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Utilization of Ultrasound in Diagnosis Common Bile Duct (CBD) stone

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Abstract: A gallstone is a crystalline concretion formed within the gallbladder by accretion of bilecomponents. 65-year was presented with right upper quadrant (RUQ), epigastric pain, vomiting and loss of appetite. The patients look pale and jaundiced. Ultrasound showed dilated CBD with stone, distended GB and dilated intrahepatic bile ducts.
Keywords: CBD, Cholecystitis, US.

INTRODUCTION

1-4% of asymptomatic patients in the adult Western world develop symptoms annually. The most common presentations are biliary colic (56%) and acute cholecystitis (36%).Other presentations and complications can occur (see below) [1]. 10-15% of people in the adult Western world develop gallstones. UK Hospital Episode Statistics' data for the years 2003-2005 showed that 25,743 patients were admitted as an emergency with acute gallbladder (GB) disease during that period [2]. A gallstone (also called cholelithiasis) is a crystalline concretion formed within the gallbladder by accretion of bilecomponents. These calculi are formed in the gallbladder but may distally pass into other parts of the biliary tract such as the cystic duct, common bile duct, pancreatic duct or the ampulla of Vater [3]. Common bile duct (CBD) stones are identified in 10 to 15 percent of patients undergoing surgery for symptomatic cholelithiasis. CBD stones require extraction to avoid complications, such as acute suppurative cholangitis, obstructive jaundice, hepatic abscess, and acute pancreatitis. Traditionally, CBD stones were diagnosed with intraoperative cholangiography and treated with open CBD exploration. Advances in preoperative imaging technology such as magnetic resonance cholangiopancreatography (MRCP) and endoscopic ultrasound as well as the development of endoscopic retrograde cholangiopancreatography (ERCP), and minimally invasive surgical techniques have allowed for less invasive and more accurate methods of identifying and treating CBD stones [4]. Diagnostic ultrasound imaging provides; [1] a dynamic means of evaluating abdominal soft tissue structures in cross section and [2] provides information concerning the size, shape, and echo pattern, position of the organs and other structure [14]. U/S has replaced Oral cholecystography OCG for the diagnosis of gallstones and in many centers the oral contrast agents are no longer available. When extracorporeal shockwave lithotripsy was popular OCG was used to prove cystic duct patency, which was necessary for the passage of stone fragments [15].

CASE REPORT

We report a case of a 65-year of Sudan origin who was seen in the ultrasound department. The patient was complaining of with RUQ, epigastric pain, vomiting and loss of appetite. The patients look pale and jaundiced. A careful ultrasound assessment show dilated CBD with stone, distended GB and dilated intra hepatic bile ducts(Fig 1 and Fig 2 and Fig 3- Arrows).

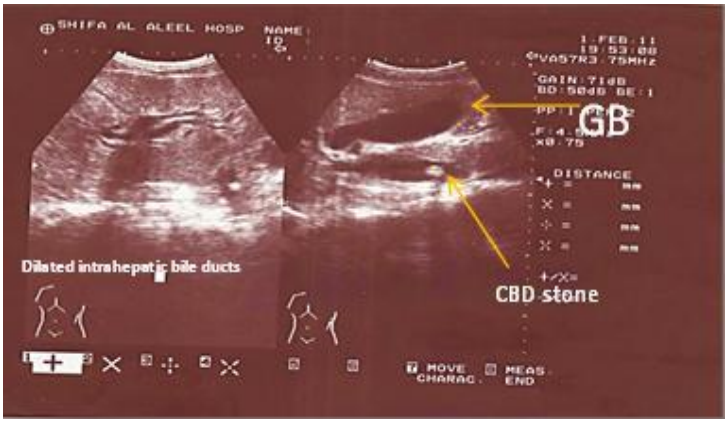

Fig-1: TAS showing Dilated intra hepatic bile ducts, GB and CBD stone

Fig-2: TAS showing Dilated intra hepatic bile ducts

Fig-3: TAS showing Dilated intrahepatic bile ducts and GB

DISCUSSION

Cholecystitis, this follows impaction of a stone in the cystic duct, which may cause continuous epigastric or RUQ pain, vomiting, fever, local peritonism, or a GB mass. The main difference from biliary colic is the inflammatory component (local peritonism, fever, raised white cell count (WCC)).If the stone moves to the CBD, jaundice may occur. Murphy's sign: lay two fingers over the RUQ. Ask the patient to breathe in. This causes pain and arrest of inspiration as the inflamed GB impinges on your fingers. The sign is only positive if a similar man oeuvre in the left upper quadrant does not cause pain. Repeated attacks of acute cholecystitis lead to chronic cholecystitis, in which the walls of the GB become thickened and scarred and the GB becomes shriveled [5]. Pancreatitis, passage of the gallstone into the bowel causes a temporary blockage of the biliopancreatic duct, leading to a premature release of pancreatic enzymes. Symptoms include persistent epigastric pain radiating to the back which is relieved by leaning forwards and profuse vomiting. One study found that a serum total bilirubin level of or greater than 68.4 µmol/L on hospital Day 2 predicted persisting CBD stones with enough specificity to serve as a practical guideline for ERCP while minimizing unnecessary procedures [6]. Gallstone ileus is caused by

occlusion of the intestinal lumen as a result of one or more gallstones. It is a rare complication of gallstones that occurs in 1-4% of all cases of bowel obstruction. The mortality is 12-27% [7]. The management of gallstones, biliary colic and cholecystitis: non-surgicalbiliary colic and acute cholecystitis - these are conditions which will usually respond to an opioid such as morphine or pethidine given parenterally and/or diclofenac by suppository. These routes will overcome difficulties in absorption caused by vomiting. Pain continuing for over 24 hours or accompanied by fever usually necessitates hospital admission. It is generally considered that patients who require antibiotics should have them intravenously in hospital. There is no evidence base to support the use of oral antibiotics at home, except where the patient has been discharged from hospital after a course of intravenous antibiotics but without having had surgical removal of the stones. One study also supported current guidelines that antibiotics before elective cholecystectomy were unnecessary [8]. Surgical: Laparoscopic cholecystectomy is the preferred procedure. A Cochrane review found that there was no difference in mortality, postoperative complications, or operative time compared with open cholecystectomy. However, hospital stay was shorter and recovery time was quicker [9]. An American study subsequently found that open cholecystectomy is associated with a higher mortality burden [10]. Day case surgery has been shown by studies to be as safe and as acceptable to patients as 'overnight stay' surgery and is more cost-effective [11]. Early surgery (within seven days of the onset of symptoms) appears to be safe and shortens hospital stay [12]. One study found that it could be delivered in UK hospitals, providing emergency theatre services were efficiently managed [13,14]. Postoperative complications are rare but do occur. The most significant is injury to the bile duct which occurs at a rate of 0.2% in both open and laparoscopic surgery. Percutaneous cholecystotomy (surgical drainage of the GB) is useful for patients who are unfit for cholecystectomy.

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