

# Prevalence of Helicobacter Pylori in Non Ulcer Dyspepsia

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## ABSTRACT

**Objective:** To study prevalence of H. pylori in patients suffering from non ulcer dyspepsia by doing serology, rapid urease test and histopathology of gastric biopsy.

**Material & methods:** Fifty patients of either sex presenting with ulcer like symptoms but no evidence of peptic ulcer disease on gastroscopy underwent rapid urease test, serology test and histopathology of gastric biopsy for H. Pylori

**Results:** H. Pylori was detected on histopathology of gastric biopsy in 33 patients (66%). 95% CI was 51.14% to 78.41%. The serology test was positive in 36 patients (72%). 95%CI was 50.30% to 76.31%. The rapid urease test was positive in 35 patients (70%).95% confidence interval was 55.21% to 81.71%.

**Conclusion:** Serology test and rapid urease test, for H. Pylori may provide good diagnostic yield in patients suffering from non ulcer dyspepsia in our population

**Key words:** H. Pylori, Non Ulcer Dyspepsia, Diagnosis

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## INTRODUCTION

Since its characterization by Marshall & Warren in 1983, Helicobacter pylori has been found to have established role in peptic ulcer disease, gastritis and gastric carcinoma. The exact role of H. Pylori in non ulcer dyspepsia remains speculative<sup>1</sup>. But it has been related to non ulcer dyspepsia and widely published data suggests that H. Pylori is etiologically linked to non ulcer dyspepsia<sup>2,3</sup>.

To diagnose H. Pylori infection, invasive and non invasive tests are available<sup>4,5</sup>. In this study serology, rapid urease test and histopathological methods are used as diagnostic tools.

This study will help to understand prevalence of H. Pylori in our dyspeptic patients & if found high, will endorse the need to investigate dyspeptic patients. It will also be useful to assess the efficacy of various tests used for diagnosis.

## MATERIAL METHODS

### Inclusion criteria

1. Fifty patients of either sex presenting in out patient department Jinnah Hospital Lahore, were included in study. They had symptoms of persistent or recurrent upper abdominal pain or discomfort, indigestion, early satiety, heartburn, regurgitation, water brash, belching, nausea and vomiting.

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2. These patients underwent physical examination and investigation i.e. blood CE, liver function tests, ECG, urea creatinine, S/amylase, ultrasound of abdomen. Only those patients were included who had normal above mentioned tests.
3. Patients with no evidence of peptic ulcer disease on upper GI endoscopy.

### Exclusion criteria

1. Patients with history of chronic liver disease, upper GI bleed, hepatic encephalopathy, pancreatic disease, gall bladder disease, or serious concurrent illness were excluded from the study.
2. Patients with history of intake of NSAIDs, theophyllins erythromycin.
3. Patients with history of taking anti- H.Pylori therapy in last one month before presenting to out patient department were excluded from the study. Patients who fulfilled the above mentioned criteria were subjected to serology, rapid urease test and histopathology of the gastric biopsy, as explained below:

**a) Serology:** Serological test was performed by using commercially available de best one step H. Pylori test disk. 2 cc blood of patient was centrifuged to get the serum, and 2-3 drops of sample were dropped into sample well of the kit. The results were interpreted after 10 minutes. As the test began to work, purple colour was seen appearing across the result window. The test was declared positive if two colour bands appeared within the result window. The test was declared negative if only one colour band appeared in the result window. The test was declared invalid if no purple colour band appeared in the result window.

**b) Histopathology of gastric biopsy:** For taking gastric biopsy, patients were subjected to gastroscopy. The procedure was performed with help of Olympus Gastroscope GIF E. Four gastric biopsies were taken from body and antrum of the stomach. Two gastric biopsies (sample no.1) were placed in formalin solution and taken to Histopathology Department, where they were stained with Hematoxylin and Eosin stains and Giemsa stains. Remaining 2 biopsies (sample no .2) ere kept for doing rapid urease tests.

#### Rapid urease test

##### Steps of procedure

1. To perform rapid urease test, a solutions was made from CHRISTENSENS UREA BROTH (OXOID), which was available in Department of Pathology, AIMC. It was yellow in its original colour.
2. The rapid urease solutions was added in test tubes and placed at 4°C, in a refrigerator in endoscopy room. Once prepared, the solution was used for five days and then fresh solution was prepared from Christenson's broth.
3. The two gastric biopsies from body and antrum (sample no.2) were added in test tube containing rapid urease solutions. Results of rapid urease test were interpreted at 2hrs and then at 24 hrs. however the final result was assessed at 24hrs. Change in colour of solution from yellow to pink or magenta colour indicated positive RUT; if there was no colour change, the RUT was declared negative.

