

Diagnostic Agreement Between Anti-Helicobacter pylori IgG Serology, Rapid Urease Test, and Gastric Histopathology in Adults with Chronic Upper Gastrointestinal Symptoms: A Cross-Sectional Study from Southern India

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Abstract

Background: Accurate diagnosis of active *Helicobacter pylori* infection remains clinically important because the organism is causally linked to chronic gastritis, peptic ulcer disease, gastric mucosa-associated lymphoid tissue lymphoma, and gastric adenocarcinoma. Diagnostic performance varies across clinical settings, particularly in high-prevalence populations and among patients receiving proton pump inhibitors.

Aim: To evaluate the diagnostic agreement and performance of anti-H. pylori IgG serology and Rapid Urease Test using gastric biopsy histopathology as the reference standard in adults with chronic upper gastrointestinal symptoms undergoing endoscopy.

Methods: This hospital-based cross-sectional observational study included 219 consecutive adults undergoing diagnostic upper gastrointestinal endoscopy at a tertiary care centre in Kerala, India. All patients underwent endoscopy with Rapid Urease Test, gastric biopsies for histopathology, and serum anti-H. pylori IgG testing. Histopathology was considered the reference standard. Sensitivity, specificity, positive predictive value, negative predictive value, diagnostic accuracy, and Cohen's kappa were calculated for Rapid Urease Test and IgG serology.

Results: Among 219 patients, biopsy-proven *H. pylori* infection was present in 118 (53.9%). Rapid Urease Test was positive in 116 (53.0%) and anti-H. pylori IgG in 80 (36.5%); 5 patients (2.3%) had equivocal serology. Against histopathology, Rapid Urease Test showed sensitivity 63.6%, specificity 59.4%, positive predictive value 64.7%, negative predictive value 58.3%, and accuracy 61.6%, with fair agreement (kappa = 0.229). Excluding equivocal serology, IgG showed sensitivity 48.7%, specificity 76.3%, positive predictive value 71.2%, negative predictive value 55.2%, and accuracy 61.2%, with fair agreement (kappa = 0.242). The most frequent endoscopic findings were antral gastritis (18.7%) and antral erosion (11.4%).

Conclusion: In this symptomatic tertiary-care cohort, both Rapid Urease Test and anti-H. pylori IgG demonstrated only fair agreement with histopathology and moderate overall diagnostic accuracy. Rapid Urease Test was more sensitive but less specific than serology, whereas IgG offered greater specificity at the cost of lower sensitivity. In high-prevalence, proton pump inhibitor-exposed populations, neither test alone appears sufficient to define active infection reliably; biopsy-based confirmation or appropriately selected combined diagnostic strategies remain preferable when feasible.

Keywords

Helicobacter pylori, rapid urease test, serology, gastric biopsy, dyspepsia, histopathology, India.