

## Incidence of *H. pylori* in upper GI endoscopy biopsies: Prospective and retrospective study with emphasis on special staining methods

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### Abstract

**Background:** The present study includes retrospective and prospective study of 80 cases over a period of 5 years in Department of Pathology, MGM Medical College, Navi Mumbai. A total of 80 upper GI endoscopic biopsies were obtained from patients ranging between the age of 18-65 years with complaints of chronic upper abdominal symptoms, who were not suffering from active GI bleed, not on NSAIDS, not suffering from any systemic disease, who were nonalcoholic or patients who underwent major Gastroduodenal surgery. The aim of study was to study the incidence of in upper GI endoscopic biopsies. Identification of *H. pylori* with routine and special stains is to evaluate and correlate commonest symptoms of *H. pylori* infected patients and to study the age and sex distribution in *H. pylori* infection. We found 51 (63.8%) *H. pylori* positive cases and 29 (36.3%) *H. pylori* negative cases. This study was useful in diagnosing *H. pylori* in various gastric lesions. Routine H&E stain when supplemented with special stains like Warthin Starry, Modified Giemsa and Toluidine Blue helped in prompt identification of the pathogen, thereby alleviate the symptoms and prevent its sequelae. This study highlights the importance of incidence, endoscopic biopsies and identification of the bacilli, various gastric lesions and good comparison between different staining techniques such as H&E, Toluidine Blue, Modified Giemsa and Warthin Starry. It also includes the correlation of the endoscopic findings with histopathological interpretation of the endoscopic biopsies and also the analysis of the histopathological findings.

### Keywords

Gastroduodenal Surgery, Giemsa.

### Background

A big part of the total populace is contaminated with *Helicobacter pylori* (*H. pylori*), and this gram-negative bacterium, which colonizes the gastric epithelium, is the significant reason for gastric carcinogenesis and other gastric illnesses, for example, persistent gastritis, gastroduodenal

ulcers, and gastric mucosa-related lymphoid tissue lymphoma. Truth be told, *H. pylori* was named a “unmistakable natural cancer-causing agent” by the World Health Organization in 1994. The precise discovery of *H. pylori* is basic for overseeing tainted patients and for killing the microorganisms. Since the disclosure of *H. pylori*, a few symptomatic techniques have been created for the point of precise discovery of this creature. These tests incorporate noninvasive technique—serology, urea breath test, or stool antigen test—and obtrusive strategies, for example, culture, histological assessment, and fast urease test, which require upper gastrointestinal endoscopy to get gastric biopsy tests. Among these, histological assessment is one of the most valuable analytic tests for *H. pylori* disease. This article surveys the conclusion of *H. pylori* by intrusive testing that centers around histology.

*H. pylori*, a winding formed bacterium, can be seen in hematoxylin and eosin (H&E) recoloring and the affectability and explicitness of H&E stain has been accounted for as 69-93% and 87-90%, separately. Be that as it may, the particularity can be improved 90-100% by utilizing unique stains, for example, changed Giemsa stain, Warthin-Starry silver stain, Genta stain, and immunohistochemical (IHC) stain.

H&E stain can straightforwardly recognize *H. pylori* in a high-amplification field and assess the level of aggravation. Notwithstanding, when a low thickness of *H. pylori* and atrophic mucosal change are joined, it gets hard to see the creature. As Giemsa stain is anything but difficult to utilize, cheap, and gives reliable outcomes; it is the favored strategy in numerous research centers. Warthin-Starry silver stain was urgent to the first exhibition of *H. pylori*, yet it is costly and the outcomes are not generally solid. Genta stain has the benefit of envisioning both the incendiary cells and *H. pylori* by consolidating silver, H&E, and Alcian blue stains. In any case, this is actually minded boggling, costly and tedious. IHC recoloring is likewise accessible and exceptionally touchy and solid. IHC stain have a specific favorable position in patients halfway treated for *H. pylori* gastritis, a setting that can bring about atypical (counting coccoid) structures, which may imitate microscopic organisms or cell flotsam and jetsam on H&E arrangements. The significant preferences of IHC stain incorporate more limited screening time and high explicitness since it can bar other comparable formed living beings.

Laine looked at these three stains (H&E, Giemsa, and Genta) and found the sensitivities were practically identical at both low *H. pylori* thickness (H&E, 70%; Giemsa, 64%; Genta, 66%), and at high *H. pylori* thickness (H&E, 98%; Giemsa, 96%; Genta, 97%). Particularity was great (98-100%) for the Genta and Giemsa stains at both low and high *H. pylori* thickness and the H&E stain at a high thickness; in any case, particularity diminished (90%) in the H&E stain in low-thickness *H. pylori*. Ashton-Key et al. Additionally announced that IHC stain was an exceptionally delicate strategy for recognizing *H. pylori* in gastric biopsy examples—more delicate than customary stains (H&E, Giemsa,

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and Warthin-Starry silver) and significantly simpler to decipher. Be that as it may, despite the fact that it would be ideal, it isn't down to earth to perform H. pylori IHC recoloring on each gastric biopsy example. In routine practice, on the off chance that it is conceivable, at any rate two sorts of stain techniques are suggested for finding. H&E recoloring is normally sufficient and Giemsa stain appears to have advantage over different stains due to its effortlessness and consistency. Particular IHC stains might be valuable in followings: no microorganisms are noticeable on H&E or Giemsa recoloring, however there is proof of aggravation on histology; post-treatment biopsy examples for mucosa-related lymphoid tissue lymphoma to guarantee destruction treatment has been fruitful; and biopsy examples in which coccoid structures or different life forms are not indisputably recognizable as H. pylori utilizing routine stains.

Another constraint of histology is interobserver inconstancy in evaluation. Already, an examination assessed the dependability of H. pylori distinguishing proof on H&E-recolored gastric biopsy examples by 20 pathologists; the outcomes demonstrated helpless affectability (66%) and imperfect explicitness (88%). Another unwavering quality investigation exploring Warthin-Starry silver-recolored slides indicated that the kappa esteem for intraobserver arrangement was 0.65-0.88 and interobserver understanding was 0.39-0.82. Different examinations on the reproducibility of histological information for Giemsa-or Genta-recolored slides have arrived at a comparative resolution. This might be because of the inconsistencies in element assessment of H. pylori or the pathologist's perceptions, since pathology results depend on emotional translation of various highlights and characterization.

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