

ADVANCES IN ENDOSCOPY

Current Developments in Diagnostic and Therapeutic Endoscopy

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Endoscopic Advances in the Treatment of Gastric Intestinal Metaplasia



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G&H What factors predispose patients to gastric intestinal metaplasia?

JB The dominant factor is clearly a history of *Helicobacter pylori* infection. Interestingly, gastric intestinal metaplasia (GIM) can develop years after *H pylori* eradication. This was seen in studies from China in patients who had GIM and no current evidence of *H pylori* infection, although there was strong suggestion that they had had the infection. It is for this reason that all of the major gastroenterology societies, such as the American Gastroenterological Association (AGA), the American Society for Gastrointestinal Endoscopy (ASGE), and the European Society of Gastrointestinal Endoscopy (ESGE), recommend evaluation for *H pylori* infection in patients with GIM. The AGA is quite explicit about testing and treating for *H pylori* infection right away when GIM is diagnosed.

In the United States, GIM is of particular concern in recent immigrants. Patients who originate from areas where *H pylori* infection is endemic are at higher risk. Higher rates of *H pylori* and GIM have been reported among patients at LAC + USC Medical Center from regions in Latin America and Asia. *H pylori* infection, GIM, and gastric cancer are also commonly seen among recent immigrants from Russia, the Ukraine, and other parts of Eastern Europe.

G&H What factors promote *H pylori* colonization and GIM in endemic regions?

JB The most important factors are the quality of the water supply and sanitation. *H pylori* infection was common in certain areas before they became more industrialized. For example, *H pylori* infection was very prevalent in Japan at one time, but it has virtually disappeared as the country has become highly industrialized.

Some evidence also exists that certain types of foods, such as raw fish or nitrate-treated foods, may be associated with a higher risk of GIM, but the evidence is not particularly compelling. Highly nitrogen-rich or smoked foods may be problematic as well, but again the evidence is not as compelling as with *H pylori* colonization.

G&H What is the current stance on risk assessment and screening for GIM?

JB Screening does not occur in the United States yet, although there are gastroenterology specialists who think that it may not be a bad idea to screen high-risk groups. The push for screening of select groups is based on expert opinion; it is not yet evidence based. Screening is done in other parts of the world, such as Colombia, Korea, and Japan. Indeed, Japan is particularly active in regard to gastric cancer screening programs.

If metaplasia is discovered on endoscopy, society screening recommendations differ to some degree. The AGA recommends that surveillance not be performed for people with GIM; however, its recommendations include a significant caveat that surveillance should be

discussed with patients who have family history of gastric cancer, who are from high-risk areas, and who represent higher-risk ethnicities based on recent immigration. The ASGE recommends surveillance for people at higher risk. Its recommendations are similar to those of the AGA. The ESGE is more explicit. It recommends 3-year surveillance for patients in whom GIM is diagnosed, and it has more recommendations that pertain to specific geographic regions. The ESGE also recommends surveillance for patients at higher risk in relation to ethnicity and family history of gastric cancer.

The takeaway from all of these guidelines is that, if a patient has multiple risk factors for GIM, surveillance is worthwhile. If the patient represents an isolated case of metaplasia with no risk factors, then surveillance is likely not needed.

G&H How has the role of endoscopy shifted regarding surveillance of GIM?

JB There are some practice patterns whereby very frequent, extensive biopsies are done annually in patients with metaplasia. This is counter to the recent AGA guidelines, and evidence from the scientific literature does not support such procedures. Nevertheless, endoscopy remains the main tool for surveillance in high-risk groups.

There is growing evidence that endoscopy should be supplemented with other technologies. For example, a controlled study of narrow-band imaging (NBI) conducted at LAC + USC Medical Center allowed for an increase in the yield of endoscopy, enabling detection of sites that otherwise would have been missed with simple endoscopy. The study enrolled 112 patients at high risk for gastric cancer. High-definition white-light (HD-WL) endoscopy, NBI, and mapping biopsy were compared. GIM was detected more frequently using NBI and mapping biopsy compared with HD-WL (65% and 76%, respectively, vs 29%). Higher proportions of sites with GIM also were detected with NBI and mapping biopsy compared with HD-WL (53% and 67%, respectively, vs 28%). The study concluded that HD-WL is not sufficient for detection of GIM and that NBI plus mapping biopsy was a better alternative. An earlier study conducted by the same investigative team demonstrated the superiority of NBI to white-light endoscopy in terms of diagnostic accuracy and efficiency. Compared with white-light endoscopy, NBI demonstrated increased sensitivity for the diagnosis of intestinal metaplasia (87% vs 53%) and the diagnosis of dysplasia (92% vs 74%). A more recent meta-analysis showed that NBI, particularly newer NBI endoscopes, can significantly increase the detection of GIM when used in addition to standard white light during upper endoscopy.

