

Prevalence of Gallbladder Stones in Patients of Upper Abdominal Pain

RUBINA ANWAAR

ABSTRACT

Aim of this study is to see what is the prevalence of gallbladder stones in patients presenting with upper abdominal pain? Thirty patients with upper abdominal pain coming to ZMH were selected. On ultrasound examination 25 had healthy gallbladder 3 had thick walled gallbladder and 2 were found to have gallbladder stones. Ultrasound is extremely valuable tool for evaluation of gallbladder disease for several reasons. Clinically, the nature of the gallbladder allows it to be well visualized by ultrasound and ultrasound has many benefits and few complications associated with its use¹. Ultrasound is the initial imaging modality of choice for the evaluation of suspected acute gallbladder disorders, and is often sufficient for correct diagnosis². Ultrasound examination of gallbladder is considered to be reliable, both in morphological and functional evaluation of gallbladder³.

Key words: Gallbladder stones, upper abdominal pain

INTRODUCTION

Gallstones are a collection of one or more stones in the gallbladder, which is the hollow organ under the liver that stores bile. When the gallstones are in the gallbladder, the condition is called *cholelithiasis*; when they are in the bile ducts the condition is called *choledocolithiasis*. Gallstones are hard, pebble-like deposits that form inside the gallbladder. Gallstones may be as small as a grain of sand or as large as a golf ball.

The cause of gallstones varies. Definite cause unknown. Possible causes are as follows:

- Alterations in bile composition, such as increased concentration of cholesterol or decrease in concentration of phospholipids or bile acids;
- Failure of gallbladder to empty adequately;
- Infection;
- Hemolytic disorders such as sickle cell anemia.
- There are two main types of gallstones:
- Stones made out of cholesterol. Gallstones made out of cholesterol are by far the most common type. Cholesterol gallstones have nothing to do with the cholesterol levels in the blood.
- Stones made from too much bilirubin in the bile. Bile is a liquid made in the liver that helps the body digest fats. Bile is made up of water, cholesterol, bile salts, and other chemicals, such as bilirubin. Such stones are called pigment stones. Stones in the gallbladder may cause obstruction and the accompanying acute attack. The patient might develop a chronic, low-level inflammation which leads to a chronic

- cholecystitis, where the gallbladder is fibrotic and calcified⁴.

Causes of Upper abdominal pain: The following medical conditions are some of the possible causes of Upper abdominal pain other than gallbladder stones.

- Esophagitis
- Esophageal spasm
- Gastritis
- Epigastric hernia
- Liver abscess of left lobe
- Pyloric stenosis
- Bleeding peptic ulcer
- Pancreatitis
- Hiatus hernia
- Zenker's degeneration
- Dyspepsia
- GERD
- Lactase deficiency
- Pancreatic cancer
- Volvulus
- Gastric cancer
- Indigestion
- Parasitic infection
- Pneumonia
- Myocardial infarction
- Referred cardiac pain
- Splenic infarct

Gall stones are common but often do not give rise to symptoms. Pain arising from the gall bladder may be typical of biliary colic, but a wide variety of atypical presentations can make the diagnosis challenging⁵. Pancreatitis is sometimes difficult to differentiate from acute cholecystitis, but a correct diagnosis is critical, because treatment is very

Department of Anatomy, Continental Medical College, Lahore.
Correspondence to Dr. Rubina Anwaar, Associate Professor
Email" rubinaanwaar@hotmail.com Cell:0333-4243435

different. About 40% of pancreatitis cases are associated with gallstones⁶. Ultrasound of the Abdomen is a simple, rapid, and noninvasive imaging technique. It is the diagnostic method most frequently used to detect gallstones and is the method of choice for detecting acute cholecystitis also. During the procedure, the doctor can check the liver, bile ducts, and pancreas, and quickly scan the gallbladder wall for thickening (characteristic of cholecystitis)⁷.

Subjects and procedure: Thirty patients with complaints of upper abdominal pain coming to Zainab Memorial Hospital were selected. The patients were instructed to come for sonogram after 8 hrs. Of fast and prohibition of fatty food 24 hrs before scan. Gallbladder size was measured and noted. Gallbladder wall thickness was also noted.

RESULTS

The average width of gallbladder of 30 patients after 8 hrs fast was 3.3 cm. Out of 30 patients of upper abdominal pain examined under real time ultrasound, 83.30% had normal gallbladder. 10% patients had thick gallbladder wall (more than 2mm). 6.7% patients had gallbladder stones.

DISCUSSION

Challenge in diagnosing gallstones is to verify that abdominal pain is caused by stones and not by some other condition. Ultrasound or other imaging techniques can usually detect gallstones. Nevertheless, because gallstones are common and most cause no symptoms, simply finding stones do not necessarily explain a patient's pain, which may be caused by any number of ailments⁸.

