POST-CHOLE CYSTECTOMY

SYNDROME

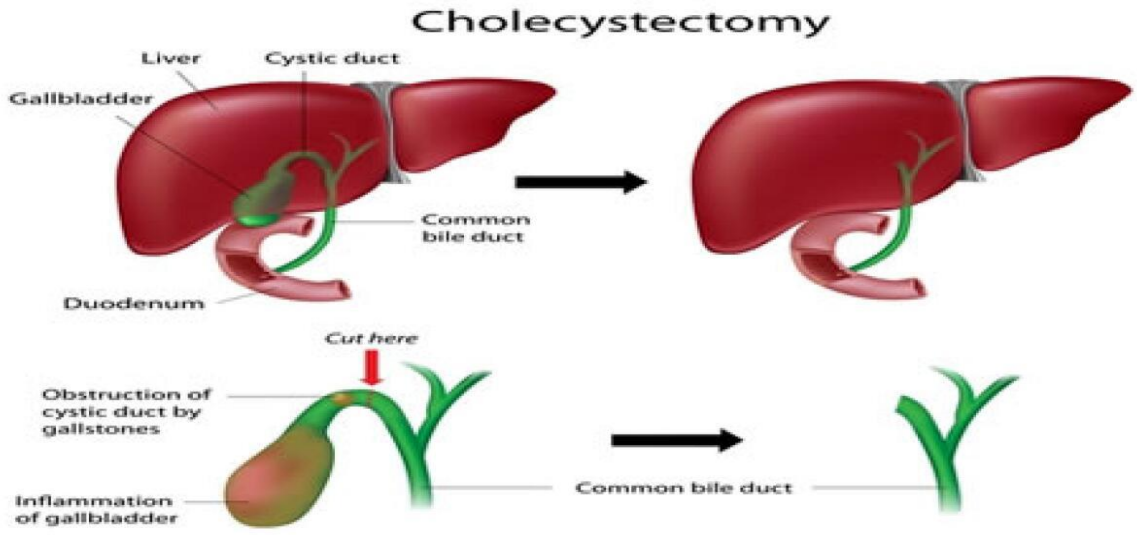
La Medica Academy
Study Smarter Not Harder

❖Definition :

The term postcholecystectomy syndrome (PCS) describes the **presence of symptoms after cholecystectomy**.

These symptoms can represent **either** the **continuation of symptoms** thought to be caused by gallbladder pathology or **the development of new symptoms** normally attributed to the gallbladder.
PCS also includes the development of symptoms caused by removal of the gallbladder (eg, gastritis and diarrhea).

In general, PCS is a preliminary diagnosis and should be renamed with respect to the disease identified by an adequate workup.



❖Pathophysiology:

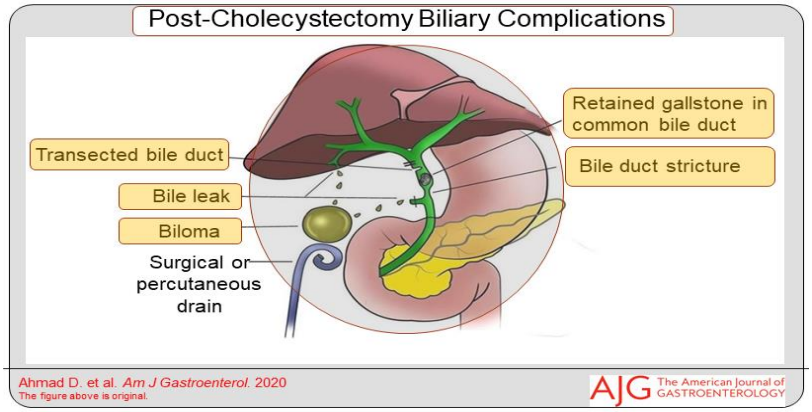
Bile is thought to be the cause of PCS in patients **with mild gastroduodenal symptoms or diarrhea**.
Removal of the **reservoir function of the gallbladder** alters bile flow and the enterohepatic circulation of bile.
The pathophysiology of PCS is related to alterations in bile flow and is not yet fully understood.

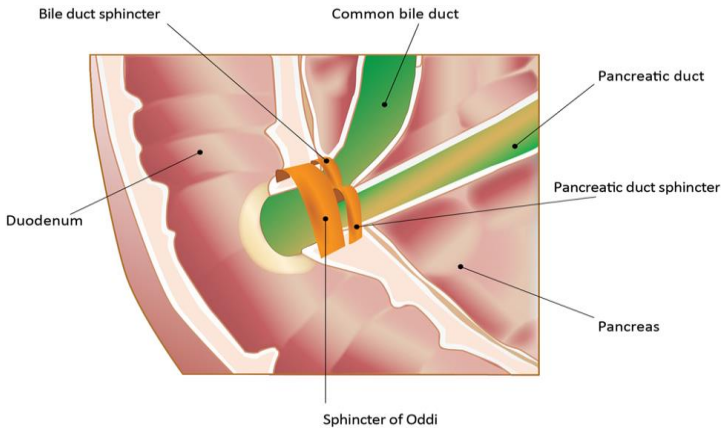
Two types of problems may arise. **The first** is continuously increased bile flow into the **upper gastrointestinal (GI) tract**, which may contribute to esophagitis and gastritis.
The second is related to **the lower GI tract**, where diarrhea and colicky lower abdominal pain may result.

