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Barrett's Esophagus

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Barrett's Esophagus

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Introduction

The incidence of esophageal adenocarcinoma, a deadly cancer, is escalating in comparison to other cancers (colon, lung, and breast) (Patel & Gyawali, 2019). While providing surgical care for patients undergoing a transthoracic esophagectomy on a routine basis, there were significant trends amongst the patient population: history of gastroesophageal reflux disease, Barrett's Esophagus diagnosis, patient demographics and social history. As a nurse providing care for patients with advanced disease, requiring invasive surgery, it was very appealing to understand the disease process and management of Barrett's Esophagus. The exact pathogenesis of Barrett's Esophagus to esophageal cancer remains uncertain, and there are limited strategies for early detection and prevention of esophageal cancer. It is with sincere appreciation to care for this patient population and sincere determination to educate about the risks associated with Barrett's Esophagus.

Background

- Barrett's Esophagus is a condition in which stratified squamous epithelial cells in the distal esophagus are replaced by metaplastic columnar epithelium with/without goblet cells (Clermont & Falk, 2018).
- Cellular changes in the distal esophagus is a result of exposure to chronic reflux of acid and bile (Eluri & Shaheen, 2017).
- Barrett's Esophagus is a precursor to esophageal adenocarcinoma.

Who is at risk?

- Increased age (over 50), Caucasian males, with central obesity, and an underlying history of smoking, and/or chronic gastroesophageal reflux disease (GERD) (Eluri & Shaheen, 2017; Patel & Gyawali, 2019).
- GERD can be present with or without heartburn or with atypical symptoms such as: chest pain, cough, sore throat, and laryngitis. What's more, symptoms diminish or "improve" as the disease develops (Patel & Gyawali, 2019).

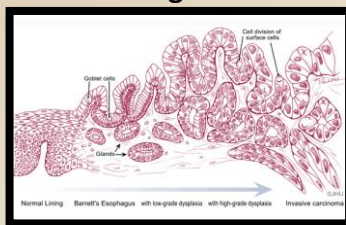
Diagnosis & Screening

- Diagnosing and screening for Barrett's is challenging and complex. The preferred screening method for those with associated risk factors for mucosal changes and dysplasia is an upper endoscopy by a gastroenterologist. An upper endoscopy is preferred, as they are surveying tissue at the distal esophagus (Patel & Gyawali, 2019).
- Gastroenterologists utilize the Prague Classification system to standardize mucosal changes in suspected tissue and are required to provide precise tissue sampling.
- Endoscopic recognition of anatomical landmarks can be very challenging to identify due to esophagitis, respiration and peristalsis. (Clermont & Falk, 2018).
- Tissue sampling is reviewed and confirmed by two pathologists for diagnosis of Barrett's Esophagus, low-grade dysplasia and high-grade dysplasia (Clermont & Falk, 2018).

Diagnosis & Screening cont'd:

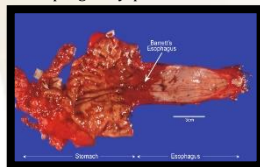
- The use of biomarkers and other screening measures may improve the cost-effectiveness of Barrett's esophagus screening, but are currently being developed with limited data (Patel & Gyawali, 2019).
- The extent of tissue changes and dysplasia drive surveillance and treatment.