## RESULTS

Fifty patients of either sex were included in the study. They ranged in age from 21 to 65 years. Total number of male patients was 30 (60%) and that of females was 20 (40%). (table 1).

Table 1: Age & sex distribution

Age groups	Female		Males		Total	
	=n	%age	=n	%age	=n	%age
21-30	5	10	8	16	13	26
31-40	4	8	10	20	14	28
41-50	6	12	7	14	13	26
51-60	4	8	3	6	7	14
61-70	1	2	2	4	3	6%
<b>Total</b>	<b>20</b>	<b>40</b>	<b>30</b>	<b>60</b>	<b>50</b>	<b>100</b>

**Serology results:** In 36 patients (72%) out of 50, the serological test was positive within 10 minutes of starting the test. 20 patients (40%) were males and 16 (32%) patients were females (95% CI for H. Pylori positivity by serology is 50.30% to 76.31%).(table 2)

Table 2: Serology results

Sex	H Pylori +ve		H Pylori -ve	
	n=	%age	n=	%age
Males	20	40	10	20
Females	16	32	4	8
<b>Total</b>	<b>36</b>	<b>72</b>	<b>14</b>	<b>28</b>

**Rapid Urease Test results:** Out of 50 patients, rapid urease test was positive in 35 patients (70%) at end of 24hours. Of these 35 patients, 28 patients were positive at end of first two hours, after starting the test, and further 7 patients became positive before completion of 24hrs of starting the test. 17 patients (34%) were males and 18 patients (36%) were females (95% CI fir H. Pylori positivity by RUT is 55.22% to 81.71%) (Table 3).

Table 3: Rapid Ureas Test results (R.U.T)

Sex	R.U.T Positive		R.U.T Negative	
	n=	%age	n=	%age
Males	17	34	13	26
Females	18	36	02	4
<b>Total</b>	<b>35</b>	<b>70</b>	<b>15</b>	<b>30</b>

**Histopathology results:** H. Pylori was detected on histopathology of gastric biopsy in 33 patients (66%). 19 patients (38%) were males and 14 (28%) were females (95% CI for H. Pylori positivity by histopathology is 51.14% to 78.41%).( Table 4)

Table 4: Histopathology results

Sex	R.U.T Positive		R.U.T Negative	
	n=	%age	n=	%age
Males	19	38	11	22
Females	14	28	06	12
<b>Total</b>	<b>33</b>	<b>66</b>	<b>17</b>	<b>34</b>

## DISCUSSION

H.Pylori has been shown to be associated with gastric, peptic ulcer disease, gastric carcinoma as well as other extra-gastrointestinal diseases<sup>6,7</sup>. But precise role of H .Pylori in non ulcer dyspepsia has been controversial<sup>8</sup>. Many studies have been conducted in Western countries as well as in Pakistan to establish link between H. Pylori and non ulcer dyspepsia. Results of some foreign studies suggest that there is no role of H. Pylori in non ulcer dyspepsia<sup>9,10</sup>. But other foreign studies relate H. Pylori to non ulcer dyspepsia and suggest that there is evidence that H. Pylori pylori plays an etiological role in non ulcer dyspepsia<sup>11,12</sup>.

In present study H. Pylori has been detected in 66% patients on Histopathology of gastric biopsy. 70% patients had positive rapid urease test and 72% patients showed positive serology. Results of this study are supported by studies conducted in other

regions of Pakistan. Javed Iqbal et al found that gastric biopsy in H. Pylori was positive in 80% and rapid urease test in 63% of patients suffering from dyspepsia<sup>13</sup>. Najmul Hassan Sheikh demonstrated H. Pylori in gastric biopsy specimen in 87% of patients suffering from dyspepsia<sup>14</sup>. Ghulam Sarver et al conducted a study in Balochistan and detected H. Pylori by serological method in 71% of dyspeptic patients<sup>15</sup>, which is very close to serological results (72%) in current study. K. Hameed et al in Peshawar carried out a study and showed that 74% of patients suffering from dyspepsia had H. Pylori infection (6). H. Pylori is prevalent in varying frequencies in different parts of world. There is high prevalence of H. Pylori in Pakistan and other developing countries. For example Parsad et al reported H. Pylori positivity in 71.4% cases of non ulcer dyspepsia in India<sup>17</sup>.

Review of Western literature reveals that prevalence of H. Pylori in dyspeptic patients ranges from 30.-70%. The prevalence is low in developed countries as compared to developing countries (18). This is evident in studies conducted by Gregson et al<sup>19</sup>, Rokkas<sup>20</sup>, in which H. Pylori was found to be 55% 37%, respectively in patients suffering from dyspepsia.

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