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ORIGINAL ARTICLE

Efficacy of narrow-band imaging for detecting intestinal metaplasia in adult patients with symptoms of dyspepsia☆

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KEYWORDS
Intestinal metaplasia;
Narrow-band imaging;
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Abstract
Introduction and objective: Atrophy and intestinal metaplasia are early phenotypic markers in gastric carcinogenesis. White light endoscopy does not allow direct biopsy of intestinal metaplasia due to a lack of contrast of the mucosa. Narrow-band imaging is known to enhance the visibility of intestinal metaplasia, to reduce sampling error, and to increase the diagnostic yield of endoscopy for intestinal metaplasia in Asian patients. The aim of our study was to validate the diagnostic performance of narrow-band imaging using 1.5× electronic zoom endoscopy (with no high magnification) to diagnose intestinal metaplasia in Mexican patients.
Materials and methods: A retrospective cohort study was conducted on consecutive patients with dyspeptic symptoms at a private endoscopy center within the time frame of January 2015 to December 2016.
Results: A total of 338 patients (63 ± 8.4 years of age, 40% women) were enrolled. The prevalence of *H. pylori* infection was 10.9% and the incidence of intestinal metaplasia in the gastric antrum and corpus was 23.9 and 5.9%, respectively. Among the patients with intestinal metaplasia, 65.3% had the incomplete type, 42.7% had multifocal disease, and one third had extension to the gastric corpus. Two patients had low-grade dysplasia. The sensitivity of white light endoscopy was 71.2%, with a false negative rate of 9.9%. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of narrow-band imaging (with a positive light blue crest) were 85, 98, 86.8, 97.7, and 87.2%, respectively.

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Conclusion: The prevalence of *H. pylori* infection and intestinal metaplasia in dyspeptic Mexican patients was not high. Through the assessment of the microsurface structure and light blue crest sign, non-optical zoom narrow-band imaging had high predictive values for detecting intestinal metaplasia in patients from a general Western setting.
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PALABRAS CLAVE
Metaplasia intestinal;
Imagen de banda estrecha;
Cáncer gástrico

La eficacia de la imagen de banda estrecha para la detección de metaplasia intestinal en pacientes adultos con síntomas de dispepsia

Resumen
Introducción y objetivo: La atrofia y metaplasia intestinal son marcadores fenotípicos tempranos en la carcinogénesis gástrica. La endoscopia con luz blanca no permite la biopsia directa de metaplasia intestinal debido a la falta de contraste de la mucosa. Se sabe que la imagen de banda estrecha aumenta la visibilidad de metaplasia intestinal, reduce el error de muestreo e incrementa el rendimiento diagnóstico endoscópico para metaplasia intestinal en pacientes asiáticos. El objetivo de nuestro estudio fue validar la utilidad de la endoscopia con imagen de banda estrecha para el diagnóstico de metaplasia intestinal en pacientes mexicanos utilizando un endoscopio con zoom electrónico de 1.5 × (sin gran aumento).
Materiales y métodos: Se realizó un estudio de cohorte retrospectivo en pacientes consecutivos con síntomas dispépticos en un centro endoscópico privado dentro del periodo de tiempo comprendido entre enero de 2015 a diciembre de 2016.
Resultados: Un total de 338 pacientes (63 ± 8.4 años, 40% mujeres) fueron inscritos. La prevalencia de infección por *H. pylori* fue de 10.9% y la incidencia de metaplasia intestinal en el antro y cuerpo gástrico fue de 23.9% y 5.9%, respectivamente. Entre los pacientes con metaplasia intestinal el 65.3% presentó tipo incompleto, 42.7% enfermedad multifocal y un tercio presentó extensión hacia el cuerpo gástrico. Dos pacientes tuvieron displasia de bajo grado. La sensibilidad de la endoscopia con luz blanca fue de 71.2%, con una tasa de falsos negativos de 9.9%. La sensibilidad, especificidad, el valor predictivo positivo, el valor predictivo negativo y la precisión de la imagen de banda estrecha (con crestas azules claras positivas) fue de 85%, 98%, 86.8%, 97.7% y 87.2%, respectivamente.
Conclusión: La prevalencia de infección por *H. pylori* y de metaplasia intestinal en pacientes mexicanos dispépticos no fue alta. A través de la valoración de la estructura de la microsuperficie y de signos de crestas azules claras, la imagen de banda estrecha sin zoom óptico tuvo valores predictivos altos para la detección de metaplasia intestinal en pacientes de marco general occidental.
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Introduction and aims

Gastric cancer (GC) is the third leading cause of cancer death worldwide. In most cases, it is detected at an advanced clinical stage and has a poor overall 5-year survival. In 2012, there were 952,000 new cases and 723,000 deaths reported across the world.[1–2]

Helicobacter pylori (*H. pylori*) infection in the gastric mucosa causes chronic persistent inflammation involving neutrophils or lymphocytes, and the carcinogenic sequence includes subsequent multiple steps, ranging from chronic atrophic gastritis (CAG), intestinal metaplasia (IM), and dysplasia to cancer.[3]

CAG and IM are the earliest phenotypic markers in the gastric carcinogenic sequence, and surveillance will depend on histologic confirmation of those lesions. The site, number, and size of the biopsies are factors associated with sampling error. White light endoscopy (WLE) does not clearly visualize such mucosal changes and so the biopsies are taken randomly. The presence of IM and its extension increases the chance of developing GC.[4] Intensive surveillance and systematic assessment in such patients may increase the detection of early lesions and diminish the risk of interval GC.[5–7]

The optical technique, narrow-band imaging (NBI), characterizes the blood vessels and the mucosal surface patterns by illuminating two specific short wavelength lights (blue: 415 nm and green: 550 nm) through the narrow-band filter. The combination of magnification endoscopy (ME) with NBI (NBI-ME) makes it possible to identify the detailed

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