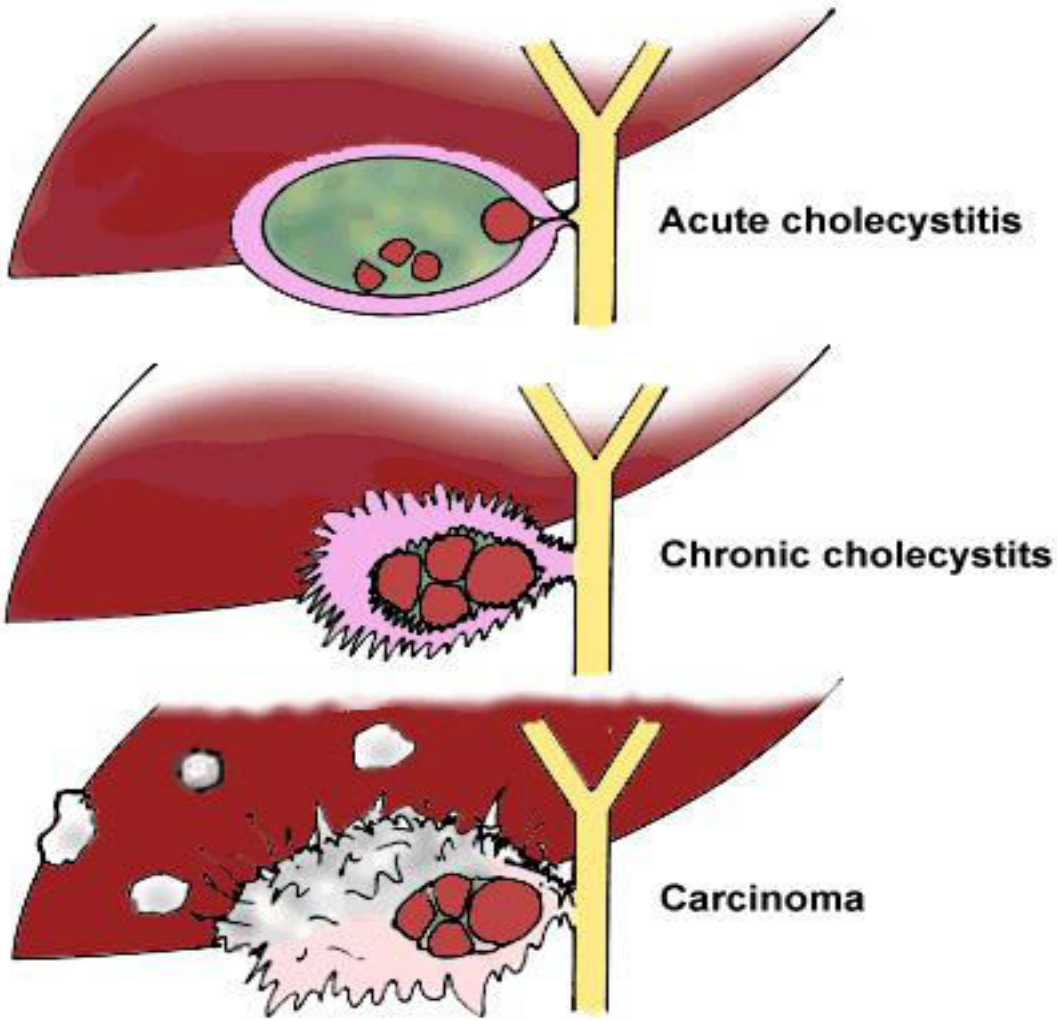
Chronic cholecystitis and carcinoma



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Cholecystitis

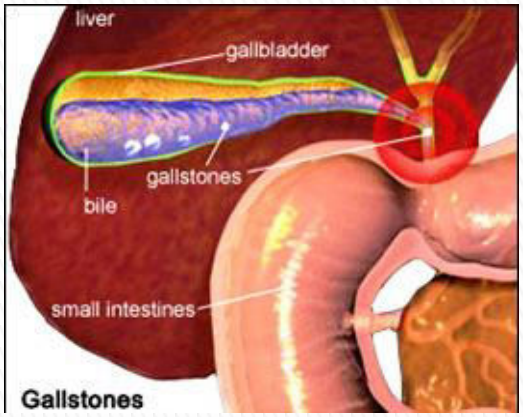
1. **Acute cholecystitis:**
   - *A. Acute calculus cholecystitis.*
   - *B. Acute acalculus cholecystitis.*

2. **Chronic cholecystitis.**

3. **Acute on chronic cholecystitis.**

Acute Calculous Cholecystitis

- Acute cholecystitis with the presence of gallstones → Most common (seen in 90%).
  - Precipitated by *obstruction of the gallbladder neck or cystic duct.*
  - Chemical irritation of the gallbladder wall
  - Bacterial contamination may develop later.



