



Cholelithiasis (Gallstones)

Gallstones currently are being recognized in children with increased frequency. Whether this increase in diagnosis is related to an increase in frequency of the disease or an increase in recognition because of the widespread use of ultrasound for abdominal complaints is unclear. The incidence currently is reported to be 0.15% to 0.22% in children. In comparison, gallstones are found in approximately 10% of adults.

NONHEMOLYTIC CHOLELITHIASIS (Gallstones not due to breakdown of blood cells)

The gallstones in patients with nonhemolytic disease (diseases not caused by blood cell breakdown) are usually made of cholesterol. These stones result when the bile cannot dissolve all of the cholesterol and some of the cholesterol solidifies into a stone. Although cholesterol stones are often typically seen in adults as they get older, in obese patients, and in patients using estrogens or who are pregnant, these stones also can be seen in older children and adolescents.

Despite the above-described risk factors, no specific cause can be found in most patients with nonhemolytic gallstones. Although boys and girls usually are affected equally by gallstones in infancy and early childhood, gallstones are more common in girls in adolescents. This increased number of cases in older girls probably is related to the strong hormonal influences of estrogen and progesterone.

HEMOLYTIC DISEASE (Gallstones due to breakdown of blood cells)

Gallstones caused by breakdown of blood cells are usually colored black or earthy brown. Black colored stones usually are associated with a disease causing breakdown of blood cells (hemolytic disease), such as sickle cell disease, hereditary spherocytosis, thalassemia major, pyruvate kinase deficiency, autoimmune hemolytic anemia, and other hemolytic processes. The exact cause of the development of pigment stones is unclear but may in part be due to a change in the composition of bile. Poor gallbladder emptying may also play a role. Certain types of intestine removal may also play a role because of changes in the way the body absorbs bile from the gut.

CLINICAL PRESENTATION

Most older children and adolescents with gallstones present with symptoms called biliary colic. These symptoms include abdominal pain, nausea, and vomiting. If the patient has inflammation or infection of the gallbladder, a problem called acute cholecystitis, they may have a swollen, tender gallbladder, and the pain is mostly in the right upper part of the abdomen. Younger children often have difficulty saying exactly where they hurt. Cholecystitis may be a fairly

sudden condition (acute) or the pain can be present a long time and cause frequent, recurring symptoms (chronic). These symptoms often occur with eating. The pain is often difficult to pinpoint and rarely is associated with eating fatty food as is seen often in adults. In children with chronic cholecystitis and gallstones, the physical examination is often normal. Patients with acute cholecystitis may have a fever, and right upper abdominal tenderness. If there is also jaundice the patient may also have gallstones in the main bile duct from the liver. To help diagnose the condition, certain blood tests will be checked including white blood cell count, bilirubin levels, liver function tests and pancreatic enzymes. In patients with suspected gallstones, the most accurate and useful diagnostic test is ultrasound.

TREATMENT

Surgery for removal of the gallbladder is accomplished under general anesthesia. Most patients can be admitted the morning of surgery. Occasionally, your child may need to be admitted a day or two before surgery for preoperative preparation. This can be necessary in children with sickle cell anemia who need to be transfused and given fluids before surgery.

The minimally invasive technique for removal of the gallbladder is called laparoscopic cholecystectomy. This means that several small incisions (1/4 – 1/2 inch) are used to place a telescope and other small instruments into the abdomen. This is done instead of a large incision in the right upper abdomen which was traditionally done prior to the development of laparoscopic techniques. The advantages of the laparoscopic technique are a shorter hospitalization, diminished pain, better cosmetic result and earlier return to full physical activity. Rarely, the gallbladder anatomy is such that the procedure needs to be converted to an open operation. This happens when the surgeon does not feel it is safe to do the operation with laparoscopy. This can happen when the gallbladder anatomy is not routine, when there are bleeding problems, or when there is so much inflammation in the gallbladder that it is hard to identify the correct anatomy.

Complications from the laparoscopic cholecystectomy are infrequent. They include infection, bleeding, injury to the intestine and bile duct.

Your child generally will be discharged home on the first day after surgery. Most children can return to school within a week after surgery and are ready for all physical activities within two weeks.