Editorial

Gastritis and gastropathy: perspectives from the endoscopist

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Gastritis is often inappropriately used to describe symptoms of dyspepsia in clinical practice. By definition, gastritis refers to inflammation associated with gastric mucosal injury and gastropathy refers to epithelial cell damage and regeneration without associated inflammation, both of which require confirmation by histological evaluation (1).

An upper gastrointestinal endoscopy can be done for various indications, and the role of the endoscopist is to assess the location and phenotype of lesions, as well as to obtain samples for histological examination. Adequate collection of tissue samples is fundamental, and taking two biopsies from both the antrum and corpus is recommended for *Helicobacter pylori* (*H. pylori*) infection and gastritis staging (2). For the endoscopist, there can be frustration when at times, histopathology reports do not correlate with endoscopic findings, or do not specify disease. It has been recognized that there is poor correlation between endoscopic and histologic gastritis (3). The Kyoto classification aims to establish endoscopic diagnostic criteria for gastritis, which entails the following findings: atrophy, diffuse erythema, hypertrophic folds, intestinal metaplasia (IM) and nodularity (4). Innovations in high-definition endoscopy and electronic chromo-endoscopy (blue light imaging, linked color imaging and narrow-band imaging) have increased the ability to assess endoscopic gastritis accurately (5).

The review article by Zhang *et al.* (6) highlights the important role of the pathologist, and provides a succinct summary of the key histopathological features of common and rarer types of chronic gastritis. While history, laboratory and endoscopic evaluation are helpful, histologic examination of gastric mucosal biopsies is imperative to establish the diagnosis and etiology of gastritis. In clinical practice, understanding the histology report, and achieving agreement between endoscopic and histological findings, will help the clinician to design patient-tailored strategies and surveillance plans for gastric cancer.

By far the most well-known and commonly diagnosed cause of gastritis is *H. pylori*. It is considered as the most important risk factor for peptic ulcer disease (PUD) and its complications, including gastric cancer and gastric mucosa-associated lymphoid tissue (MALT) lymphoma (7). Significant differences exist between *H. pylori* infection in children and adults. Children have a lower rate of PUD and gastric cancer from *H. pylori* infection, atrophy and IM are rare and majority are asymptomatic (2). Endoscopically, features of *H. pylori* infection in children are also different from adults. Antral nodularity remains a useful diagnostic predictor of H pylori gastritis in children (8), resulting from lymphoid follicles with germinal centres forming nodules on gastric mucosa and the inflammatory reaction associated with *H. pylori* infection (9).

There are two strategies guiding management. The 'test and treat' approach, where all patients with *H. pylori* infection (^{13}C-urea breath test, the faecal antigen test, or presence of antibodies) immediately receive therapy (10). This option is reasonable in adult patients less than 40 years without alarm features such as anemia, anorexia, dysphagia, progressive symptoms, upper gastrointestinal bleed, and weight loss. The 'test and scope' method recommends

patients to undergo endoscopic evaluation for *H. pylori*-related complications, usually for older patients or presence of alarm features. However, for paediatric patients, the North American and European Societies of Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN and ESPGHAN) guidelines recommend endoscopic examination and *H. pylori* testing only for those with alarm signs or symptoms (2). The 'test and treat' option is not recommended in children, particular in patients with non-specific recurrent abdominal pain. The primary indications for treatment in children are presence of duodenal or gastric ulcers or erosions caused by biopsy-proven *H. pylori* infection.

H. pylori antibiotic resistance is a growing worldwide concern. A 2-week empiric first-line therapy should be guided by antibiotic susceptibility testing, or local data. Nonetheless, clarithromycin-based triple therapy remains a successful first line treatment option, with a reported eradication rate of more than 90% (11).

In recent times, the finding of *H. pylori*-negative chronic gastritis is increasing, but not well characterized (12). Other than medications such as nonsteroidal anti-inflammatory drugs, other potential host-related or immune-mediated causes of gastritis should be considered.

A group of disorders in which histological examination is crucial for diagnosis and subsequently for assessing the response to treatment and ongoing disease activity is eosinophilic gastrointestinal disorders (EGID). These are chronic, immune-mediated diseases characterized histologically by a pathologic increase in eosinophil-predominant tissue inflammation, with strong associations to food allergen triggers (13).

