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ORIGINAL ARTICLE

Usefulness of systematic chromoendoscopy with a double dye staining technique for the detection of dysplasia in patients with premalignant gastric lesions☆

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KEYWORDS
Premalignant lesions;
Intestinal metaplasia;
Gastric atrophy;
Dysplasia;
Gastric cancer;
Chromoendoscopy;
Screening

Abstract
Introduction: Premalignant gastric lesions have an increased risk to develop gastric cancer.
Objective: To evaluate the usefulness of systematic endoscopy that includes chromoendoscopy with a double dye staining technique for the detection of dysplasia in patients with premalignant gastric lesions.
Patients and methods: This longitudinal, prospective study was performed in patients with gastric atrophy, intestinal metaplasia or dysplasia who were referred for endoscopy less than 6 months after the initial diagnosis. The second endoscopy was performed in three phases: phase 1, exhaustive and systematic review of the mucosa with photographic documentation and biopsies of suspicious areas; phase 2, chromoendoscopy with a double dye staining technique using acetic acid 1.2% and indigo carmine 0.5%; phase 3, topographic mapping and random biopsies.
Results: A total of 50 patients were included. Nine (18%) had atrophic gastritis, 38 (76%) had intestinal metaplasia, and 3 (6%) had low-grade dysplasia. Systematic endoscopy with chromoendoscopy using a double dye staining technique detected more patients with dysplasia (9 vs. 3, $p < .05$), and a larger number of biopsies with the diagnosis of dysplasia were obtained. This occurred for visible (6 vs. 0, $p < .05$) and non-visible lesions (6 vs. 3, p = NS). In one patient, initial low-grade dysplasia was not detected again in the systematic endoscopy, giving a global endoscopic performance for the detection of lesions of 92%.

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Conclusions: Patients with premalignant gastric lesions have synchronous lesions with greater histological severity, which are detected when systematic endoscopy is conducted with indigo carmine dye added to acetic acid.

PALABRAS CLAVE
Lesiones premalignas;
Metaplasia intestinal;
Atrofia gástrica;
Displasia;
Cáncer gástrico;
Cromoendoscopia;
Cribado

Utilidad de la endoscopia sistemática con bicromoendoscopia para la detección de displasia en pacientes con lesiones premalignas gástricas

Resumen
Introducción: Las lesiones premalignas gástricas constituyen un factor de riesgo para desarrollar cáncer gástrico.
Objetivo: Evaluar la utilidad de una endoscopia sistemática que incluye bicromoendoscopia para la detección de displasia en pacientes con lesiones premalignas gástricas.
Pacientes y métodos: Estudio longitudinal y prospectivo de pacientes consecutivos con diagnóstico de atrofia gástrica, metaplasia intestinal o displasia remitidos para nueva valoración por endoscopia antes de los 6 meses de la endoscopia inicial. La nueva endoscopia se realizó en 3 fases: revisión exhaustiva y sistemática de toda la mucosa con toma de fotos y biopsias de las lesiones sospechosas (fase 1), bicromoendoscopia con una mezcla de ácido acético 1,2% e índigo carmín 0,5% (fase 2) y mapeo topográfico con toma de biopsias aleatorias (fase 3).
Resultados: Cincuenta pacientes con diagnóstico de gastritis atrófica (n = 9, 18%), metaplasia intestinal (n = 38, 76%) y displasia de bajo grado (n = 3, 6%). La endoscopia sistemática con bicromoendoscopia identificó más pacientes con displasia (9 versus 3, $p < 0,05$) y se obtuvieron más biopsias con diagnóstico de displasia, tanto en lesiones visibles (6 vs. 0, $p < 0,05$) como no visibles (6 vs. 3, p = NS). En un paciente con displasia de bajo grado inicial, esta no volvió a detectarse en la endoscopia sistemática, siendo el rendimiento global de la endoscopia de seguimiento para detectar lesiones del 92%.
Conclusiones: Los pacientes con lesiones premalignas gástricas presentan lesiones sincrónicas de mayor severidad histológica que se ponen de manifiesto al realizar una endoscopia sistemática que incluye el uso de bicromoendoscopia.

Introduction

Gastric cancer (GC) is one of the most frequent types of cancer worldwide[1] and the second most common cause of cancer-related death in the world, with up to 1 million deaths annually.[2] Prognosis is good–a 5-year survival rate of 80%–when diagnosis is made at an early stage (i.e., lesions localized in the mucosa or submucosa).[3] It is therefore of utmost importance to endoscopically diagnose GC in the initial phases of the disease.

As a major risk factor for the development of GC, premalignant lesions of the stomach encompass a variety of conditions such as atrophic chronic gastritis, intestinal metaplasia and dysplasia.[4] High-grade dysplasia is associated with higher risk (a hazard ratio of 40).[5] Recently published guidelines[4,6] include recommendations for the diagnosis and surveillance of these lesions. They recommend repeating the diagnostic and staging endoscopy when any of the aforementioned premalignant lesions are found, as well as taking targeted biopsies of visible lesions in order to evaluate their extension and severity, and performing random biopsies (topographic mapping) in order to identify synchronous lesions.[4,6] Subsequent endoscopic surveillance is recommended with a frequency varying according to the presence (or absence) of dysplasia and the extent of the atrophy and/or metaplasia.[4] The recommendations are based on the fact that low- and high-grade dysplasia can present as endoscopically visible depressed or elevated lesions[4] or as flat isolated or multifocal lesions.[7–10]

Various methods have been shown to improve the detection of endoscopically visible lesions and early GC, such as thorough cleansing of the gastric mucosa with mucolytic solutions,[11] meticulous examination of the gastric mucosa[12] and dye-based or digital chromoendoscopy.[13–17] The European guidelines recommend using the best endoscopic method available, as insufficient data is available to recommend any one in particular.

Chromoendoscopy with indigo carmine is widely used in the stomach–its efficacy having been demonstrated in numerous studies–as indigo carmine deposited on the depressed areas of the mucosa accentuates depressed-type early GC.[18] Acetic acid, extensively used in the oesophagus, causes the epithelium to change colour through protein acetylation and denaturation and also has a mucolytic effect.[19] Relatively little evidence is available regarding bichromoendoscopy with acetic acid and indigo carmine.