In The patients with abdominal pain, causes other than gallstones are usually responsible if the pain lasts less than 15 minutes, frequently comes and goes, or is not severe enough to limit activities⁹.

Gall stones form when the solubility of bilirubin or cholesterol is exceeded. Pigment stones arise in the gall bladder when there has been increased bilirubin production from breakdown of haemoglobin. Mixed stones contain both bilirubin and cholesterol and may be calcified. Precipitated bilirubin may form a nidus for subsequent cholesterol deposition.

Secondary pigment stones form in the bile duct as a consequence of obstruction or by accumulation around a small primary stone. These stones are associated with bacterial infection and arise by bacterial deconjugation of the bilirubin-glucuronide complex.

Cholesterol stones arise because of an imbalance in the mechanisms maintaining cholesterol in solution. Cholesterol is a hydrophobic molecule

and is dispersed in micelles by the combined action of bile salts and lecithin. The risk of precipitation is directly related to cholesterol concentration and inversely to the concentrations of bile salts and lecithin, giving rise to a triangular coordinate. Increased cholesterol excretion is largely of dietary origin but may also result from changes in steroid metabolism associated with pregnancy, oral contraceptives, and obesity.

Bile salts are retrieved from the gut by the terminal ileum, and this enterohepatic circulation is essential for maintenance of the bile salt pool. The endogenous synthesis of bile salt is rate limited at a level much lower than its normal daily excretion by the liver. Many gastrointestinal diseases affect bile salt metabolism in particular, Crohn's disease and surgical resection of the terminal ileum predispose people to gall stones.

Impaired gallbladder emptying predisposes to gall stones by increasing the time that material stays in the gall bladder, allowing excessive crystal growth. In addition, the dilating and flushing effect of fresh hepatic bile is lost when the gall bladder contracts poorly. Gall bladder perforation (GBP) is a rare but life-threatening complication. The early diagnosis and treatment of GBP are crucial to decrease patient morbidity and mortality. Approaches to this complication will vary based on the condition of an individual patient, the evaluation of the treating surgeon or physician, and the facilities' capability. Perforation can happen at the neck from pressure necrosis due to the impacted calculus, or at the fundus. It can result in a local abscess, or perforation into the general peritoneal cavity. If the bile is infected, diffuse peritonitis may occur readily and rapidly and may result in death¹⁰.

REFERENCES

1. Shah K, Wolfe RE. hepatobiliary ultrasound. *Emerg Med Clin North Am.* 2004 Aug; 22(3):661-73, viii.
2. Bennett GL, Balthazar EJ. Ultrasound and CT evaluation of emergent gallbladder pathology. *Radiol Clin North Am.* 2003 Nov; 41(6): 1203-16.
3. Romano M, Batticani S, Pistone Gallbladder, malaguarnera M, ultrasound evaluation centenarians' gallbladder, : *Eur J Intern Med*, 2004 Feb; 15(1) : 45-49.
4. Shea JA, Berlin JA, Escarce JJ, *et al.* (November 1994). "Revised estimates of diagnostic test sensitivity and specificity in suspected biliary tract disease". *Arch. Intern. Med.* 154 (22): 2573-81. doi: 10.1001/archinte.154.22.2573. PMID 7979854.
5. *British Medical Journal*, Nov 17, 2001 by C D Johnson
6. Dray X, Joy F, Reijasse D, *et al.* Incidence, risk factors, and complications of cholelithiasis in patients with home parenteral nutrition. *J Am Coll Surg.* 2007;204(1):13-21.

7. Konstantinidis IT, Deshpande V, Genevay M, Berger D, Fernandez-del Castillo C, Tanabe KK, et al. Trends in presentation and survival for gallbladder cancer during a period of more than four decades. *Arch Surg.* 2009;144(5):441-447.
8. Konstantinidis IT, Deshpande V, Genevay M, Berger D, Fernandez-del Castillo C, Tanabe KK, et al. Trends in presentation and survival for gallbladder cancer during a period of more than four decades. *Arch Surg.* 2009; 144(5):441-447.
9. Liu B, Beral V, Balkwill A, Green J, Sweetland S, Reeves G, et al. Gallbladder disease and use of transdermal versus oral hormone replacement therapy in postmenopausal women. *BMJ.* 2008;337:a386. Doi: 10.1136/bmj.a386.
10. Derici H, Kara C, Bozdogan AD, Nazli O, Tansug T, Akca E (2006). "Diagnosis and treatment of gallbladder perforation". *World J. Gastroenterol.* **12** (48): 7832–6. PMID 17203529.