

Patient Care > Gallbladder

Introduction

The gallbladder is a sac whose purpose is to concentrate and store bile. Bile is a liquid that essentially acts as a detergent, allowing fat to be dissolved and absorbed. Bile is produced by the liver and is transported to the gallbladder through a duct (tube) called the common hepatic duct. When food enters the intestine, a signal is sent to the gallbladder causing it to squeeze and release the bile into the intestine through a channel called the common bile duct. The bile mixes with and breaks down the food for absorption by the intestine.

Cause and Pathology

The chemicals within the gallbladder are in a fine balance. Within this balance, bile remains in a viscous liquid state. This balance can be upset by a number of things including dietary changes, chemical imbalance, infection, hereditary factors, etc. When this occurs, particles may precipitate out of the bile in the form of sludge and stones (cholelithiasis). As long as the sludge or stones are small and pass through the neck of the gallbladder (cystic duct) and through the common bile duct into the intestine, there is no problem. However, when the stone reaches sufficient size to block either the cystic duct or common bile duct then obstruction to bile flow occurs and symptoms (biliary cholic) develop.

An obstruction of the gallbladder may in itself cause inflammation of the gallbladder wall. If bacteria are entrapped within the gallbladder, the inflammation worsens and a serious infection may occur. Inflammation of the gallbladder is called cholecystitis.

Sometimes, while there are no stones, the function of the gallbladder is abnormal. Rather than releasing the bile, the gallbladder squeezes but stays filled. The tense, distended gallbladder causes pain in the right upper part of the abdomen which is worsened any time the gallbladder is stimulated to squeeze (like after a fatty meal-pizza, fast food, etc). This dysfunction of gallbladder movement in the absence of stones is biliary dyskinesia. The root cause of this disease is unknown.

Symptoms and Signs

The most common presentation for acute cholecystitis is abdominal pain under the right rib margin. There may be fever, vomiting, and loss of appetite. Fatty foods often makes the pain worse. If the stone blocks the common bile duct at the intestine then jaundice (yellow discoloration of the eyes and skin) may occur.

Laboratory and Diagnostic Workup

Blood will be taken to determine the white blood cell count (which may reflect an infection) and the red blood count (to assure safety of anesthesia and surgery). The blood electrolytes will be determined and corrected if necessary. An elevated bilirubin indicates obstruction. An elevated amylase level may indicate the presence of pancreatitis (inflammation of the pancreas) which may occur if the stone also blocks the entrance of the pancreatic duct.

Usually, an ultrasound is obtained to look for stones and the gallbladder size and wall thickening. If jaundice is present, a computerized tomography (CAT scan) and or a magnetic resonance cholangiopancreatogram (MRI) may be obtained.

As pain the the upper abdomen may come from a variety of diseases, an upper gastrointestinal contrast study and or an upper endoscopy may be performed.

If symptoms are suggestive of biliary dyskinesia but other workups have not revealed an answer, a HIDA Scan may be obtained to gauge the function of the gallbladder.

Treatment

Cholecystitis, symptomatic cholelithiasis, and biliary dyskinesia are all cured by removal of the gallbladder. Simple removal of stones from the gallbladder was tried long ago and found to be ineffective: stones and symptoms always returned. There are no medications that effectively treat these problems.

In the pediatric age group, removal of the gallbladder is nearly always by [laparoscopy](#) (laparoscopic cholecystectomy) rather than by "open" surgery. Laparoscopy involves four small incisions (the largest being 1/2 inch long, the others 1/4 inch). The very detailed anatomy is viewed by a fiberoptic television camera and the operation performed with thin long instruments.

If there is suspicion of a stone in the common hepatic or common bile duct then a catheter is placed into the cystic duct and dye is instilled and a x-ray taken (an "intraoperative cholangiogram").

When a patient presents with jaundice or a history of jaundice, a endoscopic retrograde cholangiopancreatography (ERCP) may be performed by a pediatric gastroenterologist. The gastroenterologist will remove any stones in the common hepatic or common bile ducts. Then a laparoscopic

cholecystectomy is performed, usually 1-2 days later. If an unsuspected stone is found during laparoscopy and cannot be simply flushed out, then an ERCP is performed after recovery from the laparoscopy but usually during the same hospitalization.

In the rare instance that a common hepatic or bile duct stone cannot be removed by ERCP, an open procedure may have to be performed.

Patients who have an uncomplicated laparoscopic cholecystectomy usually require only an overnight hospitalization. The length of hospitalization is determined by pain control, mobilization, and adequate oral intake. In other words, as soon as the patient can eat, walk, pass gas, and control pain with pills, she may go home.

Complications and Long Term Problems

Any patient undergoing general anesthesia and surgery has a small risk of reaction to the anesthetic or medications, bleeding, and infection. Serious bleeding or unusual anatomy may result in an "open" operation rather than a laparoscopic one. There is a small (1 in 5000) risk of injury to the common bile duct which may result in further surgery.

Once the gallbladder is removed, the bile is no longer concentrated and bile flows continuously from the liver into the intestine. This decreases the effectiveness of digestion of fatty foods, and many meals "don't sit well." This does not mean that one cannot eat fatty foods but it should be done in moderation. If you gobble a bucket of Kentucky Fried Chicken in one sitting, chances are you are going to have particularly smelly diarrhea. And the stool will float in the toilet bowl because the fat is not digested ("oil is lighter than water"). However, thousands of people do perfectly well without their gallbladders. Most patients start with a low fat diet, and gradually increase to a normal proportion of fat over 2-3 months.

Occasionally, a patient has more than one cause for upper abdominal pain. If after an adequate recovery time (4-6 weeks), your symptoms continue or recur, our office should be notified.

Disclaimer: Your child's condition is unique. The information contained on this web site is not intended to substitute for advice from a doctor or nurse. If you are unsure about any aspect of your patient's care, please contact us at 303-839-6001, or talk to your pediatrician.