



PRE-OPERATIVE ULTRASONOGRAPHIC AND INTRA-OPERATIVE LAPAROSCOPIC FINDINGS IN GALLSTONE DISEASE.

Surgery

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ABSTRACT

Background: Ultrasonography remains the most powerful investigation till now to detect cholelithiasis because of a high sensitivity and practically no side effects involved.

Method: This prospective study comprised of 100 patients reporting to the out-patient department of the Department of Surgery of Government Medical College, Kathua between January 2022 to May 2022. These patients were diagnosed with cholelithiasis using USG and underwent surgery for the same. The USG findings were compared to the intraoperative findings and conclusions were drawn. The informed consent for the use of their data for the study was taken. The aim of the study was to find the correlation between the ultrasonographic findings and the intra-operative finds in cholelithiasis.

Results: Ultrasound was shown having a positive predictive value of 94% for detecting cholelithiasis and the sensitivity of the USG for various characteristics was found to be 7.69%, 79.31% and 62.79% for predicting hydrops, wall thickness and acute cholecystitis respectively.

Conclusion: The study concluded that ultrasonography is one of the best investigations to detect the presence and absence of the stones, with being a fairly reliable investigation to measure the wall thickness and advanced stages of acute cholecystitis but being a poor investigation for detecting hydrops.

KEYWORDS

INTRODUCTION:

Gall stones are a common finding in adults worldwide. In India, it ranges between 3-6% and is more frequent in north India than in the south India[1]. The word cholelithiasis is derived from the Latin word chole meaning bile and lithia meaning stone and sis meaning process. First described in medical literature in 1507 by Antonio Benivenius[2]. Gallstones have been identified in Egyptian mummies dating from the eighteenth dynasty (1592-1220 BC) and have been with us ever since[3]. There is somewhat false perception that disease occurs mostly in the adults with predominance in western society[4]. Cholelithiasis has an estimated incidence of 1.39/100 person/year seen predominantly in the females [5]. USG remains the gold standard finding in diagnosing the presence/ absence of gallbladder stones but the standardisation and predictive nature of the USG is still very less. Laparoscopic cholecystectomy remains the treatment of choice for the gallstone disease and abdominal pain as one the commonest presenting symptom.

Method:

The study group comprised of 50 patients (36 females and 14 males) reporting to the out-patient department of the Department of Surgery of Government Medical College, Kathua between January 2022 to May 2022. These patients were diagnosed with cholelithiasis using USG and underwent surgery for the same. The USG findings were compared to the intraoperative findings and conclusions were drawn. Laparoscopic cholecystectomy was performed in all the patients and the extracted GB sample was sent for histology. A USG of abdomen was performed a day before the surgery for the purpose of the study. The informed consent for the use of their data for the study was taken.

RESULTS:

The study group comprised of 36 females and 14 males with ages ranging between 18-45 years and there was conversion of 4 laparoscopic cholecystectomy to open cholecystectomy 3 in males and 1 in a female. The result from the ultrasound and the intraoperative survey was compared and mainly four characters were studied which included the presence/absence of the stone, hydrops, the thickness the gall bladder wall and the presence or absence of the acute cholecystitis and the results were evaluated although the samples were also sent for histology for the confirmation, but they are beyond the scope of this study. The result of the study is given in table 1.

Table 1

No. of patients	Ultrasound	Operation
Presence of stones	50	47
Hydrops	1	13
Wall thickness >3mm	23	29
Acute Cholecystitis	27	43

The ultrasound found that all these patients were having the presence of gall bladder stones but during the intraoperative survey only 47 participants had the presence of stones while 3 were false positive which implies ultrasound having a positive predictive value of 94% in cholelithiasis.

The hydrops caused due to prolonged blockage of the cystic duct was seen in 1 patient on ultrasonography while intraoperatively 13 people were diagnosed as having hydrops. Which clearly indicates that USG is not sensitive in picking up the condition of hydrops in gallstone? The thickness of the gall bladder was measure in millimeters and there was a good correlation between the findings recorded on an ultrasound with that of the intra operative findings. 23 participants were reported to have a wall thickness of more than 3 mm on ultrasound while on operating 29 were reported with a wall thickness of more than 3 mm.

The condition of acute cholecystitis on ultrasound was recorded in 27 patients while on operating them 47 patients were reported to have such inflammation. The grading of acute cholecystitis was also performed and 28 showed initial signs of inflammation while 11 and 4 patients showed mild and moderate acute cholecystitis respectively.

The sensitivity of the USG for various characteristics was found to be 7.69%, 79.31% and 62.79% for predicting hydrops, wall thickness and acute cholecystitis respectively.

DISCUSSION:

Ultrasonography is very reliable tool for the investigation of the diseases related to the gall bladder. The reason for its popularity is not just that it is fast and economical but also since it can be repeated without any danger of side effects in a long term. Hence, an investigation with such benefits and low side effect profile is still to be found and the use of USG and the benefits time and again have been

proved by a lot of researchers in their studies [6-7]. Studies have shown that ultrasound is a very useful tool, and the sensitivity and specificity of this test depends largely on the person performing the test and hence the best reporting of the ultrasound are reported from the centers where physician and radiologists work side by side. We had prospective study design in tertiary care center where USG is done by trained and senior radiologists which minimize the effect of personal influence on the reporting. Our study like every other study reported that ultrasound have a very high positive predictive value for the gall stones and hence we can also conclude that it should continue to be used as a investigation of choice for detecting the presence of gallstones [8-9]. Although the use of ultrasound to detect hydrops and elongation of the gallbladder is less and hence USG can't be relied upon if detecting hydrops is the real cause of concern. In our study we found out that ultrasonography is reliable when it comes to measuring the wall thickness with a demonstrated sensitivity of 79.31%. Meanwhile, the detection of acute cholecystitis is at an initial stage is difficult to be picked up using USG the advanced stage of the acute cholecystitis is easily reported on the ultrasound. Although we tried to look at all the aspects of comparison between the USG and the intra operative finding the study group was not large enough to extrapolate the result over a large population hence a meta-analysis should be performed to fill this void.

CONCLUSION:

We concluded that ultrasonography is one of the best investigations to detect the presence and absence of the stones, with being a fairly reliant investigation to measure the wall thickness and advanced stages of acute cholecystitis but being a poor investigation for detecting hydrops.

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