

Postprandial Gall Bladder Contraction seen Under Ultrasound to Rule Out non functioning Gall Bladder in patients of Flatulent Dyspepsia

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Thirty patients with flatulent dyspepsia selected. Ultrasound examination pre and postprandial done. 26 had normal postprandial gall bladder contraction. 4 patients found to be having non functional gall bladder as it did not show postprandial contraction. They were advised to have oral cholecystography and one of these 4 patients was found to have stone impacted in neck of gall bladder.

Key words: gall bladder, ultrasound, flatulent dyspepsia

Ultrasound is the initial imaging modality of choice for the evaluation of suspected acute gallbladder disorders, and is often sufficient for correct diagnosis¹. Ultrasound is an extremely valuable tool for the evaluation of gallbladder (GB) diseases for several reasons: this disease is a common medical problem, cholecystitis can present in different ways clinically, the nature of the GB allows it to be well visualized by ultrasound, and ultrasound has many benefits and few complications associated with its use². Ultrasound (US) examination of gallbladder is considered to be reliable, both in morphological and functional evaluation of gall bladder³.

Gall Bladder: The gallbladder is a small pear-shaped organ situated directly under the liver in the right upper quadrant of the abdomen. The liver manufactures bile, which is used to help in the digestion of fatty foods. The bile is secreted from the liver cells into small bile ducts, which join together to form the common hepatic duct. The bile then goes into the gallbladder where it is stored and concentrated for later use. When we eat a fatty meal, a hormone called cholecystokinin (CCK) is secreted. It causes the gallbladder to contract and also causes relaxation of a small valve (the sphincter of Oddi) at the end of the common bile duct. This allows bile to flow into the duodenum and mix with food for digestion. Dyspepsia is commonly attributed to inadequate bile flow from the gallbladder. After the CCK effect wears off, the valve closes, the gallbladder relaxes, and the cycle is repeated. If the gallbladder is full of stones or the cystic duct, which connects the gallbladder to the common bile duct, is blocked, the gallbladder is not doing its job anyway.

Gall stones: Most gallstones are made of cholesterol, a normal component of bile which is manufactured by the liver as a building block for many important hormones and other compounds. Cholesterol is not soluble in water, so there are other compounds in the bile such as bile acids and lecithin which act as detergents to keep the cholesterol in solution. If there is an imbalance such as too much cholesterol or not enough bile acids, the cholesterol can become supersaturated, leading to formation of small crystals and eventually stones. The prevalence of cholelithiasis is 2 to 3 times higher in patients with

diabetes mellitus than in the normal population, especially in a group of patients with non-insulin-dependent diabetes mellitus (NIDDM)⁴.

Dyspepsia: Dyspepsia is a term that includes a variety of digestive problems such as stomach discomfort, bloating, belching, appetite loss, and nausea. Dyspepsia is best described as a functional disease. The concept of functional disease is particularly useful when applies to the muscular organs of the gastrointestinal tract-esophagus, stomach, small intestine, **gallbladder**, and colon. People suffering from the most severe symptoms can become disabled enough to miss their work. Frequent visits to doctors and expensive diagnostic procedures can create a financial drain. In addition, many unnecessary operations are performed in an attempt to relieve the painful symptoms. A study on gall bladder kinetics shown that the patients with functional dyspepsia, not reflex-like or ulcer-like dyspepsia the kinetic disorder responsible for symptomatology is in any way related to a disorder of kinetic activity of cholecyst⁵.

Aims and objectives:

To see postprandial gall bladder contraction under ultrasound to rule out non functioning gall bladder in patients of flatulent dyspepsia for further advice of treatment.