Acute Non-Calculous Cholecystitis

- 5 -12% of acute cholecystitis
- Most occur in seriously ill patients:
  - The postoperative state after major surgery
  - Severe trauma (e.g., motor vehicle accidents)
  - Severe burns
  - Sepsis
- **Contributing factors**:
  - Dehydration, gallbladder stasis, vascular compromise, and bacterial contamination.

Morphology of acute cholecystitis

- Enlarged, hyperemic with thick wall.
- The lumen is filled with a turbid bile and may contain fibrin, blood, or frank pus.

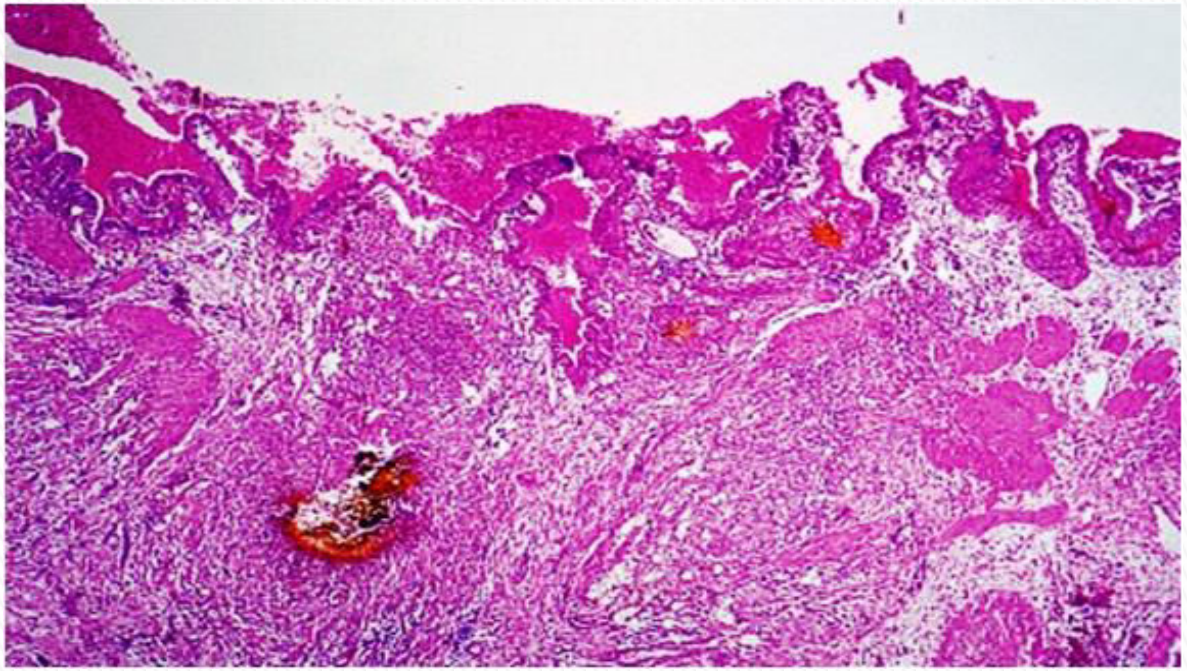
Angry red mucosa
and edema of the wall

Morphology of acute cholecystitis

The serosa is covered by fibrin and in severe cases by a suppurative exudate

Microscopic appearance

- Edema, neutrophilic infiltration, ulceration, vascular congestion, frank abscess formation, or gangrenous necrosis.