Pathogenesis

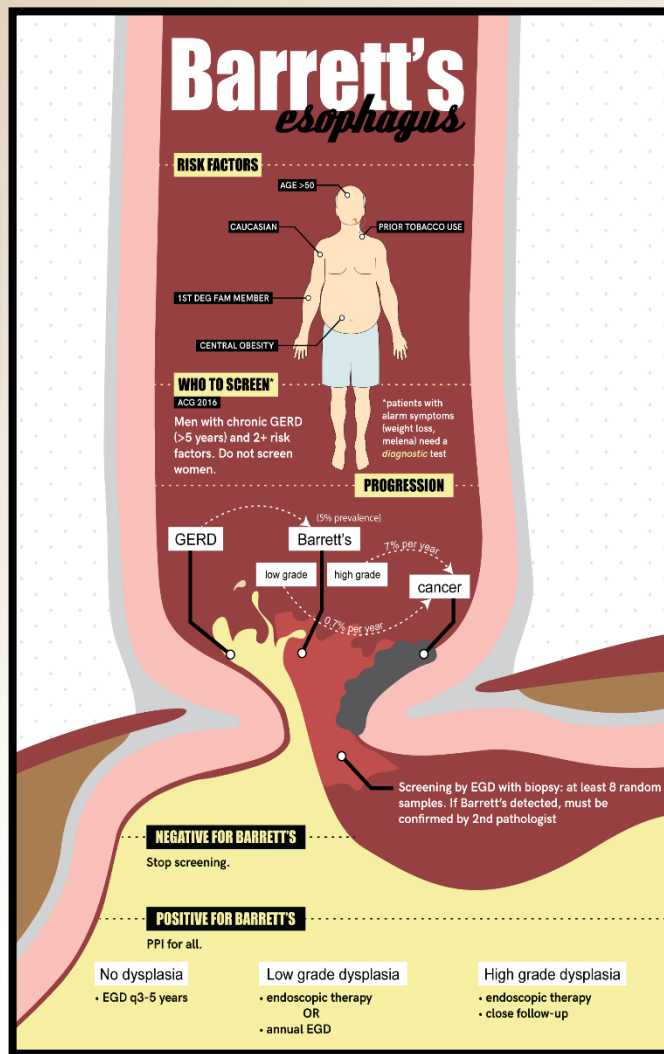
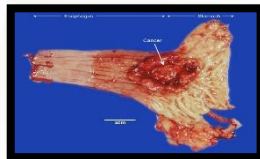


(Johns Hopkins Department of Pathology: Barrett's Esophagus, 2020)

- The progressive multi-step cellular changes (metaplasia to dysplasia, to carcinoma) in the distal esophagus is from chronic reflux of acid and bile.
- The precise pathogenesis of Barrett's Esophagus remains uncertain.
- The esophagus is lined with stratified squamous epithelial cells which are then replaced by metaplastic columnar epithelium.
- Not all patient's with a diagnosis of Barrett's Esophagus will progress to esophageal cancer.
- Those diagnosed with esophageal cancer may not have a history of esophageal dysplasia.



Images above and below: (Johns Hopkins Department of Pathology: Barrett's Esophagus, 2020)



Shah, D., Rufin, D., Fried, D., Trivedi, D., & Ou, D. (2019).

Significance of Pathophysiology

- Researchers know that the epithelium in the distal esophagus changes, but the original cause of metaplasia and the process in which cells transform to cancer remain unknown. For example, acid reflux contributes to the pathogenesis of Barrett's, the question remains, does acid reflux cause a chemical injury to the cells, or do the cells alter due to repeated inflammation?
- A patient can be diagnosed with esophageal cancer without any history of Barrett's Esophagus. What's more, a patient with Barrett's can still progress to esophageal cancer despite having no history of dysplasia (Eluri & Shaheen, 2017).
- The uncertainty of disease pathogenesis contributes to difficulty identifying which patients to screen for disease. Not only does the deficit in understanding pathogenesis contribute to understanding those at risk for Barrett's, it also makes it difficult to predict which patients will progress to cancer (Inadomi et al., 2018).

Implications for Nursing Care

- Identify and educate those at risk: Caucasian males, over 50 years of age, with central obesity, GERD, familial and tobacco use history.
- Provide resources and education for dietary changes and smoking cessation.
- Manage GERD symptoms with a once-daily dose of a proton pump inhibitor (Eluri & Shaheen, 2017).
- Know that nonsteroidal anti-inflammatory drugs (NSAIDs), for those with Barrett's Esophagus, reduce progression of esophageal adenocarcinoma by 30% (Eluri & Shaheen, 2017). Keep in mind the bleeding risk with NSAIDs; does the benefit outweigh the risk?
- Screening is important, but is not cost effective to screen those that aren't at risk. Consider an upper GI study during routine colonoscopies for at-risk patients.
- Consult and refer patients to a gastroenterologist to help guide and manage the disease.

Conclusion

Barrett's Esophagus occurs in about 15% of those with GERD, and not all cases of Barrett's progress to esophageal carcinoma (Eluri & Shaheen, 2017). The overall goal is to identify those at risk to optimize screening and surveillance, because the prevalence of esophageal carcinoma is rising. Barrett's is complex to diagnose and screen, but there are multiple treatment modalities available. Identifying those at risk and minimizing acid reflux are the beginning stages of prevention. Current research is focused on the pathogenesis of Barrett's, surveillance methods, and eradication therapies. It is with great hope that further research will promote screening in at-risk patient populations, similarly to other prevalent cancers like breast, colon and lung.

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