Revista de Gastroenterología de México. 2016;81(2):91–102

REVISTA DE GASTROENTEROLOGÍA DE MÉXICO
www.elsevier.es/rgmx

REVIEW ARTICLE

Management of Barrett's esophagus: Screening to newer treatments☆

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Received 16 June 2015; accepted 15 July 2015
Available online 4 April 2016

KEYWORDS
Barrett;
Esophagus;
Screening;
Endoscopy

Abstract Barrett's esophagus is a premalignant condition of the esophagus in which the squamous epithelium of the lower end of the esophagus is replaced with columnar epithelium. Since the incidence of esophageal adenocarcinoma is on the rise, the major gastroenterology societies have come up with their recommendations for screening and surveillance. Specific factors like obesity, white race, age over 50 years, early age of onset of GERD, smoking and hiatal hernia have been identified as increasing the risk of Barrett's esophagus and adenocarcinoma. The diagnosis requires both endoscopic identification of columnar-lined mucosa and histological confirmation with biopsy. Most medical societies recommend screening people with GERD and other risk factors with endoscopy, but other alternatives employing less invasive methods are currently being studied. Surveillance strategies vary depending on the endoscopic findings and the Seattle biopsy protocol with random 4-quadrant sampling is recommended. Biomarkers have shown promising results, but more studies are needed in the future. White light endoscopy is the standard practice, but other advanced imaging modalities have shown variable results and hence more studies are awaited for further validation. Endoscopic eradication techniques, including both resection and ablation, have shown good but variable results for treating dysplastic lesions confined to the mucosa. Resection procedures to remove visible lesions followed by ablation of the dysplastic mucosa have shown the best results with higher eradication rates and lower recurrence rates. Surgical management is reserved for lesions with sub-mucosal invasion and lymph node spread with increased risk of metastasis.
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☆ Please cite this article as: Thoguluva Chandrasekar V, Vennalaganti P, Sharma P. Manejo del esófago de Barrett: del tamizaje a los nuevos tratamientos. Revista de Gastroenterología de México. 2016;82:91–102.

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PALABRAS CLAVE
Barrett;
Esófago;
Tamizaje;
Endoscopia

Manejo del esófago de Barrett: del tamizaje a los nuevos tratamientos

Resumen El esófago de Barrett es un trastorno premaligno del esófago en el cual el epitelio escamoso de la porción distal del esófago es reemplazado por epitelio columnar. Debido a que la incidencia de adenocarcinoma esofágico se encuentra al alza, la mayoría de las sociedades de Gastroenterología han emitido sus propias recomendaciones para el tamizaje y la vigilancia. Factores específicos como la obesidad, la raza blanca, la edad por encima de los 50 años, el inicio del ERGE a edad temprana, el tabaquismo y la hernia hiatal han sido identificados como factores que incrementan el riesgo de esófago de Barrett y adenocarcinoma. El diagnóstico requiere tanto de la identificación endoscópica de mucosa con revestimiento columnar como de la confirmación histológica con biopsia. La mayoría de las sociedades médicas recomiendan tamizar a todas las personas con ERGE, así como aquellos con otros factores de riesgo con endoscopia; sin embargo, otras alternativas que utilizan métodos menos invasivos se encuentran bajo estudio en la actualidad. Las estrategias de vigilancia varían dependiendo de los hallazgos endoscópicos y se recomienda el protocolo de biopsias de Seattle con un muestreo de 4 cuadrantes aleatorizado. Algunos biomarcadores han mostrado resultados prometedores, aunque se requieren de más estudios en el futuro. La endoscopia de luz blanca es el estándar en la práctica, sin embargo, otras modalidades de imagen más avanzadas han mostrado resultados variables y, por lo tanto, se esperan más estudios para obtener validación adicional. Las técnicas de erradicación endoscópica, incluyendo tanto la resección como la ablación, han mostrado buenos resultados, aunque variables, en el tratamiento de lesiones displásicas confinadas a la mucosa. Los procedimientos de resección para remover las lesiones visibles seguida por la ablación de la mucosa displásica han mostrado los mejores resultados, con tasas de erradicación más altas y menores tasas de recurrencia. El manejo quirúrgico está reservado para lesiones con invasión de la submucosa y propagación a ganglios linfáticos con un riesgo incrementado de metástasis.
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Introduction

Barrett's esophagus (BE) is a pre-malignant condition of the esophagus in which the squamous epithelium of the lower end of the esophagus is replaced with columnar epithelium. It is generally due to chronic mucosal damage caused by gastroesophageal reflux disease (GERD). The incidence of BE in the United States has been estimated at about 5.6% of the general population.[1] In recent years, BE has become a focus of studies as the incidence of esophageal adenocarcinoma (EAC) is on the rise in the western world and is currently the fifth leading cause of cancer-related deaths among men worldwide.[2] The sequence of GERD leading to BE, which is premalignant and eventually leads to EAC, has gained the attention of physicians around the world, resulting in the elaboration of guidelines for screening and surveillance.

Epidemiology

The prevalence of BE has been difficult to estimate, as most of the patients are asymptomatic and remain undiagnosed. Various rates have been reported from different parts of the world. In a prospective study reported by Rex et al. based on upper endoscopy (EGD) offered to patients undergoing colonoscopy, the prevalence of BE was 6.8% with a short-segment BE rate of 5.5%.[3] A similar study with a smaller cohort conducted by Ward et al. revealed short-segment BE in 15% and long-segment Barrett's esophagus in 4%, but this cohort had a significantly older population.[4] Ronkainen et al. published a study from Sweden based on EGD done on 1,000 random individuals and reported a prevalence of BE of 1.6% with a short-segment BE of 1.1% and a long-segment BE of 0.5%.[5] Zagari et al. from Italy published a study with BE prevalence of 1.3% and long-segment BE of 0.2%,[6] whereas Zou et al. from China reported BE of 1.9% and long-segment BE of 0.5%.[7] Published studies have reported an increasing incidence and prevalence of BE in the male population with a ratio of almost 2:1, also associated with earlier presentation in males than in females.[8] This may partly be due to the protective effect of estrogens in females,[9] which may be lost as they age, and to the development of obesity, leading to reflux esophagitis[10] and consequent BE.

There are several other risk factors for BE and EAC which have been identified in clinical studies. Obesity, white race, older age, chronic heartburn, early age of onset of GERD, hiatal hernia, smoking, a family history of GERD or familial forms of Barrett's esophagus, and obstructive sleep apnea have been recognized as significant risk factors.[11] The use of nonsteroidal anti-inflammatory drugs, statins, *Helicobacter pylori* (*H. pylori*) infection and a diet rich in fruits and vegetables have been found to protect against BE. *H. pylori* infection causes gastritis, which leads to decreased gastric

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