

COMBINED RAPID UREASE TEST AND HISTOLOGY FOR THE DIAGNOSIS OF HELICOBACTER PYLORI INFECTION

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Significance: Accurate detection of *Helicobacter pylori* (HP) is essential for the diagnosis of HP infection. The use of antibiotics and proton pump inhibitors (PPI) may result in false-negative rapid urease test (RUT) results. We aimed to determine the sensitivity and specificity of RUT compared with histology and assess the diagnostic yield of combined RUT and histology for HP infection.

Methodology: Retrospective data collection was performed on 192 patients who were tested for both RUT and histology at the time of upper endoscopy from 2017 to 2018. At least two gastric biopsies (1 from corpus, 1 from antrum) were taken each for RUT and histology. The endoscopy was performed by a single gastroenterologist and a single pathologist was responsible for interpreting the histology with hematoxylin and eosin (H&E) and Giemsa stain. Demographic profile, RUT and histology results were reviewed. Tests for diagnostic accuracy were computed using SPSSv23.

Results: 192 patients were tested for RUT and histology. 52 (27.1%) were males and 140 (72.9%) were females with a mean age of 54±17 years. Epigastric pain was the most common indication (42.7%). 24 (12.5%) patients tested positive for HP infection. Among these; 16 (8.3%) tested positive for both RUT and histology (true-positive), while 8 (4.2%) tested negative for RUT but had positive histology(false-negative). 6 out of 8 (75%) patients with false negative results had PPI use. The sensitivity and specificity of RUT for the diagnosis of HP infection were 66.7 and 98.2%, respectively. While the positive and negative likelihood ratio were 37.3 and 0.34, respectively with a diagnostic odds ratio of 110.

Conclusion: The HP detection rate of RUT combined with histology increased by 33% compared with RUT alone ($p<0.001$). RUT is a highly specific test for diagnosing HP infection. Given its modest sensitivity, histology plays an important role in the diagnosis of HP infection, especially in patients taking PPIs.

Keywords: retrospective, *helicobacter pylori*, rapid urease test, histology, RUT, giemsa stain

	Histology positive	Histology negative
RUT positive	16	3
RUT negative	8	165

RESULT:

Sensitivity:	0.6667	CI: 0.4671 to 0.8203
Specificity:	0.9821	CI: 0.9488 to 0.9939
Positive likelihood ratio:	37.333	CI: 11.744 to 118.683
Negative likelihood ratio:	0.339	CI: 0.193 to 0.598
Diagnostic odds ratio:	110.000	CI: 26.517 to 456.308

Table 2. Tests for diagnostic accuracy of Rapid Urease test vs. Histology