

△ GENERAL INFORMATION

The liver makes bile that is the color and consistency of thin motor oil. It leaves the liver through the bile ducts on its way to the intestine. Along the way, some of it is stored in the gallbladder that is located under the liver, where it is concentrated and becomes as thick as diesel oil. Shortly after a meal, the gallbladder squeezes down to get an extra amount of concentrated bile into the intestine, where it helps digest fats and other foods we eat.

Sometimes, stones form in the gallbladder. A stone starts off as a tiny particle. There may be only one stone or many of them. They grow in size, usually to that of a pea, but often get much larger.

COMMON SIGNS AND SYMPTOMS

The symptoms produced by gallstones depends on their location (Fig. 1):

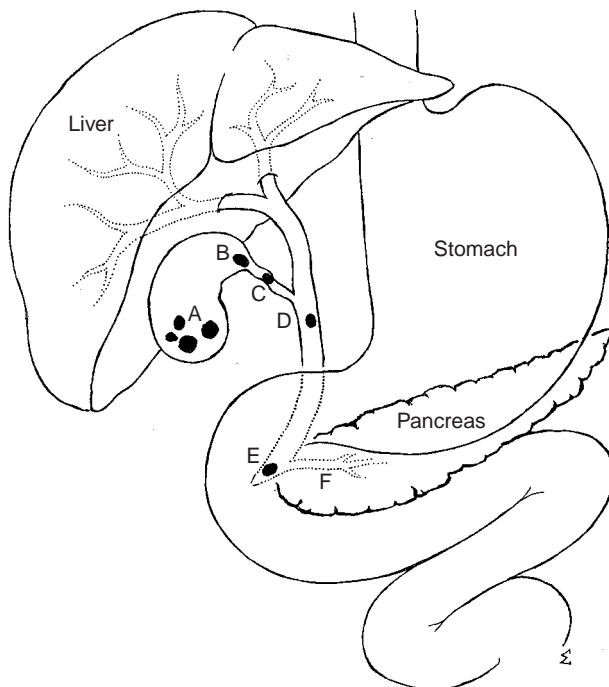


Figure 1.

- **Stones in the Gallbladder.** The stones may be in the gallbladder only (position A). This is called *cholelithiasis*. These stones may not produce any symptoms or may cause indigestion, especially after eating. If a stone gets stuck in the opening of the gallbladder and plugs it (position B), a sharp, severe pain in the right side of the upper abdomen is produced as the gallbladder squeezes to get the bile out. This is a gallbladder colic. If the stone remains stuck long enough, the gallbladder becomes infected, resulting in *acute cholecystitis*. Often, the stones fall back into the gallbladder, relieving the blockage, the

pain, and the infection. This can happen again and again, producing what is called *chronic cholecystitis*.

- **Stone in the Cystic Duct.** Sometimes the stone gets stuck in the small duct (the *cystic duct*) that carries the bile from the gallbladder to the main channel (the *common duct*) (position C). The stone cannot go forward or backward. In such an instance, the attack will not let up and requires early treatment.
- **Stone in the Common Bile Duct.** Sometimes the stone is small enough to pass out of the gallbladder and into the *common bile duct* (position D). If such a stone does not interfere with the flow of bile, it may just sit there and cause little trouble. Often, however, it will drift downward and can plug the common duct (position E). This will produce pain because all of the bile ducts are blocked and stretched; the bile cannot come out, so it backs up into the tissues of the body causing the skin to become yellow (called *jaundice*). Such patients often get shaking chills and high fever, a condition that is called *cholangitis*. Cholangitis is a serious problem that requires immediate attention.
- **Pancreas Duct Obstruction.** In some persons, the duct that drains the pancreas juices (they also help digest foods we eat) connects to the common bile duct and from there pancreas and bile juices empty into the intestine. In such a patient, a stone in position E blocks the pancreas juices, forcing them back into the pancreas gland itself, causing considerable inflammation (called *acute pancreatitis*). This is a most serious problem.

DIAGNOSIS

- Usually, the diagnosis can be made by taking a detailed history, doing a thorough physical examination, and considering the laboratory reports.
- There is an examination of the blood with particular attention to the function of the liver and pancreas. In addition, there is an examination of the urine, heart (EKG), and lungs (chest x-ray).
- Gallbladder scan: A special dye is injected into the vein. It circulates in the blood stream and leaves the body through the liver, bile ducts, and gallbladder. X-ray pictures are taken to see if the dye is in these locations. If the gallbladder is acutely infected, it will not take up the dye, helping establish the diagnosis of an acute problem there.
- Ultrasound: Harmless sound waves are aimed at the area of the gallbladder. The sound waves bouncing back (the echoes) from this area are seen as a picture on a screen. Ultrasound is a painless and convenient way to examine the gallbladder to see if there are any stones in it.

○ TREATMENT

- A person with gallstones that produce symptoms needs to have the problem corrected. The best treatment for a diseased symptom-producing

gallbladder is to remove it. This can be done by one of two techniques:

- **Open:** An incision is made in the abdomen over the gallbladder, and the gallbladder is removed.
- **Laparoscopic:** This is done with instruments (called *laparoscopes*) that are as thick as the tip of your little finger. They have lenses and a built-in light as well as the capability to perform many functions necessary to operate on an organ. Three

or four tiny abdominal incisions are made, the laparoscopes are inserted into the abdomen, and the gallbladder is removed.

Both of these operations, when properly selected and performed, have very low risk.

How all of this applies to you will be discussed with you in great detail before anything is recommended, planned, or done.