SUMMARY:

Gallstones are considered to be one of the most health problems all over the world.
The incidence varies among racial and national groups. In the United States, the incidence is higher than in Oriental and African countries, about the same in Europe.

Gallstones are classified chemically into cholesterol and pigment stones.
Cholesterol stones account for 80 % of stones. However, only about 10 % of these are virtually pure cholesterol monohydrate. Most are of mixed composition and contain more than 70 % cholesterol plus calcium salts, bile acids, bile pigments, fatty acids, proteins and phospholipids.
Pigment gallstones, which account for 20 % of stones, are composed of calcium bilirubinate mainly and less than 10 % of cholesterol.

A genetic predisposition to cholesterol gallstones has been recognized, but the mode of transmission remains unknown.

The incidence of cholesterol stones is almost three times greater in women than in men and increases with age.

Gallstones are definitely associated with obesity, the incidence is doubled in persons who take estrogens, oral contraceptives or clofibrate, as these agents increase the biliary secretion of cholesterol.

Patients who have had resection of ileum or any ileal disease, probably as a result of impaired absorption of bile acids.

Pigment stones occur in association with hemolysis, chronic liver disease, biliary infection and obstruction of the bile ducts.

Cholesterol stones are formed in three stages:

Stage 1: The chemical stage occurs when bile is saturated, but doesn't yet contain crystals of cholesterol. Saturation of bile is a prerequisite but not itself sufficient to cause the formation of gallstones.

Stage 2: The physical stage: bile is saturated and contains cholesterol crystals, there is a nucleating factor in the bile of patients with gallstones.

Stage 3: The growth stage: macroscopic stones are evident on ultrasonogram, substances, such as mucoproteins, probably trap microcrystals of cholesterol to form the stones.

In pigment stones, the enzyme betaglucuronidase is thought to be involved in their formation, this enzyme deconjugates conjugated bilirubin to form free bilirubin, an insoluble pigment which combines with calcium to form calcium bilirubinate.

Many complications are encountered due to the presence of stones as acute and chronic cholecystitis, carcinoma of the gall-bladder, perforation and gallstone ileus are considered to be the major complications in biliary surgery.