

# Helicobacter Pylori Infection With Cholelithiasis

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## ABSTRACT

**Objective** To find out the association of *Helicobacter pylori* infection with cholelithiasis.

**Study design** Cross sectional study.

**Place & Duration of study** Dow International University Hospital Ojha Campus, Dow University of Health Sciences Karachi, from January 2016 to December 2018.

**Methodology** Patients with symptomatic gall stones were included. Ultrasound abdomen performed in all the patients to confirm the presence of gall stones. Blood sample was used to detect the *H. pylori* antibody and stool for *H. pylori* antigen to confirm the presence or absence of *H. pylori* infection.

**Results** A total 187 patients were included. There were 31 (16.5%) male and 156 (83.42%) female patients with mean age of 41.31 ± 11.47 year. *Helicobacter pylori* antibody was positive in 120 (64.17%) patients with *p* value 0.02 and stool antigen tests were positive in 65 (34.75%) patients with *p* value 0.03. *Helicobacter pylori* antibody and stool antigen, both tests were negative in 12 (6.41%) patients. Histopathology finding revealed chronic cholecystitis in 155 (82.88%) patients and chronic cholecystitis with cholesterolosis in 32 (17.11%) patients.

**Conclusion** Strong association of *Helicobacter pylori* infection was found with cholelithiasis.

**Key words** *H. pylori*, Cholelithiasis, Acid peptic disease, Cholecystectomy.

## INTRODUCTION:

Gallbladder stone is a common condition in surgical practice. It may be diagnosed as an incidental finding on ultrasound abdomen performed for other reason or in patients with symptomatic gall stone, cholecystitis or in patients with complications like, empyema gall bladder, mucocele, choledocholithiasis, cholangitis and pancreatitis.<sup>1</sup> *Helicobacter pylori* (*H. pylori*) was discovered by Marshall and Warren in 1983, who found strong association of this organism

with gastritis and peptic ulcer disease.<sup>2</sup> *Helicobacter pylori* infection is common and reported throughout the world. In developed countries it is observed in 40-50% with gallstones while 80-90% in developing regions.<sup>3</sup> Different studies were conducted to find out the correlation between *Helicobacter pylori* presence and gallbladder stones.<sup>4,5</sup>

*Helicobacter pylori* infection can cause different acid peptic diseases like chronic gastritis, gastric and duodenal ulcers,<sup>6</sup> and malignant conditions like gastric and pancreatic adenocarcinoma, lymphoma of gastric mucosa-related lymphoid tissue.<sup>7</sup> The objective of this study was to find out the association of *Helicobacter pylori* infection with cholelithiasis and save the patients from symptoms after cholecystectomy due to *Helicobacter pylori* infection.

## METHODOLOGY:

This cross sectional study was conducted at

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Dow University Hospital Ojha Campus, Dow University of Health Sciences Karachi, from January 2016 to December 2018. Patients with symptomatic gall stones with complaint of pain in upper abdomen or right hypochondrium radiating to the right shoulder with vomiting and dyspepsia, were included. Patients of cholelithiasis with choledocholithiasis and acute pancreatitis due to gallstones were excluded. Ultrasound abdomen was done to confirm the presence of gallstones. Analysis of H. pylori antibody in the blood and H. pylori antigen from stool was done to confirm the presence or absence of H. pylori infection. All patients underwent laparoscopic cholecystectomy.

All procedures were attempted on day care basis. In difficult cases conversion to open cholecystectomy was done. Treatment for H. pylori infection was given to patients with positive H. pylori stool antigen. Amoxicillin, clarithromycin along with protein pump inhibitors (PPI) were advised for a period of two weeks and continuation with PPI only for a period of four weeks more.

Data was collected on a form designed for this study. SPSS statistical package for social sciences version 21.0 was used to analyze the data. Numerical variable Mean + standard deviation (SD) and range were calculated. Frequency and percentages were calculated for categorical variable. For P value the level of significance was considered 0.05 which statistical test ????? was performed.

## RESULTS:

A total 187 patients were included. There were 31(16.5%) male and 156 (83.42%) female patients. Age varied from 20 year to 60 year with mean age of 41.31+11.47 year. Many (n=81 - 43.31%) patients presented with right upper quadrant pain (RHC). In 106 (56.68%) patients pain was in RHC and epigastrium while pain radiated to back and shoulder in 145 (77.54%) cases. Nausea, vomiting and GERD were noted in 80 (42.78%), 48 (25.66%) and 76 (40.64%) patients respectively.

