

PREVALENCE OF HELICOBACTER PYLORI GASTRITIS AMONG PATIENTS WITH SYMPTOMATIC CHOLELITHIASIS

ABSTRACT

BACKGROUND: Helicobacter pylori (H. Pylori) infection is thought to be the causative factor for gallstone disease. Though H. Pylori is the main factor behind the pathogenesis of gastric, duodenal ulcers, and gastric cancer. Its infestation of the gallbladder and causing chronic cholecystitis and cholelithiasis are still debatable.

METHODOLOGY: This was a cross-sectional descriptive study performed on 110 patients (chosen via non-probability, consecutive sampling), presented at OPD with symptomatic cholelithiasis. All the participants underwent for diagnostic endoscopy and a biopsy was taken for H.Pylori infection. Those who tested positive were treated for H.Pylori eradication therapy first and then submitted for the laparoscopic cholecystectomy and those who were negative submitted for the laparoscopic cholecystectomy. The study lasted 1 year from February 2021 to February 2022.

RESULTS: Among the subjects, 72.7% (n=80) were female, 32.5% were under 40 years old while male gender composed of 17.3% of the sample population. 3/4th of the population hailed from the rural setting. 70.1% (n=78) of the patients tested positive for H. Pylori infection on histopathology. Upon the findings of diagnostic endoscopy, severe and moderate gastritis was found to be in 25.6% and 74.4% of the patients with positive H. Pylori Infection, respectively. A significant association was found out between family history of gall stones and H. Pylori gastritis (p=0.02).

CONCLUSION: The study concluded that a high prevalence of H. Pylori infection is among patients with symptomatic cholelithiasis, which also corresponds to the endoscopic findings. The

association between the family history of gall stones and H. Pylori gastritis merits to be explore further to establish the casuality of the relationship.

KEYWORDS: H. pylori gastritis, symptomatic cholelithiasis, chronic cholecystitis, postcholecystectomy syndrome.

INTRODUCTION:

Helicobacter pylori (H. Pylori) is a gram-negative organism¹. It affects about 50% of the world's population². Almost 4.4 billion individuals suffered from H. pylori infection in 2015³. H. Pylori affects the epithelial tissue of the stomach and may lead to gastric and duodenal ulcers⁴ gastric carcinoma^{5,6} gastric malignant lymphoma of the mucosa-associated lymphoid tissue (MALT)⁷. As the incidence of cholelithiasis is increasing among the adult population approximately 76.66 % of patients with symptomatic cholelithiasis were infected with the concomitant H. pylori gastritis as well⁸. Nowadays chronic cholecystitis and cholelithiasis establish serious health problems with an excessive medical burden with a prevalence of 11% to 36%^{6,9}. H. Pylori could reach the gallbladder directly from the stomach or through the portal blood circulation. Hence, there might be a possibility of another underlying H. pylori infestation of gall bladder and pathophysiology behind the cholecystitis and gastritis^{4,9}. As H. pylori along with the gut microbiome reduce bile acid metabolism and leads to gallstone formation^{7,10}.

Patients with cholelithiasis present most commonly with abdomen pain either in the right hypochondrium or at the epigastrium followed by heartburn, dyspepsia, and bloating^{11, 12}. The endoscopy findings of most patients with cholelithiasis were in favor of moderate to severe gastritis with a significant 3/4th ratio of cholelithiasis patients with other gastroduodenal problems. Cholecystectomy in patients with cholelithiasis along with concomitant H. pylori infection having nonspecific gastrointestinal symptoms is unjustifiable as the symptoms persist even after surgery and it will be miss-labeled as a case of the post-cholecystectomy syndrome¹¹. H. Pylori eradication therapy can result in decreased severity of symptoms, especially dyspepsia, and improves the quality of life for patients with the concomitant diseases even before submitting a cholelithiasis patient for laparoscopic cholecystectomy, as the surgery alone can't

relieve the symptoms in this scenario ^{13,14}. This study was conducted with an aim to determine the prevalence of H. Pylori infection among patients presenting with symptomatic cholelithiasis at Department of Surgery at Liaquat University Of Medical & Health Sciences (LUMHS) Jamshoro.

OBJECTIVE: To determine the prevalence of H. Pylori gastritis among patients presenting with symptomatic cholelithiasis.

METHODOLOGY:

This was a cross-sectional descriptive study which was performed from February 2021 to February 2022, on 110 patients (chosen via non-probability, consecutive sampling), who presented at OPD with symptomatic cholelithiasis along with ultrasound abdomen pointing towards the stone (single/multiple) at the gallbladder without any sign of acute cholecystitis or choledocholithiasis and were asked to undergo diagnostic endoscopy and the biopsy to evaluate the presence of h.pylori gastritis. Those who came to be H. Pylori positive will be treated for 10-14 days and then submitted for surgery after resolving the gastritis symptoms and those with negative H. Pylori will be admitted to the Department of Surgery at Liaquat University of Medical & Health Sciences (LUMHS) Jamshoro and submitted for the surgery. The exclusion criteria were the use of H. pylori eradication therapy. Data were documented using a structured questionnaire, including inquiries related to sociodemographic details, and disease specifics, and observed for the incidence of h.pylori gastritis among patients with symptomatic cholelithiasis. All the maneuvers (history taking, physical examination, sampling, and data collection) were done by the principal researcher while the data was collected on a pre-designed proforma. The data was analyzed using SPSS version 22.0 Chi-square test was applied to find the association family history of gall stones & H. Pylori gastritis.

