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Is it Worth Applying a Targeted Biopsy Sampling with the Aid of I-Scan OE to Increase the Diagnostic Yield of CLOtest and When?

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Description

I-Scan Optical Enhancement (OE) has a potential role to distinguish areas of infected mucosa. It improves visual contrast and mucosal pattern characterization [1,2]. A recently published work aimed to determine if the diagnostic yield of the CLOtest could be improved by using endoscopic I-Scan OE technology for targeted gastric biopsy sampling. It concluded that: Sampling a targeted gastric biopsy with the aid of I-S8193can OE for CLOtest significantly hastens the positive reading time with high sensitivity, allowing for early decision-making and saving time [3].

One of the issues in this area of a common endoscopic practice, is that some endoscopists practically take biopsies from the inflamed areas and others go for random biopsies, but on what base, subjective or clinical evidence?

American and Chinese guidelines recommend two biopsies, one from normal appearing mucosa at mid-corpus in addition to one from antrum [4,5]. It is accepted that adding the number of biopsy specimens will increase the accuracy of the Rapid Urease Test (RUT) [6], but why do we have to avoid lesions in the corpus and take a biopsy from normal looking mucosa, this could be explaned, to avoid sampling of atrophic gastritis and intestinal metaplasia (*H. pylori* do not colonize the intestinal mucosa [7], but at the same time, you will miss the inflamed sites with active infection and expectant high bacterial load (A positive RUT requires approximately a minimum bacterial load of 105 *H. pylori* in the biopsy sample) [8]. Recently, ESGE strongly recommends obtaining two biopsies from the antrum and two from the corpus in patients with suspected Helicobacter pylori infection for both gastritis staging and *H. pylori* diagnosis. This recommendation is low-quality evidence [9].

Another important area of debate, the late RUT positive result (after 1 hr), does exist, and practically do we traces it or shall we accept the early results (1-3 hrs) only?

In my facility, a tertiary big hospital, The CLOtest kits were kept up to 24 hrs after sample inoculation as part of the study protocol and not beyond to avoid false positive results by non-*H. pylori* urease-producing oral flora [10]. There were late positive CLOtest results (24%), however, a single targeted biopsy for CLOtest from the highly suspected mucosal patterns increased significantly the rate of early positive results.

Application of targeted biopsy

If the Image-Enhanced Endoscopic (IEE) technology (I-Scan OE) is available, a single targeted biopsy would be enough, especially when taking two samples are being inaccessible or difficult (the patient becomes desaturated or unstable during the procedure).

If the IEE is not available and/or normal-looking mucosa, so we should take at least two random biopsies (one from the antrum and one from the corpus).

If other causes of chronic gastritis are anticipated rather than or in addition to *H. pylori* obtain two biopsies from the antrum and two from the corpus for both gastritis staging and *H. pylori* diagnosis.

Procedure to apply targeted biopsy

A recent meta-analysis validated specific abnormal mucosal patterns that are highly associated with current *H. Pylori* infection [11]. In addition, the presence of combined endoscopic abnormal mucosal patterns has more predictive value for *H. pylori* active infection [12]. Depending on previous data and after careful endoscopic identification by I-scan OE, a single targeted biopsy is to be taken from either of the following gross or subtle mucosal patterns: 1) Diffuse homogenous redness, 2) Edema, 3) Antral nodularity, (4) Enlarged gastric fold, according to the following cascade;

- Overlapped abnormal mucosal patterns.
- The most severe or prominent of non-overlapped, coexistent patterns.
- The most affected or severe part of a single pattern.
- Avoiding areas with suspected atrophic gastritis and IM with the aid of I-san OE (Figures 1 and 2).

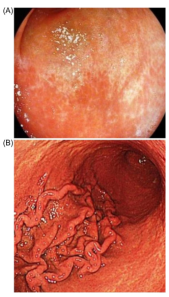

Figure 1: A) Diffuse homogeneous redness (I-Scan mood 1), B) Enlarged gastric folds (I-scan mood 1).

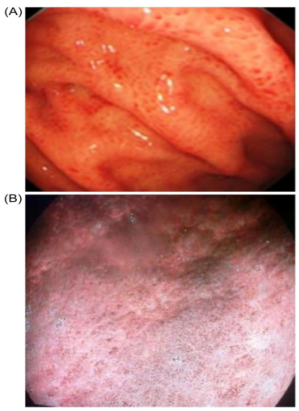

Figure 2: Severe mucosal edema with hyperemic red spots; A) I-Scan mood 1; B) I-scan mood 3.

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