Co-morbid condition the hypertension and diabetes mellitus, were observed in 31(16.5%) patients each. Ultrasound showed single stone in 58 (31%) patients and multiple stones in 129 (68.9%) cases. Mean hemoglobin was 12.62+1.44 g/dL, TLC 9.08+2.72x10<sup>9</sup>/L and alkaline phosphatase 91.97+49.24 IU/L. Helicobacter pylori antibody was positive in 120 (64.17%) patients with p value 0.02 and Stool antigen tests were positive in 65 (34.75%) patients with p value 0.03. Stool antigen tests were both negative in 12 (6.41%) patients. Laparoscopic cholecystectomy performed in 177 (94.65%) patients and ten patients 5.34% were converted to open cholecystectomy (table I). Histopathology finding revealed chronic cholecystitis in 155(82.88%) patients and chronic cholecystitis with cholesterosis in 32 (17.11%) patients.

## DISCUSSION:

Bacterial infection is considered an important factor

**Table I: Frequency of H Pylori Infection With Cholelithiasis**

Variable	Number (n)	Percentage (%)
<b>Gender</b>		
Male	31	16.5
Female	156	83.42
<b>Helicobacter pylori Test</b>		
Helicobacter pylori Antibody - Present	110	58.8
Helicobacter pylori Stool antigen – Present	65	34.7
Helicobacter pylori Antibody - Absent Stool Antigen - Absent	12	6.4
<b>Surgical Procedure</b>		
Laparoscopic Cholecystectomy	177	94.65
Open Cholecystectomy	10	5.34
<b>Histopathology Report</b>		
Chronic Cholecystitis	155	82.8
Cholesterosis	32	17.1

in the development of cholesterol gallstone formation.<sup>8</sup> Hepatobiliary system is also affected by *Helicobacter* species as shown in different studies.<sup>9</sup> Many species of *Helicobacter* can affect the stomach, intestine, liver and biliary tree.<sup>10,11</sup> Many studies conducted using different techniques for detecting *Helicobacter pylori* infection like staining, western blot, PCR, immunohistochemistry, serology and histology.<sup>12, 13</sup>

In literature common risk factors for gallbladder include female gender and age.<sup>14</sup> Same has been reported in many studies where increased age and female gender were reported as more prone to develop the gallbladder stone.<sup>15,16</sup> Our study also reported higher frequency of gallstones in female patients with advanced age.<sup>16</sup> Furthermore the risk of gallstone increases with the presence of *Helicobacter pylori* in the bile.<sup>17</sup>

Patients of gallstones present with pain hypochondrium which is also associated with epigastric pain, that may radiate to back and right shoulder. In another study it was reported that more than 91% patients present with pain in upper abdomen.<sup>18</sup>

Several mechanisms explain the association of *H. pylori* infection with gallstones. *H. pylori* is a urea splitting organism that produce ammonia, which is the most common cause of chronic inflammation and stomach cancer.<sup>19</sup> *Helicobacter pylori* are gram-negative microaerophilic spiral bacteria, highly mobile due to multiple flagella.<sup>20</sup> Different studies showed the association of *H. pylori* and chronic cholecystitis based on different diagnostic modalities like culture of gallbladder tissues, PCR, ELISA, EIA using *H. pylori*-specific antigens or antibodies.<sup>21</sup> Stool for *H. pylori* antigen is the simple and noninvasive test used most commonly to detect the *H. pylori* antigen in our study.<sup>22</sup> A study reported the presence of *H. pylori* antigen in the stool in 40% of patients with cholelithiasis.<sup>23</sup>

#### CONCLUSIONS:

A strong association of *Helicobacter pylori* infection with cholelithiasis was noted. Treatment of *H. pylori* infection is necessary to save the patients from post cholecystectomy symptoms.

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Shahida Parveen Afridi: Conception of idea, manuscript writing.

Naveed Ali khan: Data collection and analysis

Abdul Khalique: Treatment of study subjects.

Fizzah Khalid : Data collection

Conflict of Interest:

The authors declare that they have no conflict of interest.

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