❖Etiology

The cause of symptoms in PCS is being unknown.
Post-cholecystectomy syndrome **excludes if we found a cause of symptoms and the possible causes of these symptoms** may be :

1. **Extra-biliary disorders** like reflux esophagitis (GERD) (acidic reflux), peptic ulcer disease, gastritis, IBS, pancreatitis, pancreatic tumor, hepatitis, mesenteric ischemia, or diverticulitis.
2. **Biliary disorders** include retained calculi (stones), bile leak, tapering (stricture) of lower CBD (filling defect of bile to duodenum), biliary tree injury, Mirizzi syndrome and cystic duct remnant (if the cystic duct is not ligated as close to the CBD as possible (its length more than 1cm) and being with or without stones), and the sphincter of Oddi dysfunction





3. **Extra-intestinal disorders** like psychiatric and neurologic disorders, intercostal neuritis, wound neuroma (more common in open surgery) and coronary artery disease.

❖Risk factors

- **An urgent operation** puts patients at a higher risk for developing PCS
- **If the procedure is performed for stones**, 10-25% of patients develop PCS; if no stones are present, 29% of patients develop PCS
- If the **duration of symptoms before surgery** is less than 1 year, 15.4% of patients develop PCS; if preoperative symptom duration is 1-5 years, 21% develop PCS; if preoperative symptom duration is 6-10 years, 31% develop PCS; and if preoperative symptom duration is more than 10 years, 34% develop PCS
- If a **choledochotomy** is performed, 23% of patients develop PCS; if choledochotomy is not performed, 19% develop PCS

- **Age- and sex-related** demographics
  - Patients aged 20-29 years had an incidence of 43%; those aged 30-39 years, 27%; those aged 40-49 years, 21%; those aged 50-59 years, 26%; and those aged 60-69 years, 31%. Patients older than 70 years did not develop PCS.
  - **Females** had a 28% incidence of PCS, and males had a 15% incidence.

❖Clinical picture

- **HISTORY**

The history should focus on the presence of **colic pain, fever, jaundice, diarrhea,bloating or gas and vomiting.**
The cause of PCS is identifiable in 95% of patients.

- **Physical Examination**

The workup for PCS varies. An extensive study of the patient should be performed in an attempt to identify a specific cause for the symptoms and to exclude serious postcholecystectomy complications.
Surgical reexploration should be considered a last resort.
Discrepancies may lead to the diagnosis. Additional workup is directed at the most likely diagnosis while excluding other possible causes.

- **Laboratory Studies**

Initial laboratory studies in the workup for postcholecystectomy syndrome (PCS) usually include the following:

- **Complete blood count (CBC)** to screen for infectious etiologies
- **Basic metabolic panel (BMP)** and amylase level to screen for pancreatic disease
- **Hepatic function panel (HFP)** and prothrombin time (PT) to screen for possible liver or biliary tract diseases
- If the patient is acutely ill, blood gas analysis

If laboratory findings are within reference ranges, consideration should be given to repeating these studies when symptoms are present.
Other laboratory studies that may be indicated are as follows:

- Lipase
- Gamma-glutamyl transpeptidase (GGT)
- Hepatitis panel
- Thyroid function
- Cardiac enzymes

- **Radiographic investigations:**

➢ Radiography

Chest radiography should be performed to screen for **lower-lung, diaphragmatic**, and mediastinal diseases; in most cases, abdominal films should be obtained as well.
For patients with **right-upper-quadrant pain**, barium swallow, upper gastrointestinal (GI), and small-bowel follow-through (SBFT) studies will evaluate the intestinal tract for evidence of esophagitis, including gastroesophageal reflux disease (GERD) and peptic ulcer disease (PUD). These studies are not always performed, because upper endoscopy is more reliable at identifying these diseases and also permits direct visualization of the ampulla of Vater.