EGID encompass eosinophilic esophagitis (EoE), eosinophilic gastritis (EG), eosinophilic duodenitis, eosinophilic enteritis, and eosinophilic colitis. Currently, EoE is the most common and best characterized EGID, with increasing incidence reported worldwide. For EG, endoscopic findings may range from normal appearance to erythema, nodularity, erosions and ulcers (14). Unlike in EoE, a normal population of eosinophils exist in the healthy gastric mucosa and there is no consensus on the histologic criteria for the diagnosis of EG, although the increased eosinophilic infiltration of >30 eosinophils per high power film (HPF) in at least 5 separate HPF is often used (15).

Existing literature in adult patients indicates corticosteroids to be the treatment of choice in patients with EG. There is also a role for dietary therapy in children, as elimination diet and proton-pump inhibitor therapy have been shown to be a successful first-line treatment, with histological remission seen particularly in younger patients (16).

To the clinician, another histology finding of particular concern would be that of chronic atrophic gastritis or IM, as these may progress to gastric adenocarcinoma (17). The histopathological staging [e.g., Operative Link on Gastric Intestinal Metaplasia (OLGIM)] is crucial for risk stratification of these patients to guided management and surveillance.

An autoimmune etiology should be considered for chronic atrophic gastritis. Autoimmune gastritis (AIG) is defined as an inflammatory condition of the gastric mucosa, predominantly affecting the corpus and the fundus, characterized by atrophy of the gastric mucosa and associated with auto-antibodies against parietal cells or intrinsic factor (18). AIG is associated with the risk of metaplastic change and around 5% of gastric cancers have been reported to be associated with AIG (19). AIG is usually seen in elderly adults and rarely in children. It is associated with iron deficiency anemia or B12 deficiency seen in pernicious anemia and may coexist with other autoimmune diseases, such as insulin dependent diabetes, Hashimoto's thyroiditis and vitiligo (18).

Typically, endoscopic findings of AIG include pale gastric mucosa, prominence of submucosal blood vessels due to the thinning of gastric mucosa, loss of rugal folds and a visible atrophic border (20). Gastric IM is described as elevated small grey-white plaques bordered by mixed patches of pink and pale mucosa causing an uneven surface. High-resolution, image-enhanced endoscopy (IEE), combined with magnification, improves detection of IM.

In adults, most cases of atrophic gastritis are associated with *H. pylori* infection, and patients should always be tested and treated for *H. pylori* (21). Potential associated micronutrient deficiencies should be addressed such as iron supplementation or vitamin B12 supplementation in pernicious anemia. There are established guidelines for surveillance in AIG recommending endoscopy with biopsies at diagnosis and every subsequent 3–5 years (20).

There has also been recent growing interest in collagenous gastritis (CG), an uncommon histologic entity described as subepithelial deposition of dense collagen bands and a mixed inflammatory infiltrate in the lamina propria (22). A pediatric-onset and an adult-onset type have been described. Children typically present with recurrent abdominal pain and iron deficiency anemia, most commonly involving the stomach. For the adult-onset phenotype, it is associated with collagenous colitis and other autoimmune

disorders, and chronic diarrhea as a presenting symptom. It has been postulated that collagen deposition happens after an insult, either autoimmune, infectious, inflammatory, or toxic (22). There may also be a primary increased vascular permeability with resultant deposition of extruded protein and collagen. However, at present CG remains poorly understood, with poor correlation between the clinical, endoscopic and histologic features.

Various treatments have been studied, including proton pump inhibitor (PPI), dietary elimination and steroids, but efficacy of these therapies remain unproven. Treatment is directed at symptom control, and iron supplementation for anemia. Although most patients show improvement clinically over time, the histologic findings usually remain. There is concern of potential long term malignant transformation, which will require long term follow-up, including repeat endoscopies (23).

As we continue to face the challenge of eliminating *H. pylori* infection from patients and populations, evidence gaps remain on the different causes of H pylori-negative chronic gastritis, as well as the surveillance and diagnosis of gastric premalignant lesions. The collaboration between the endoscopist and the pathologist in a multidisciplinary setting will be key to ensure that patients are managed optimally.