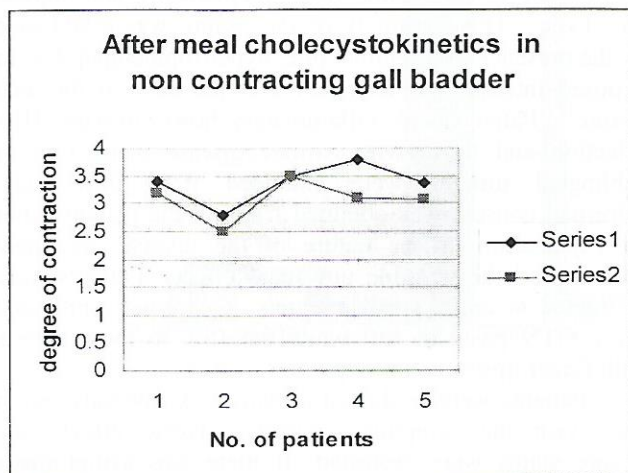
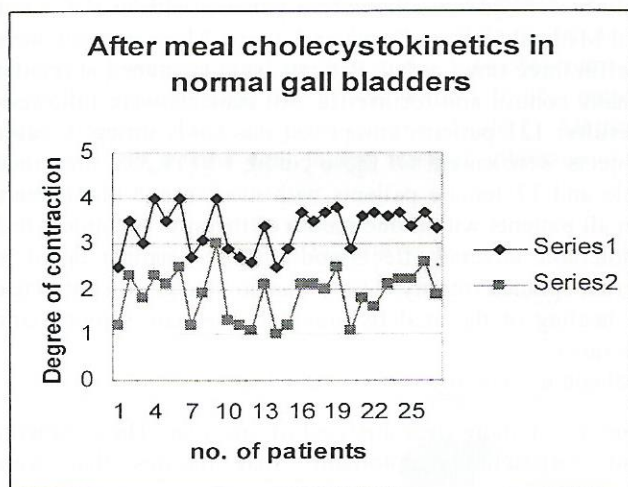
Subjects and procedure: 30 patients with complaints of flatulent dyspepsia coming to Zainab Memorial Hospital were selected. There was no history of gall stones. The 1st sonogram was taken after 8 hours fast and prohibition of fatty food 24 hours before scan. The gall bladder size measured and noted. Next day patient was asked to take one cup of milk one hour after lunch and again a cup of milk one and half hour after the 1st cup. The 2nd scan was taken one and half hour after last cup of milk. The measurement of gall bladder taken again and noted.

Results:

In normal gall bladder the contraction after meal should be at least 1.0 cm decrease in width of the cholecyst measured

on ultrasound as compared to the measurement prior to meal.

1. The average width of gall bladder of 30 patients after 8 hours fast was 3.3cm
2. The average width of gall bladder of 26 patients who had more than 1cm decrease in width post prandial, was 1.8cm
3. The average width of gall bladder of 4 patients who had less than 1cm decrease in width of gall bladder post prandial, was 3.0
4. One out of these 4 patients after cholecystography revealed small stones impacted in gall bladder neck.



- 86.66% of patients of dyspepsia had normal gall bladder
- 03.34% of patients of dyspepsia had gall bladder stones (gall stone dyspepsia)
- 10% of patients of dyspepsia had non functioning gall bladder but no stones(functional dyspepsia)

Discussion

Dyspepsia, a common condition in the community, affects quality of life and imposes costs on both the individual and the community⁶. The treatment of patients with functional

dyspepsia remains unsatisfactory⁷. In recent years surgeons have been increasingly removing gallbladders, presumably in an attempt to treat gallstones and related disorders. But the gallbladder is fundamental to your well-being. Among other functions, it stores bile, a powerful fat-emulsifying substance that the liver makes from cholesterol. A healthy gallbladder works with flawless precision, releasing bile just when it's needed to help digest food. It also absorbs nutrients and keeps your cholesterol levels in check.

The standard medical approach to dyspepsia involves looking for a treatable cause if one can be identified. Failing that, various treatments are often suggested on a trial-and-error basis, including medications that reduce stomach acid as well as those that decrease spasm in the digestive tract. These findings may be useful in differentiating functional dyspepsia from gallstone dyspepsia, patients with the latter disease may benefit from laparoscopic cholecystectomy⁸ but not of functional dyspepsia. Functional dyspepsia is considered a heterogeneous disorder with different pathophysiological mechanisms contributing to the symptom pattern⁹.

Conclusion

This study shows that in patients of dyspepsia gall bladder is usually not at fault.

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