

Helicobacter pylori

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It is Gram negative with S or gull-wing shapes , actively motile by tuft of polar flagella.

***H. pylori* grows in 3-6 days at 37c under microaerophilic environment. The media for primary isolation include Skirrows medium with Vancomycin , Polymyxin B and Trimethoprim , Chocolate medium with antibiotics (Vancomycin , Naladixic acid Amphotericin) and in diameter. The colonies are translucent and 1-2 mm. Culture sensitivity can be limited prior therapy and contamination with other mucosal bacteria . *H. pylori* is oxidase - positive and catalase – positive and it is a strong Urease producer.**

Pathogenesis and pathology :

***H. pylori* grows optimally at PH within 6-7 and would not be resist gastric acidity within gastric lumen. Gastric mucosa is relatively non permeable to gastric acid and has strong buffering effect. It is present deep in the mucous layer near the epithelial surface where the physiologic PH is present *H. pylori* also produce a protease that modifies gastric mucosa to reduce the ability of gastric acid to diffuse through the mucous *H.pylori* produce potent urease activity which yields ammonia and further buffering of acid. *H.pylori* is actively motile , even in mucous and is able to find its way to the epithelial surface.**

There is a strong association between the presence of *H. pylori* and duodenal ulceration . Antimicrobial therapy results in clearing h pylori infection and improvement of gastritis and duodenal ulcer . the bacteria invade the epithelial cells surface to a limited degree . Toxin and lipopolysaccharide may damage the mucous cells and the ammonia produced by urease activity may directly damage the cells also.

Clinical findings :

Acute infection can yield an upper gastrointestinal illness with nausea and pain. vomiting and fever may be present also. The acute symptoms last less than 1 week or as long as 2 weeks . once colonized the *H. pylori* infection persists for years and perhaps decades and even a lifetime . About 90% of patients with duodenal ulcer and 50-80 % of those with gastric ulcer have *H. pylori* infection. *H.pylori* also may have a role in gastric carcinoma and lymphoma.

Laboratory diagnosis :

Specimens :

Gastric biopsy specimens can be used for histologic examination or minced in sterile saline and used for culture .

Blood is collected for determination of antibodies in serum. Biopsies are used also for the detection of rapid urease test serum also.

Culture : as described above .

Serology :

The serum antibodies of *H.pylori* infection are useful in diagnosis and follow up of infection and treatment response.

Other tests :

Urea breath test :

It is dependable upon the rapid urease activity of *H. pylori* . when C¹³ or C¹⁴ labeled urea is ingested by the patient , if *h. pylori* is present ,the urease activity generates labeled CO₂ that can be detected in the patients exhaled breath.

Stool test :

Detection of *h. pylori* antigen in the stools specimen of patients is appropriate as a test of cure for patients with known *H. pylori* infection who have been treated.

Immunity :

Patients infected with *H. pylori* develop an IgM antibody response to the infection . Subsequently IgG and IgA are produced and these persist both systemically and at the mucosa. , in high titer in chronically infected individual .

Early treatment of h pylori infection blunts antibody response, such thought to be subject to repeat infection .

Treatment :

Triple therapy with Metronidazole and either bismuth subsalicylate or bismuth subcitrate plus either Amoxicillin or tetracycline for 15 days eradicates *H. pylori* in 70-95 of patients.

Epidemiology :

it is an important human pathogen has been emerged in the last era , after 1990. Clinically this organism found responsible for the most common chronic type of infection, it estimates responsible for an estimate 90 of gastric ulcer pyloric ulcer which one thought to be result from stress induced stomach acids. Some individuals can harbor these pathogens for years with no illness , about 20 % of individuals under 30 years and 40-60 % of individuals of 60 years age. While others develop ulcer or gastric disease including active chronic gastritis , PU, DU, and Gastric cancer which is a common malignancy in Eastern Europe , Latin America and Asia.

THANK YOU