Histopathological Pattern of Endoscopic Gastric Biopsy in a District Hospital in Nigeria: A Review of 118 Consecutive Cases

BM Duduyemi1,*, BA Ojo2, OO Olaomi3, AS Atiba4

1Department of Pathology Kwame Nkrumah University of Science & Technology, Kumasi, Ghana
2Department of Anatomical Pathology, College of Medicine, Benue State University, Markudi, Nigeria
3Department of Surgery, National Hospital, Abuja, Nigeria
4Department of Chemical Pathology, College of Medicine, Ekiti State University, Ado-Ekiti, Nigeria
*Corresponding author: babsdudu@yahoo.com

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Abstract

Background: The use of endoscopes for visualization of gastric mucosa has improved over times and in taking biopsy for histology. The study sets out to determine the histopathological pattern of gastritis in dyspeptic patients and correlate the histological detection of H. pylori with that of urease breath test (UBT). Method: Prospective study of 118 consecutive patients with chronic dyspepsia who underwent upper gastrointestinal endoscopic examination and UBT using heliprobe. Biopsy of gastric antrum were taken at endoscopy and sent for histopathological analysis. Routine H&E and Giemsa stains were used. Results were recorded and analysed on the basis of sex, age, histology and UBT for H. pylori. Result: There were 118 patients who had endoscopy comprising 58 males and 60 females with male to female ratio of 1:1. Histology revealed varying degrees of chronic gastritis with or without H. pylori, activity, metaplasia, ulceration and dysplasia. Sixty eight (61%) of our patients were positive for H. pylori histologically. Of the first consecutive 66 patients, histology showed 38(57.6%) positive and 28(42.6%) negative; UBT, 46(69.6%) were positive for H. pylori and 20(30.4%) negative. There was a strong correlation between the true positive and true negative patients for the first 66 consecutive cases for both histology and UBT based diagnosis for detecting H. pylori. (Correlation coefficient=0.862, p=0.01). Conclusion: The study showed that histology and UBT are both useful for H. pylori detection. Large multi centre studies should be done to adopt the non-invasive UBT in resource poor economies for the eradication of H. pylori.

Keywords: endoscopy, gastric mucosa, histology, UBT, H. pylori


1. Introduction

Helicobacter pylori infection can be diagnosed by invasive techniques requiring endoscopy and biopsy (e.g. histological examination, culture and rapid urease test) and by non-invasive techniques, such as serology, the urea breath test, urine/blood or detection of H. pylori antigen in stool specimen [1,2].

Injury to the gastric mucosa is associated with epithelial cell damage and regeneration and gastric lesions are frequent causes of clinical disease worldwide [3]. H. pylori is the principal agent that starts the cascade of histological events ranging from chronic gastritis to carcinoma through mucosal atrophy, intestinal metaplasia and epithelial dysplasia [4,5,6].

The choice of appropriate test depends on the pre-test probability of infection, the characteristics of the test being used and its cost-effectiveness [2]. Some non-invasive tests detect active infection e.g. the urea breath test and the stool antigen test while others are markers of exposure to H. pylori (e.g. serology or urine) [1].

With these in mind, the study sets out to determine the histopathological pattern of gastritis in dyspeptic patients and correlate the histological detection of H. pylori with that of urease breath test (UBT). This study is unique for this environment as it is one of the few studies on H. pylori gastritis correlating histological diagnosis with urease breath test (UBT).

2. Materials and Methods

This study was a prospective study of 118 consecutive patients who were suffering from chronic dyspepsia and underwent upper gastrointestinal endoscopic examination in a private facility and the samples sent to our laboratory at the Asokoro District Hospital, Abuja, Nigeria between July, 2010 and December 2011. The samples were taken from the gastric antrum and sent in 10% buffered formalin to the Pathology department of the hospital for the pattern
of gastritis and presence or otherwise of *H. pylori* using Haematoxylin & eosin (H&E) and Giemsa stains respectively.

The first consecutive 66 patients that had upper GI endoscopy also had UBT for *H. pylori* using Heliprobe® supplied by Biofem pharmaceuticals.

Results were recorded and analysed on the basis of sex, age, histopathological diagnosis and UBT for *H. pylori*. The results obtained from 66 patients who had UBT were correlated with histological method of detecting *H. pylori* using the Pearson correlation. The statistical analysis was done by SPSS version 17 and t-test and chi square used to compare means and significance set at p < 0.05.