Extensive hemorrhage, ulceration & edema

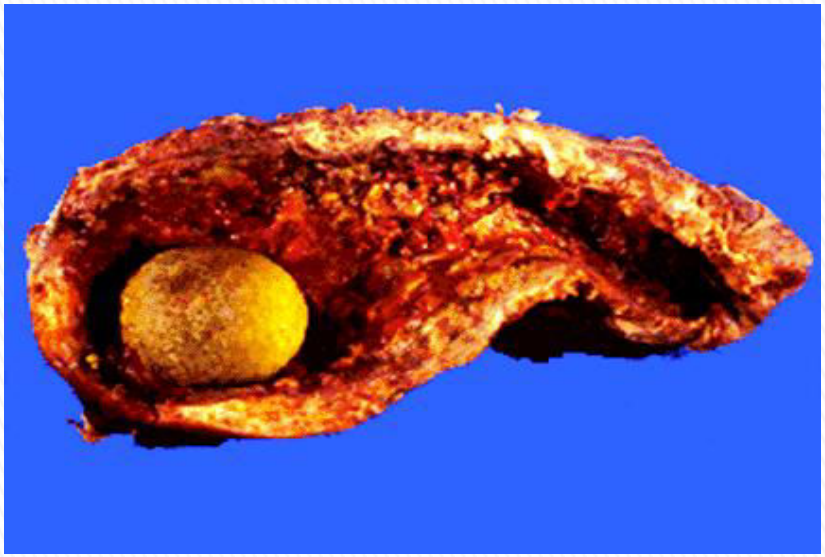
Chronic Cholecystitis

- May result from repeated bouts of acute cholecystitis, but *most cases develops without history of acute attacks.*
- It is **almost always associated with gallstones**;
  - Gallstones do not have a direct role.
  - Supersaturation of bile predisposes to both chronic inflammation and stone formation.
- Microorganisms, usually E. coli & enterococci, can be cultured from the bile in 1/3 of cases.

The morphology of chronic cholecystitis

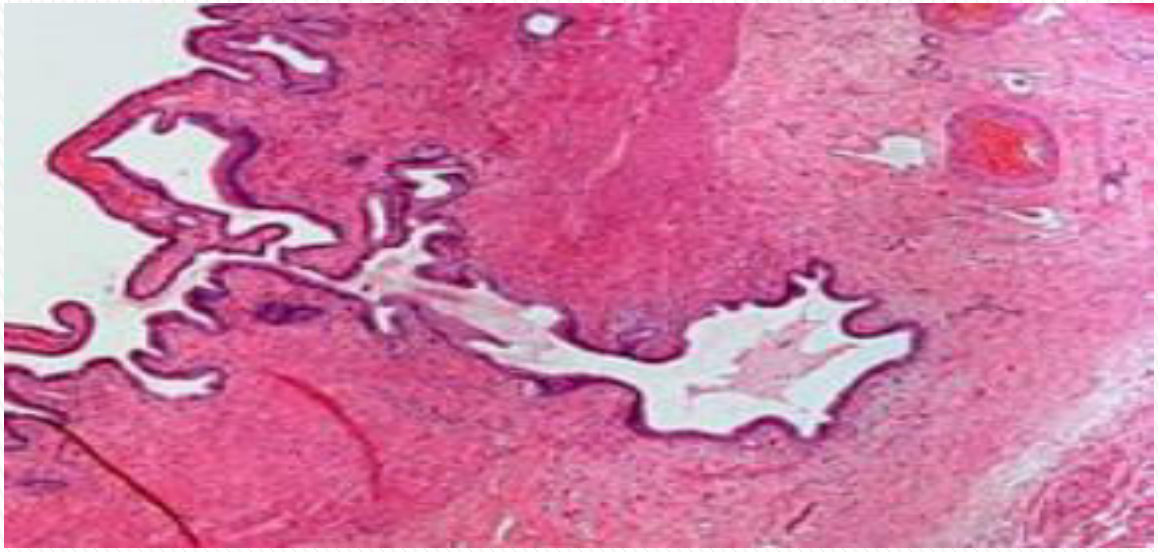
- **Gross appearance:**
  - GB may be small, of normal size, or enlarged.
  - Gallstones almost always present

