



HELICOBACTER PYLORI; TO DETERMINE THE FREQUENCY OF HELICOBACTER PYLORI IN GALLBLADDER IN PATIENT WITH GALL STONES DISEASE

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ABSTRACT... Objectives: To determine the frequency of helicobacter pylori in gallbladder in patient with gall stones disease. **Study Design:** Cross-sectional study. **Place and Duration of Study:** This study was conducted at Surgical Unit-I Civil Hospital Karachi, March 2013 to August 2013. **Methodology:** A total of 281 patients diagnosed to have gall stone on basis of clinical history of pain in right upper abdomen with fatty intolerance confirmed on ultrasound who were operated rather by laparoscopic procedure or open surgery were included in the study. Immediately following gallbladder removal, the specimen was collected in a sterile cup. The specimen was sent to Laboratory for presence of H. Pylori using GEIMSA staining and for routine histopathology. Data was collected by a resident in predesigned proforma. **Results:** A total of 281 Patients diagnosed to have gall stone. Operated most of the cases were 21 to 50 years of age with mean age was 38.41 ± 9.86 years. Out of 281 cases, 170 (60.5%) were female and 111 (39.5%) male. Seventy eight patients (27.76%) was observed obsess (BMI > 30kg/m²). Similarly duration of illness of 58.4% was below and equal to 6 months and 41.6% cases above six months. Frequency of helicobacter pylori in gallbladder of patients with gall stones disease was positive in 72(25.62%) cases. **Conclusion:** We conclude that H. pylori are also found in the biliary system, suggesting that these bacteria are of etiological importance in gallstone formation. Early detection of helicobacter pylori and its eradication can prevent development of gall stones.

Key words: Gallstones, Gallbladder, Helicobacter Pylori.

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INTRODUCTION

Gallstones are one of the commonest surgical problem of gastrointestinal system and have significant burden on health care worldwide.¹ It has a significant impact on health care in the Pakistan. Study conducted by Channa NA et al showed that the incidence of gall stone disease in Hyderabad and adjoining areas is 11.14%.² The stone formation depends on genetic factors, increasing age, female gender, metabolic factors, epidemiological, physical, chemical, nutritional, immunological, pregnancy and infectious factors.³⁻⁵

The gallbladder infection by various pathogens has been studied as a cause of stone formation especially in areas where gallstones are more prevalent.⁶ Recent work demonstrated the presence of Helicobacter pylori in the bile,

contributing to cholesterol gall stones.⁷⁻⁹ In a study, Monstein show that 27.3% cases of gall stone are positive for Helicobacter pylori and helicobacter spp was found in 32% gallstones by PCR amplification.¹⁰

A study conducted at Aga Khan University Hospital showed detection of Helicobacter pylori in gallbladder specimen of 24% of patient with gall stones disease.¹¹ Immunohistochemistry of Helicobacter pylori was positive in 22 (25%) cases compared to 5 (9%) in the control group (p=0.02).¹¹

The purpose of this study is to determine the presence of H-pylori in the gallbladder specimen removed due to gall stones in patients coming to Civil Hospital, as their living conditions, socio-economic status, sanitation, frequency

of infections are different from patients of other studies. So early detection of helicobacter pylori and its eradication can prevent development of gall stones.

MATERIAL & METHODS

This study was conducted at Surgical Unit-I Civil Hospital Karachi, March 2013 to August 2013. Patients from 20 – 60 years of age diagnosed to have gall stone on basis of clinical history of pain in right upper abdomen with fatty intolerance confirmed on ultrasound showing echogenic focus with posterior acoustic shadow (Gallstones) in the lumen of gallbladder and operated included in the study. Patients associated with Cholecystitis without gall stone, carcinoma of gall bladder and patients unfit for surgery were excluded.

RESULTS

A total of 281 Patients diagnosed to have gall stone on basis of clinical history of pain in right upper abdomen with fatty intolerance confirmed on ultrasound showing echogenic focus with posterior acoustic shadow (Gallstones) in the lumen of gallbladder were included in the study. Operated most of the cases were 21 to 50 years of age as presented in Figure-1. The average age of the patients was 38.41 ±9.86 years.

Out of 281 cases, 170 (60.5%) were female and 111 (39.5%) male. Seventy eight patients (27.76%) was observed obese (BMI > 30kg/m²). Similarly duration of illness of 58.4% was below and equal to 6 months and 41.6% cases above six months (Table-I). Frequency of helicobacter pylori in gallbladder of patients with gall stones disease was positive in 72(25.62%) cases (Table-I).

Rate of helicobacter pylori was significantly high in 21 to 30 years of age as compare to other age groups (p=0.0005). Frequency of helicobacter pylori in gallbladder was 26.5% (45/170) in female and 24.3% (27/111) in male patient (p=0.68). Rate of helicobacter pylori in gallbladder was significantly high in obese cases as compare to non-obese cases (34.6% vs. 22.2%; p=0.032). Rate of helicobacter pylori in gallbladder was not significant for duration of illness as presented in Table-II.

