

USE OF CLO TEST IN THE DETECTION OF HEUCOBACTER PYLORI INFECTION AND ITS CORREIATION WITH HISTOLOGIC GASTRITIS

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Huma Qureshi, Waquaruddin Ahmed (PMRC Research Centre, Jinnah Postgraduate Medical Centre, Karachi.)

Sarwar J. Zuberi (PMRC Research Centre, Jinnab Postgraduate Medical Centre, Karachi.)

Javaid Kazi (Department of Pathology, Liaquat National Hospital, Karachi.)

Campylobacter pylori or campylobacter like organisms (CLO) are curved bacilli which are found on the gastric mucosa of patients suffering from gastritis^{1,2}, peptic ulceration³ and other related diseases^{4,5}. These organisms were later renamed as helicobacter pylori. The diagnosis of HP is usually made on histology, culture, urease tests and serology. Although all these tests are 60-100% sensitive and specific⁶⁻⁹ but all, except urease test, give results in 48-72 hours. The CLO test is a rapid urease test which, in 75% of the cases, turns the yellow gel into pink within 20 min of incubation¹⁰ and by 1 hour, 85% of the positive individuals would be picked up. The results are, therefore, available before the patient leaves the endoscopy room or the hospital. The gross appearance of the mucosa at endoscopy is of no value in detecting H. pylori infection¹ and the macroscopic appearance in infected persons ranges from a completely normal mucosa to ulceration. To determine the frequency of HP infection and histologic gastritis in our patients a study was done in 100 consecutive patients undergoing endoscopy for various reasons and correlate CLO positivity with gastritis and the presence of bacteria within the tissue.

PATIENTS, METHODS AND RESULTS

One hundred consecutive patients undergoing upper G.I. endoscopy for various reasons were included in the study. Patients giving a history of intake of bismuth preparation or an antibiotic in the last 7 days were excluded. Endoscopy was done after an overnight fast; 4% xylocaine was used as a topical anaesthetic and no sedation was given. Using Olympus XQ10 scope, detailed examination of the oesophagus, stomach and duodenum was made and any pathology found was noted. Two antral biopsy specimens were taken approximately 5 cms from the pylorus; first sample was picked by a disposable needle and embedded in the CLO well¹⁰ and the slide was resealed, while the second sample was placed in 10% buffered formalin for further histological workup. After each procedure, the gastroscope and the biopsy forceps were washed with tap water followed by soap water, then again tap water and, later, sterilized distilled water. Absolute alcohol was used to rinse the biopsy channel and forceps at the end of each session. Biopsy sample was stained with H&E and Giemsa stain. Histologic gastritis and the presence of helicobacter pylori in the tissue were graded from grade 0-4 as described elsewhere¹¹. Of 100 patients selected for the study, 96 were finally analyzed (4 had incomplete records). There were 74 males and 22 females, whose ages ranged from 15-75 years (maximum frequency 20-50 years). Indications for endoscopy were follow-up of duodenal ulcer 45 cases, oesophageal varices 25, epigastric pain 18, heartburn 6 and upper G.I. bleeding in 2 cases. Endoscopic diagnosis and its association with CLO positivity is shown in Table I.

TABLE I. Association of endoscopic diagnosis with CLO positivity.

Lesions	Total	CLO +VE	%
Duodenal ulcer	33	26	78
Oesophagitis/hiatus hernia	25	18	72
Normal	17	13	76
Gastritis	12	10	83
Duodenitis	5	4	80
Oesophageal varices	3	2	67
Gastric ulcer	1	1	100

VLO product information¹⁰. CLO (campylobacter like organisms) test is a sealed slide holding an agar gel which contains urea, phenol red (PH indicator), buffers and bacterios-tatic agents. Slides are stored at 2-8°C and have a shelf life of 12 months. Presence of urease enzyme produced by HP turns the yellow gel into pink colour within 5 minutes of its embedding.

Helicobacter pylori colonization was found in almost all types of lesions and even in apparently normal looking upper G.L tract where the frequency of its colonization was 76%. The correlation of histology with the presence of bacteria within the tissue and CLO positivity is shown in Table II.

TABLE II. Correlation of histology with bacteria and CLO.

Histology	Total	Bacteria		CLO	
		+VE (%)	-VE	+VE (%)	-VE
Ch. atrophic gastritis with activity	37	31 (84%)	6	29 (78%)	8
Ch. atrophic gastritis without activity	10	9 (90%)	1	8 (80%)	2
Ch. superficial gastritis with activity	19	16 (84%)	3	18 (95%)	1
Ch. superficial gastritis without activity	25	17 (68%)	8	15 (60%)	10
No significant change	3	.	3	2	1
Not available	2	.	.	.	2

A strong correlation was found between CLO positivity, histologic gastritis and the presence of bacteria in the tissue.

COMMENTS

The overall frequency of H.P. infection in our patient population was 76% with 83% positivity in gastritis, 80% in duodenitis and 78% in duodenal ulcer. Thirteen of 17 cases, who had no apparent lesion on endoscopy, were CLO positive and had histologic evidence of HP infection. These findings are similar to the reports received from other developing countries¹². A strong association of HP and antral gastritis has been noted in lower socioeconomic class, crowding, large family size, ethnic group (more in blacks) and hot and humid climate¹². All these factors strongly predispose our population to get infected with HP. The mode of transmission is unknown but the geographic and social pattern of HP

infection are consistent with faecal oral transmission. Though treatments are available not only to clear the infection but also to eradicate it, a high reinfection rate and chances of drug resistance should be kept in mind while treating patients in our country. As a very strong association of CLO positivity was found with histologic gastritis, therefore, in areas where CLO test is not available, antral biopsies could be used not only to see the histologic gastritis but also for the confirmation of bacteria within the tissue.

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Helicobacter pylori (see the image below) is a ubiquitous organism that is present in about 50% of the global population. Chronic infection with H pylori causes atrophic and even metaplastic changes in the stomach, and it has a known association with peptic ulcer disease.Â H pylori fecal antigen test. This novel rapid test is based on monoclonal antibody immunochromatography of stool samples. The test has been reported to be very specific (98%) and sensitive (94%).The results are positive in the initial stages of infection and can be used to detect eradication after treatment. Although the H pylori fecal antigen test is an interesting tool, information about the cost of the test is pending. Carbon 13 urea breath test.