➢ Ultrasonography

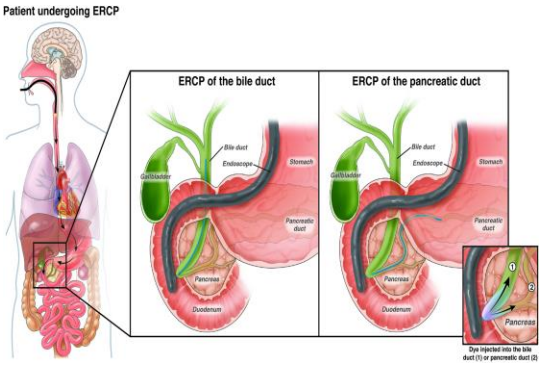
An ultrasonographic study is almost always performed; it is a quick, noninvasive, and relatively inexpensive way to evaluate the liver, biliary tract, pancreas, and surrounding areas. A 10- to 12-mm dilation of the common bile duct (CBD) is commonly observed. **Dilation exceeding 12 mm is often diagnostic of distal obstruction**, such as a retained stone, CBD stricture, or ampullary stenosis.

➢ Esophagogastroduodenoscopy and Colonoscopy

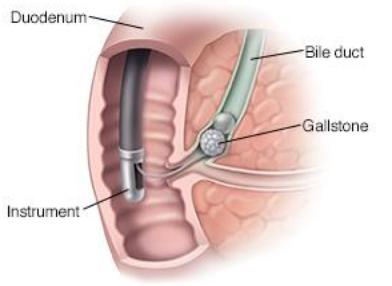
EGD can be very helpful in the workup of PCS. It is a good procedure for evaluating the mucosa for signs of disease from the esophagus through the duodenum. EGD also allows direct visualization of the ampulla of Vater.
A total colonoscopy may reveal colitis, and biopsy of the terminal ileum may confirm Crohn disease.

➢ Endoscopic Retrograde Cholangiopancreatography

ERCP is the most useful test in the diagnosis of PCS.



It is unsurpassed in visualization of the ampulla, biliary, and pancreatic ducts. **At least 50% of patients with PCS have biliary disease, and most of these patients' conditions are functional in nature**. An experienced endoscopist can confirm this diagnosis in most of these patients and can also provide additional diagnostic studies, such as biliary and ampullary manometry.



At the time of ERCP, therapeutic maneuvers, such as stone extraction, stricture dilatation, or sphincterotomy for dyskinesia or sphincter of Oddi stenosis, can be performed.

➢ CT and MRI

Computed tomography (CT) can be helpful in **identifying chronic pancreatitis or pseudocysts** in patients with alcoholism or those with a history of pancreatitis.

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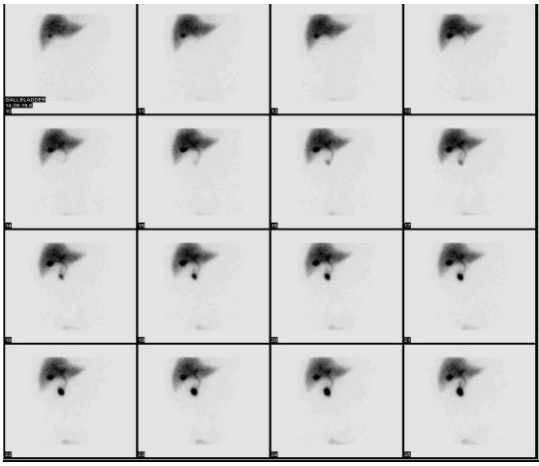

Nuclear imaging may demonstrate a postoperative bile leak. Occasionally, a HIDA scan or similar scintigraphic study may **show delayed emptying or a prolonged half-time**, but these studies lack the resolution necessary to identify dilation, stricture, and so on. Emptying delayed by more than 2 hours or a prolonged half-time can help **identify the sphincter of Oddi** as a potential cause but cannot differentiate between **stenosis and dyskinesia**.

❖Approach Considerations

Postcholecystectomy syndrome (PCS) is usually a temporary diagnosis. An organic or functional diagnosis is established in most patients after a complete workup. Once a diagnosis has been established, treatment should proceed as indicated for that diagnosis. Treatment may be either medical or surgical.

❖Treatment

- **Medications** :
  1)Bulking agents (medications are used to increase fecal mass and stimulate peristalsis)
  2)Antispasmodics
  3)Cholestyramine (binds with the bile acids and removes them from the body by stopping the enterohepatic circulation)

*All are used to **speed up the elimination of bile and reduce irritation of bowel** caused by it so reduce bile-induced diarrhea, bile gastritis and biliary alkaline reflux.

- **TREATMENT OF SOME DETERMINED CAUSES THAT EXCLUDE PCS**
  - Sedatives for patients with irritable bowel syndrome (IBS).
  - For patients with GERD, peptic ulcer and gastritis: antacids, histamine-2 blockers (as histamine stimulates HCL secretion), or proton-pump inhibitors (inhibit HCL secretion) can be used.
  - Transduodenal sphincteroplasty of the sphincter of Oddi is benefit in sphincter of oddi dysfunction.
  - In cases of remnant cystic duct or Mirizzi syndrome, requires stone extraction by ERCP. However, surgical excision of the remnant cystic duct may be necessary in some cases
  - Biliary tree injury requires hepatobiliary surgery.