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Research Article

Laboratory Reform in Pathology: Understanding the Clinical Value of Routine GI Biopsies

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Abstract

Gastric antrum biopsies and endoscopic findings were evaluated to assess the clinical significance of these specimens. Clinical details related to stomach antrum biopsies submitted to Sligo University Hospital laboratory over a one-year period from 2023 to 2024 were reviewed. The analysis indicated that histological examinations of normal gastric tissue or gastritis, including Helicobacter gastritis, do not provide additional information beyond that obtained from endoscopy and lack clinical relevance. Given the increasing workload in histology laboratories and the shortage of laboratory scientific staff, reducing the number of tissue samples that have no clinical impact would enhance the processing and reporting of clinically meaningful specimens.

Keywords: Pathology Laboratory Reform; Upper Gastrointestinal Biopsy; Clinical Impact; Evidence-Based Medicine

Introduction

Due to laboratory science staff shortages amid an ever-increasing histology workload, laboratory reform programs have aimed to reduce unnecessary sample testing [1]. Best practice recommendations also advocate for the elimination of tissue samples that lack clinical significance [2]. A review was conducted of 37 stomach antrum biopsies focusing on clinical indications, endoscopic findings and the clinical impact of these specimens. Stomach antrum biopsies submitted to SUH histopathology laboratory over a one-year period 2023-2024 were identified by Co-Path search. Those with normal endoscopy or findings of 'gastritis' at the time of sampling were flagged for audit. Age, gender, symptoms, endoscopic findings and histology were anonymously compiled in a Microsoft Excel file. The patient cohort (n = 37) consisted of 22 females and 15 males with ages ranging from 18 to 87 years (mean age = 60). The most commonly reported signs and symptoms included anaemia (n = 8 patients; 2 with iron deficiency), dyspepsia (n = 7), and abdominal pain (n = 4). Less frequently reported symptoms included dysphagia, reflux, nausea, constipation, bloating, weight loss, and blood per rectum being less common (n = 1-2 cases each). The remaining had no symptoms documented on the histology requisition (n = 9). Endoscopic findings were either normal (n = 27) or indicated gastritis (n = 7). One case showed erythema and two were CLO+ test. Gastric antrum biopsies were performed in all cases and showed mild gastritis (n = 27), moderate gastritis (1), *Helicobacter gastritis* (n = 6; 2 of 2 tested had positive CLO test) and normal antrum (n = 3). Overall, none of the biopsies added any clinical information beyond what was already obtained from the endoscopic findings.

Materials and Methods

Stomach antrum biopsies submitted to the SUH histopathology laboratory during the one-year period from 2023-2024 were identified by Co-Path search. Biopsies associated with normal endoscopy or a diagnosis of 'gastritis' at the time of sampling were flagged for audit. Age, gender, symptoms, endoscopic findings and histology were anonymously compiled in a Microsoft Excel file following review by consultant histopathologists.

Results and Discussion

Patients (n = 37) were 22 females and 15 males ranging in age from 18 to 87 years (m = 60) and more commonly had signs/symp-

toms of anemia (n = 8; 2 iron deficiency), dyspepsia (n = 7), and abdominal pain (n = 4), with dysphagia, reflux, nausea, constipation, bloating, weight loss, and blood per rectum being less common (n = 1-2 cases each). The remaining had no symptoms documented on histology requisition (n = 9).

Endoscopy findings were normal (n = 27; Figure 1) or showed gastritis (n = 7). One case had erythema and two were CLO+. Gastric antrum biopsies were performed in all cases and showed mild gastritis (n = 27; Figure 2), moderate gastritis (n = 1), *Helicobacter gastritis* (n = 6; 2 with positive CLO test) and normal antrum (n = 3). None of the biopsies added any clinical information beyond that of endoscopy findings with the exception of 4 *Helicobacter gastritis* cases where CLO-test was not reported to have been performed.

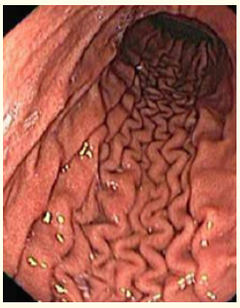

Figure 1: Endoscopy, normal stomach.

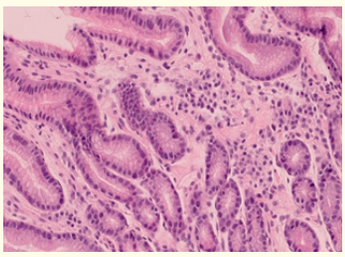

Figure 2: Histology, stomach antrum with mild gastritis showing few plasma cells.

Due to shortages in laboratory science staff in the face of ever-increasing histology workload, laboratory reform programs have made efforts to reduce unnecessary samples [1]. Best practice recommendations also advocate for the elimination of tissue samples that lack clinical impact [2]. A review of 37 stomach antrum biopsies was conducted, focusing on clinical indications, endoscopic and histologic findings and the clinical significance of these specimens.