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References

1. Sharma S, Thomson M. Gastritis and gastropathy. In: Gershman G, Thomson M. editors. Practical Pediatric Gastrointestinal Endoscopy. New York: John Wiley & Sons, 2021;201-206.
2. Jones NL, Koletzko S, Goodman K, et al. Joint ESPGHAN/NASPGHAN Guidelines for the Management of Helicobacter pylori in Children and Adolescents (Update 2016). J Pediatr Gastroenterol Nutr 2017;64:991-1003.
3. Redéen S, Petersson F, Jönsson KA, et al. Relationship of gastroscopic features to histological findings in gastritis and Helicobacter pylori infection in a general population sample. Endoscopy 2003;35:946-50.
4. Toyoshima O, Nishizawa T, Koike K. Endoscopic Kyoto classification of Helicobacter pylori infection and gastric cancer risk diagnosis. World J Gastroenterol 2020;26:466-77.
5. Rugge M, Savarino E, Sbaraglia M, et al. Gastritis: The clinico-pathological spectrum. Dig Liver Dis 2021;53:1237-46.
6. Zhang SL, Lollie TK, Chen Z, et al. Histopathologic diagnosis of gastritis and gastropathy: a narrative review. Dig Med Res 2022. doi: 10.21037/dmr-22-42
7. Kim J, Wang TC. Helicobacter pylori and Gastric Cancer. Gastrointest Endosc Clin N Am 2021;31:451-65.
8. Hidaka N, Nakayama Y, Horiuchi A, et al. Endoscopic identification of Helicobacter pylori gastritis in children. Dig Endosc 2010;22:90-4.
9. Riddell RH. Pathobiology of Helicobacter pylori infection in children. Can J Gastroenterol 1999;13:599-603.
10. Chew CA, Lye TF, Ang D, et al. The diagnosis and management of H. pylori infection in Singapore. Singapore Med J 2017;58:234-40.
11. Ang TL, Ang D. Helicobacter pylori Treatment Strategies in Singapore. Gut Liver 2021;15:13-8.
12. Assa A, Borrelli O, Broekaert I, et al. Helicobacter pylori-negative Chronic Gastritis in Children: A Systematic Review. J Pediatr Gastroenterol Nutr 2022;74:956-67.
13. Navarro P, Arias Á, Arias-González L, et al. Systematic

review with meta-analysis: the growing incidence and prevalence of eosinophilic oesophagitis in children and adults in population-based studies. Aliment Pharmacol Ther 2019;49:1116-25.
14. Licari A, Votto M, D'Auria E, et al. Eosinophilic Gastrointestinal Diseases in Children: A Practical Review. Curr Pediatr Rev 2020;16:106-14.
15. Lwin T, Melton SD, Genta RM. Eosinophilic gastritis: histopathological characterization and quantification of the normal gastric eosinophil content. Mod Pathol 2011;24:556-63.
16. Ng LQ, Loh W, Ong JX, et al. Clinical, histopathological features and efficacy of elimination diet and proton-pump inhibitor therapy in achieving histological remission in Asian children with eosinophilic gastritis. J Paediatr Child Health 2022;58:1244-50.
17. Pimentel-Nunes P, Libânio D, Marcos-Pinto R, et al. Management of epithelial precancerous conditions and lesions in the stomach (MAPS II): European Society of Gastrointestinal Endoscopy (ESGE), European Helicobacter and Microbiota Study Group (EHMSG), European Society of Pathology (ESP), and Sociedade Portuguesa de Endoscopia Digestiva (SPED) guideline update 2019. Endoscopy 2019;51:365-88.
18. Neumann WL, Coss E, Rugge M, et al. Autoimmune atrophic gastritis--pathogenesis, pathology and management. Nat Rev Gastroenterol Hepatol 2013;10:529-41.
19. Weise F, Vieth M, Reinhold D, et al. Gastric cancer in autoimmune gastritis: A case-control study from the German centers of the staR project on gastric cancer research. United European Gastroenterol J 2020;8:175-84.
20. Namasivayam V, Koh CJ, Tsao S, et al. Academy of Medicine, Singapore clinical guideline on endoscopic surveillance and management of gastric premalignant lesions. Ann Acad Med Singap 2022;51:417-35.
21. Vannella L, Lahner E, Bordi C, et al. Reversal of atrophic body gastritis after H. pylori eradication at long-term follow-up. Dig Liver Dis 2011;43:295-9.
22. Beinvogl BC, Goldsmith JD, Verhave M. Pediatric Collagenous Gastritis: Clinical and Histologic Outcomes in a Large Pediatric Cohort. J Pediatr Gastroenterol Nutr 2021;73:513-9.
23. Matta J, Alex G, Cameron DJS, et al. Pediatric Collagenous Gastritis and Colitis: A Case Series and Review of the Literature. J Pediatr Gastroenterol Nutr 2018;67:328-34.

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