RESULTS:

Among the subjects, 72.7% (n=80) were female, 32.5% were under 40 years old while male gender composed of 17.3% of the sample population. The mean age of participants were 43.57 years (± 7.54). 3/4th of the population hailed from the rural setting. 70.1% (n=78) of the patients tested positive for H. Pylori infection on histopathology. Gastritis was present in 93% of patients (n=102). Upon the findings of diagnostic endoscopy, severe and moderate gastritis was found to be in 25.6% and 74.4% of the patients with positive H. Pylori Infection, respectively. A significant association was found out between family history of gall stones and H. Pylori gastritis (p=0.02).

Table No. 1: **Descriptive Statistics**

Variable		n (110)	%
MEAN AGE		43.57 years (± 7.54)	
GENDER	Male	30	17.3%
	Female	80	72.7%
RESIDENCE	Urban	24	11.9%
	Rural	86	78.1%
NUMBER OF GALL STONES	Single	63	57.3%
	Multiple	47	42.7%
H. PYLORI STATUS	Positive	78	70.1%
	Negative	32	29.9%
SEVERITY OF GASTRITIS	Mild	17	16.6%
	Moderate	62	60.8%
	Severe	23	22.6%

Table No. 2: **Association of Family History of Galls Stones & Severity of Gastritis with H. Pylori Infection**

VARIABLE	H. PYLORI POSITIVE (78)	H. PYLORI NEGATIVE (32)	P VALUE
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Family History of Gall Stones	Positive	51 (65.4%)	17 (53.1%)	0.02
	Negative	27 (34.6)	15 (46.9%)	0.3
Severity of Gastritis	Mild	0 (0%)	17 (100%)	0.23
	Moderate	58 (74.4%)	4 (12.5%)	0.6
	Severe	20 (25.6%)	3 (9.38%)	0.07

UNDER PEER REVIEW

DISCUSSION:

In this study, H. pylori gastritis frequency in patients with symptomatic cholelithiasis, was determined. In this study, 70.1% of the patients with symptomatic cholelithiasis had H. pylori during histopathology assessment. However, the severity of gastritis was not significantly related to H. Pylori gastritis. Family history of gallstone was also related to H. Pylori gastritis in the current study.

The study by Attaallah et al. revealed that 37% of patients with symptomatic gallstone had H. pylori infection, but this rate was much higher in our study.¹⁵ Zhang et al. reported that the incidence rates of gallstone in patients with positive helicobacter, eradicated helicobacter, and negative helicobacter status were 9.47%, 9.02% and 8.46%, respectively, showing no significant association.¹⁶ Sabbaghian et al. studied 36 patients under cholecystectomy and noted that 33.3% were positive for H. pylori in PCR¹⁷; this rate was higher in our study.

The study by Lee et al. among 58 cases under cholecystectomy found that H. pylori was positive in four cases with gallstones, six cases with biliary secretions, and five patients with positive biliary tissue.¹⁸ The reported rates were lesser than those obtained in our study. Monstein et al. reported that 55% of patients with cholesterol gallstone had a positive status for H. pylori, this rate was lesser in comparison with our finding.¹⁹ Takahashi et al. reported that the prevalence rates of gallstone in cases with negative helicobacter status, eradicated conditions, and positive cases were 3.81%, 4.37%, and 6.08%, respectively.²⁰

The study by Stathopoulos et al. showed that 20.54% of cases with gallstone had positive results for H. pylori infection in gastric biopsy samples, which was lesser than our finding.²¹ Deeba et al. studied 75 patients with gallstone symptoms, which showed that IgG was positive against H. pylori.²² Abro et al. demonstrated that H. pylori infection was observed in the biliary tissue of 55% of cases with chronic cholecystitis.²³ Fikry et al. reported a contributing rate of 63%, which is higher than our obtained results.²⁴ In sum, H. Pylori frequency in patients with symptomatic cholelithiasis is high, and there is a statistically significant association present between the

family history of gall stones and H. Pylori gastritis. However, further studies with larger sample sizes are required to corroborate our results.

CONCLUSION:

The study concluded that a high prevalence of H. Pylori infection is among patients with symptomatic cholelithiasis, which also crossponds to the endoscopic findings. The association between the family history of gall stones and H. Pylori gastritis merits to be explore further to establish the casuality of the relationship.

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