If best practice recommendations are followed, after consultation with clinical colleagues, a significant reduction in histology workload can be achieved. Many pathologists believe that these best practice recommendations should be addressed not only to pathologists but also to endoscopists. Following the publication of best practice recommendations by the Royal College of Pathologists in the UK, reductions of 18-38% of total biopsy numbers were reported, with larger percentages seen for gastric biopsies. Audits have demonstrated that this policy does not result in the omission of any serious pathology [2]. Biopsies from the upper GI tract should only be taken from endoscopic lesions rather than from endoscopically normal mucosa. While some pathologists argue that an upper GI endoscopy is incomplete without a biopsy, most specialty gastrointestinal pathologists are unconvinced by this argument as there is insufficient evidence to suggest that such biopsies are beneficial for the management of individual patients.

There is no evidence that biopsy of the normal stomach gives any useful clinical information that is likely to alter case management in a routine setting. It is important to emphasize the necessity of biopsying abnormal areas of the stomach. Biopsies should not be performed solely for the purpose of identifying Helicobacter *pylori* as there are equally effective and much cheaper test alternatives available [3-7]. *Helicobacter pylori* infection is a common cause of peptic ulcers and gastritis. Traditionally, histological examination has been regarded as the gold standard for diagnosing Helicobacter pylori infection. However, studies have evaluated the performance of several non-invasive methods, including CLO test, serology, urea breath tests, and stool antigen tests [3-7]. These non-invasive tests can offer high sensitivity and specificity. The CLO test, urea breath test and stool antigen test showed promising results, making them suitable for initial screening and follow-up. A recent study highlights the potential of non-invasive tests to reduce the need for invasive procedures but also underscores the continued importance of histological analysis in the comprehensive diagnosis of gastric disease [8].

There is little evidence to suggest that histopathological grading of 'gastritis', with or without intestinal metaplasia, gives any useful information for the subsequent management and follow-up of individual patients. Classification systems, such as Sydney system, provide a standardized method for assessing gastritis based on endoscopic and histological criteria. The histological component of this classification offers a reliable framework for the histological assessment of gastritis. The system's structured approach helps in accurately identifying the severity and extent of inflammation,

atrophy, and other pathological changes in the gastric mucosa. However, the authors also noted some challenges in inter-observer variability and emphasize the need for comprehensive training to ensure consistent application of the criteria. Such systems have been affirmed as a valuable tool in the histopathological evaluation of gastritis, facilitating better diagnosis and management of the condition [8,9]. There is little or no correlation between endoscopic appearances and the presence or absence of gastritis [8,9]. Nevertheless, it can be argued that biopsies are unlikely to influence management decisions due to the lack of correlation and there is no evidence to support that they do. Furthermore, any biopsy policy for diagnosing any form of gastritis should be developed locally with input from all relevant stakeholders. For instance, proponents of routine gastric biopsy suggest the evidence of a severe atrophic gastritis in H *pylori*-associated disease is predictive of gastric cancer risk. While this evidence is acknowledged [10] it raises questions about whether it justifies the routine biopsy of all stomachs during endoscopy procedure and whether identifying such a phenotype result in any change in management (assuming that H *pylori* gastritis is appropriately treated).

Indeed, there are two time-honoured, admittedly retrospective, studies that indicate that the demonstration of intestinal metaplasia is not of any utility for identifying those patients likely to suffer subsequent gastric cancer [10-12]. The prognostic value of intestinal metaplasia in predicting the risk of developing gastric carcinoma has limited value in predicting the progression to gastric carcinoma. While IM is indeed a marker of gastric epithelial changes, not all patients with IM develop cancer. This finding challenges the notion of using IM as a sole indicator for gastric cancer risk and suggests that additional markers and risk factors should be considered. Optimally, a more nuanced approach to gastric cancer screening, integrating histological assessments with clinical and demographic data to better stratify patient risk [3]. While there is an important role for gastric biopsies in research, we believe that 'routine' biopsies of the endoscopically normal stomach or endoscopic gastritis cannot be justified because there is no evidence base that the information gleaned alters patient management.

Conclusion

These results support that antrum biopsies of normal stomach or for gastritis, including *Helicobacter gastritis*, add no further information and have no clinical impact beyond endoscopic findings. These numbers would increase if fundus and oesophageal biopsies were included. While it may be necessary to depart from best practice recommendations in the interests of specific patients and circumstances, the clinical risk of departing from the BPRs should be assessed and documented. Considering ever-increasing histology laboratory workloads and lack of laboratory scientific staff, a reduction in tissue samples that ultimately have no clinical impact would be optimal to increase processing and reporting of clinically meaningful specimens.

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Conflict of Interest

None.

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