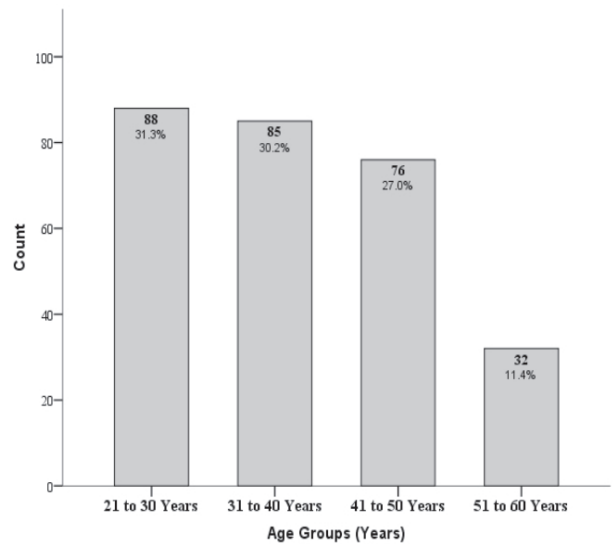


Figure-1. Age distribution of the patients (n=281)

Variable	No. Patients	Percentage
Gender		
Male	111	39.50%
Female	170	60.50%
Obesity of the Patients		
Yes	78	27.76%
No	203	72.24%
Duration of Illness		
≤ 6 months	164	58.4%
>6 months	117	41.6%
Frequency of Helicobacter Pylori		
Positive	72	25.62%
Negative	209	74.38%

Table-I. Demographic variable N=281

Variable	Helicobacter Pylori		Total	P value
	Positive	Negative		
Gender				
Female	45(26.5%)	125(73.5%)	170	0.68
Male	27(24.3%)	84(75.7%)	111	
Obesity				
Yes	27(34.6%)	51(65.4%)	78	0.032
No	45(22.2%)	158(77.8%)	203	
Duration of Illness				
≤ 6 months	44(26.8%)	120(73.2%)	164	0.58
>6 months	28(23.9%)	89(76.1%)	117	

Table-II. Frequency of helicobacter pylori in gallbladder in patient with gall stones disease by gender, obesity and duration of illness

DISCUSSION

The role of the infection in the formation of gallstones is still controversial. Recently, bacterial

infections were accused for the formation of brown gallstones.¹² Bacterial DNA from *Propionibacter* and *Enterobacter* has been detected in mixed cholesterol gallstones by using molecular biologic methods.¹³ Bacterial DNA sequences were also shown in mixed cholesterol stones in choledoc, brown gallstones but rarely shown in pure cholesterol gallstones.¹⁴

Helicobacter pylori infection has important roles in pathogenesis of peptic ulcer, chronic gastritis, and gastric cancer. It has also been demonstrated that it could be responsible for the pathogenesis of skin diseases and coronary heart diseases.¹⁵ Some microorganisms closely resembling *Helicobacter pylori* have been detected in resected gallbladder and gall stone samples.¹⁶ It has also been proposed that the presence of *Helicobacter pylori* in gall stone samples could be a risk factor for the formation of gallstones.¹⁷

In this study most of the cases were 21 to 50 years of age. The average age of the patients was 38.41 ± 9.86 years. Deeba et al study¹⁸ maximum number of patients (34.7%) was in the age group 21-30 years, followed by 29.3% patients in the age group 31-40 years.

In present study 60.5% were female and 39.5% male. Seventy eight patients (27.76%) was observed obsess (BMI > 30kg/m²). It was also observed in a study¹⁷ that the females and males constituted 88.0% and 12.0% of the study group, respectively. Most of the patients in our study were females with gall stone. It is said that a fat, fertile, female of forty is more at risk of developing cholelithiasis.

In this study frequency of *helicobacter pylori* in gallbladder in patient with gall stones disease was observed positive in 72(25.62%) cases. Similar result is also reported in a study conducted at Aga Khan University Hospital showed detection of *Helicobacter pylori* in gallbladder specimen of 24% of patient with gall stones disease.¹¹ Immuno histochemistry of *Helicobacter pylori* was positive in 22 (25%) cases compared to 5 (9%) in the control group ($p=0.02$).

In Abayli et al study⁶ *helicobacter* spp was found in 7 gallstones by PCR amplification. identified in three different histopathologic methods. Rate of *helicobacter pylori* was significantly high in 21 to 30 years of age as compare to other age groups ($p=0.0005$) in this study. Most of these employees have seen the increase in positive for the *H. pylori* IgG antibody.^{19,20} However, Deeba et al¹⁸ says among patients, common age group was 21-30 years for gallstones and the same was reflected in the current study.

There is always a false-negative or -positive result of any method. Use of conventional Warthin-Starry, hematoxylineosin, Giemsa staining and additional PCR technique with identification of *H. pylori* in gallstones and/or gallbladder tissue by microbiological cultures, more sensitive results could be achieved.

Previous studies have suggested that bacterium may have an important role in the formation of pigmented gallstones.¹³ Because bacterial b-glucuronidase, phospholipases, and bile acid hydrolyzes catalyze biliary lipid hydrolysis, yielding calcium-sensitive anions and calcium salt precipitates, such precipitates are niduses for and constitutes of brown pigmented gallstones.²¹ In fact, *Propionibacterium acnes* were suggested for having a role in the formation of gallstones.¹³

On the contrary, it is considered that the formation of gallstones of pure cholesterol depends to a large extent on the saturation and solubility of cholesterol.²² In recent times, Swidsinski et al¹³ reported that DNA homology to bacterial rRNA in cholesterol stone in gallbladder. Some international studies observation of bile-resistant *Helicobacter* spp. in bile samples and gallbladder mucosa.^{23,24,25}

CONCLUSION

H. pylori are also found in the biliary system, suggesting that these bacteria may be etiological importance in gallstone formation. Early detection of *helicobacter pylori* and its eradication can prevent development of gall stones.




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*The improve is to change;
 to be perfect is to change often.*
 – Winston Churchill –”

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Zahoor Hussain	Conception and design, Statistical expertise, Critical revision of the article for important intellectual content.	 
2	Zulfiqar Ali Shar	Data collection Critical revision of the article for important intellectual content.	
3	Abdul Malik Sangri	Drafting of the article.	