



Gastric biopsies with virtual microscopy

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Abstract

Objective: The aim of this study is analyzing image scanning strategy to improve reporting gastroscopic biopsies with virtual microscopy.

Methods: 10 gastroscopic biopsies were studied with the intent to demonstrate the value of virtual microscopy (VM) in their diagnostics. Scanning of the slides was done at 10x and 40x objective magnification. Slides were thereafter reviewed at low power, with zooming in when necessary for improved resolution. In duodenal biopsies villar architecture could be evaluated from images scanned at 10x and 40x magnification (10/40), and an evaluation of lymphocytes within the epithelium could be given. Gastric biopsies were evaluated with the Sydney system. In biopsies from antrum and corpus chronic inflammation could be graded in 10/40.

Results: Demonstration of activity with the detection of granulocytes within the gland epithelium was laborious and time consuming and only practical from images scanned 40x objective. Atrophy and intestinal metaplasia could be evaluated in 10/40. Only scanning at 40x could show evidence of Helicobacteria, but the resolution did not generally satisfy the pathologist leaving a state of uncertainty.

Discussion/conclusion: It is obvious that reporting gastroscopic biopsies with virtual microscopy at the moment is slower than with the traditional microscopy. Implementation can be improved by organizing the image scanning strategy, possibly with automatic image scanning with simultaneous evaluation by the observer. The classification result should be entered on a form on screen during the evaluation. Grading of Helicobacter infestation can be improved by improved resolution. The ways to improve this point may include scanning at higher than 40x magnification, improved resolution of the camera (from 1 M pixels to 2M pixels), and improved resolution of the screen (e.g. High Definition, or of 2M pixels).

Key words: Gastroscopic biopsies, Sydney classification, Virtual microscopy.