## 3. Results

There were 118 patients who had endoscopy comprising 58 males and 60 females between July 2010 and December 2011. The age range of our patients was 23-82 years and mean of 42 years. This constitutes 7.8% of the total biopsies received from our laboratory during the study period. Thirty two (27.11%) were *H pylori* positive patients for the first 33 consecutive cases for both histology and UBT based diagnosis for detecting *H. pylori* using Heliprobe ®. Of the first consecutive 66 patients that had upper GI endoscopy for chronic dyspepsia (Table 3).

### Table 3. Result of 66 consecutive tests for UBT compared with Histology

<table>
<thead>
<tr>
<th>Histopathology UBT</th>
<th>Test</th>
<th>No of cases</th>
<th>%age</th>
<th>Test</th>
<th>No of cases</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. pylori gastritis</td>
<td>Negative for <em>H. pylori</em></td>
<td>28</td>
<td>42.4</td>
<td>False positive</td>
<td>6</td>
<td>6.1</td>
</tr>
<tr>
<td>H. pylori CAG with ulceration</td>
<td>Positive for <em>H. pylori</em></td>
<td>38</td>
<td>57.6</td>
<td>True negative</td>
<td>18</td>
<td>27.3</td>
</tr>
<tr>
<td>Total 66 100</td>
<td>False negative</td>
<td>2</td>
<td>3.0</td>
<td>Total 66 100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pearson correlation value = .826* (significant at the 0.01 level (2-tailed). Figure 1 and Figure 2 show the microscopic features of chronic active gastritis and *H. pylori* gastritis respectively.

### Table 4. Degree of activity in *H pylori* associated gastritis

<table>
<thead>
<tr>
<th>Degree of activity</th>
<th>Test 1: No of cases</th>
<th>%age</th>
<th>Test 2: No of cases</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>-</td>
<td>-</td>
<td>14</td>
<td>31.8</td>
</tr>
<tr>
<td>Mild</td>
<td>42</td>
<td>61.8</td>
<td>10</td>
<td>22.7</td>
</tr>
<tr>
<td>Moderate</td>
<td>26</td>
<td>38.2</td>
<td>12</td>
<td>27.3</td>
</tr>
<tr>
<td>Severe</td>
<td>0</td>
<td>0.0</td>
<td>8</td>
<td>18.2</td>
</tr>
<tr>
<td>Total 68 100</td>
<td>44 100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Discussion

This study shows a high rate of *H. pylori* associated gastritis (61.0%). The most important aetiologic association with chronic gastritis is chronic infection by the bacillus *Helicobacter pylori*. This link was discovered in 1983, when the bacterium was called *Campylobacter pyloridis* [7]. Compared with work done in a Sardjito General Hospital, Yogyakarta, Indonesia [8] and Ibadan, Nigeria [9] this is high compared with their 22.8% and 22.4% respectively. Our figure compared favourably with Shousha et al [10] among Yemins patients (94%); Rubio et al [11] among Mexicans (66%) and Holcombe et al (80%) in Maiduguri, Nigeria [12].

Also when compared with the Indonesia work, *H. pylori* with chronic active gastritis constituted the highest histopathological pattern 32 (27%) of all the gastric biopsy...
and 47% of *H. pylori* associated gastritis. This is against chronic superficial gastritis constituting 60.87% recorded in Indonesia for all the biopsies as highest histopathological pattern and 8.90% of cases of chronic superficial gastritis as highest among *H. pylori* positive cases. Most classification systems for gastritis distinguish acute, short term from chronic, long term diseases [13]. The term acute and chronic were used to describe the type of inflammatory cell infiltrates. Acute (active) inflammation is usually associated with neutrophil polymorphs infiltration while chronic inflammation is characterised by mononuclear cells mainlylymphocytes, plasma cells and macrophages. A practical clinicopathologic framework for the classification of gastritis and gastropathy based on these factors can be seen in the work done by Dixon et al [14].

Outside chronic gastritis, *H. pylori* also plays a critical role in other major gastric and duodenal diseases. Peptic ulcer disease is now approached as an infectious disease that can be treated by antibiotics because of *H. pylori* involvement. It also increases the risk for developing gastric carcinoma by five to six folds [15]. It causes involvement. It also increases the risk for developing

5. Conclusion

The study supported the use of urease breath test and histological method for the detection of *H. pylori*. We also infer from the study that the non invasive and less expensive UBT could be adopted in the developing economies where endoscopists and pathologists may not be readily available. We recommend that a more comprehensive study comparing different detection methods should be done in the future with a view to adopting a cheap, sensitive and non-invasive method for the detection of *Helicobacter pylori*.

References