Thickened wall, rough (or atrophied) mucosa and gallstones

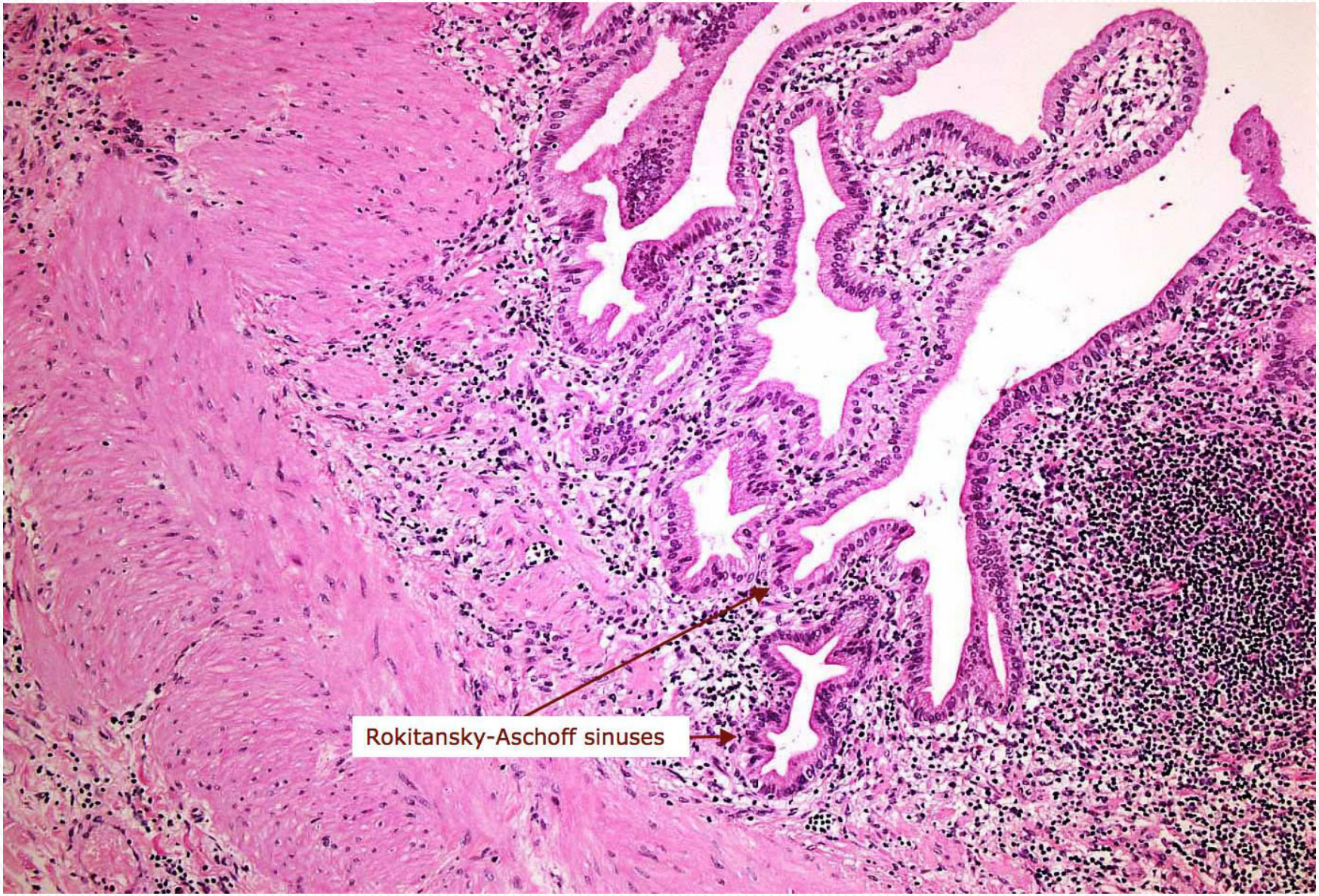


The morphology of chronic cholecystitis

- **Microscopic appearance:**
  - The submucosa and subserosa are thickened, showing lymphocytic infiltrate & fibrosis.
  - Rokitansky Aschoff sinuses: Herniated mucosal glands through the wall



Chronic cholecystitis



Complications of cholecystitis

- Bacterial superinfection, cholangitis or sepsis
- Gallbladder perforation and local abscess formation
- Gallbladder rupture with diffuse peritonitis
- Biliary enteric (cholecystenteric) fistula
- Gallstone-induced IO (gallstone ileus)
- Aggravation of preexisting medical illness