G&H Is NBI considered the gold standard now?

JB It is evolving into that, but has not yet been treated as such in major society guidelines. A great deal of work has been done in this area by colleagues, namely Dr Mario Dinis-Ribeiro, Dr Pedro Pimentel-Nunes, and Dr Diogo Libânio of the Portuguese Institute of Oncology of Porto. They have led several international consortia aiming to define the best endoscopic approaches to diagnose and manage gastric cancer precursors. The team at USC is very fortunate to join their newest multicenter study, SUPREME (Surveillance of Premalignant Stomach Individualized Endoscopic Follow-Up). In this study, patients with an endoscopic grading of gastric intestinal metaplasia (EGGIM) score of greater than 4, operative link for gastritis assessment (OLGA) greater than 2, or operative link on gastric intestinal metaplasia assessment (OLGIM) greater than 2 (all of which reflect more extensive metaplasia) will be randomized to annual vs triennial endoscopic follow-up for a period of 6 years. Patients with less extensive disease (EGGIM 1-4, OLGA/OLGIM 1-2) will undergo endoscopic follow-up at 3 and 6 years.

G&H What is the role of other image enhancement technologies in screening and surveillance of GIM?

JB There is good evidence for the use of technologies such as iScan, Fuji Intelligent Color Enhancement, and especially magnification; however, not all of these technologies are readily available. Some magnification technologies are now available in the United States and Europe, but, for a period of time, magnification was only available in Asia. Very high magnification still tends to be more readily available in Japan. Evidence suggests that it is very precise in identifying metaplasia and early cancer. Blue light imaging (BLI) is another advanced imaging modality that is highly sensitive for GIM, and it correlates with NBI. The Porto team has shown that agreement for GIM detection among endoscopists using BLI is substantially better than among those using conventional white-light imaging.

G&H What protocols for random and targeted biopsies should endoscopists use when evaluating patients for GIM?

JB Presently, most evidence supports the Sydney Protocol, which has been used for a long time. Dr David Graham, of Baylor College of Medicine in Houston, Texas, was a key researcher in its development. The Sydney Protocol is fairly practical and quick to use. It is an efficient approach

for busy US endoscopists; however, clinicians should keep informed about newer, evolving technologies.

G&H What advances in the role of endoscopy in GIM management can be expected in the near future?

JB High-performance video endoscopy driven by high-performance processors will likely be the first type of new technology that clinicians will be using. The processors create high-quality images and videos displayed in full high definition. Ultra-bright NBI also has been introduced and will likely be the most popular new technology for use in the next several years.

G&H How can clinicians prepare to incorporate these new technologies?

JB Clinicians should make efforts to learn the patterns of GIM seen on endoscopy. The group at the Portuguese Institute of Oncology of Porto has done an excellent job of teaching clinicians worldwide about simplified detection patterns. When GIM patterns using NBI first came online several years ago, the classic cases were complex, difficult to follow, and difficult to apply. The Porto team has created a simplified scheme that gastroenterology specialists can apply without having to be high-level experts. Their approach is very user-friendly.

G&H What else should gastroenterologists in clinical practice know regarding GIM diagnosis and treatment?

JB As the United States becomes more diverse, gastroenterology specialists should be aware that certain gastrointestinal problems in their patient panels may become more prevalent. Fortunately, gastric cancer has been rare

in the United States for the past 30 to 50 years, although it was once very prevalent. Nevertheless, it is being seen with more frequency in certain gastroenterology practices in the United States in relation to patient demographics.

Clinicians should keep GIM on the diagnostic radar and regard it as a precursor to early gastric cancer. They should consider integrating NBI into their endoscopy technique and perform biopsies when appropriate using the Sydney Protocol, paying attention to detail when examining the gastric mucosa.

As for treatments, many are evolving. Endoscopic submucosal dissection is now performed quite commonly in the United States. Many gastroenterology specialists are learning about it and utilizing it to treat early gastric lesions in a way that preserves the integrity of the stomach and the patient's quality of life.

Disclosures

Dr Buxbaum is a consultant for Olympus and Boston Scientific.

Suggested Reading

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