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BARRETT'S SYNDROME- A REVIEW OF LITERATURE

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ABSTRACT

Barrett's esophagus (BE) is a condition in which the normal squamous epithelium of the esophageal mucosa is replaced with columnar intestinal epithelium. It is related to a risk factor of developing esophageal cancer. . In this condition, the cells lining the lower part of the esophagus start to change as a response to the chronic acid exposure. The most common cause of this is prolonged period of GERD. The common clinical manifestations of Barrett's syndrome are frequent heartburn, regurgitation of stomach content and difficulty in swallowing. The goal of management is to heal the erosions of the esophageal lining and prevent the condition from spreading, which can do with pharmacological and surgical management.

KEYWORDS : Barrett's syndrome, GERD, metaplasia, dyplasia,esophageal adenocarcinoma.

Barrett's syndrome is otherwise called as Barrett's oesophagus, Allison-Johnstone anomaly, columnar epithelium lined lower oesophagus (CELLO). It is a condition in which the lining of the esophagus becomes damaged by acid reflux, which causes the lining to thicken and become red. In Barrett esophagus, healthy esophageal epithelium is replaced with metaplastic columnar cells due to damage from prolonged exposure of the esophagus to the refluxate of gastroesophageal reflux disease (GERD). It is considered as precancerous condition because the cells lining the lower part of the esophagus start to change as metaplasia in response to the chronic acid exposure.

Incidence

The incidence of Barrett esophagus increased dramatically during the late-20th century and incidence estimates continue to increase, with a prominent male:female ratio. The prevalence is between 0.5 – 2.0 percent. The risk of esophageal adenocarcinoma among patients with Barrett esophagus is estimated to be 30–125 folds greater than that of the general population.

Causes& Risk factors

- **long-standing GERD:** which leads to esophagitis and subsequent metaplastic change of the esophageal lining.
- **Family history:** first degree relatives are increase one's risk for this.
- **Gender:** males are more risk than women
- **Age:** more common in adults over 50.
- **Current or past smoking** : Smoking increases the gastric acid secretions and weakens the muscular valve that separates the esophagus from the stomach. Smoking can also decrease the production of saliva, which neutralizes acid.
- **Being overweight:** Carrying excess weight, especially in the belly, can compress the stomach and cause acid to rise into the esophagus, worsening GERD symptoms

Pathophysiology

- The cells lining the esophagus differ from those lining the stomach.
- Esophageal cells became inflamed when continuous exposure to gastric acid
- Stimulates growth of stomach or intestinal-type cells in the esophageal lining.
- Abnormal cells are replaced with normal esophageal cell lining (Barrett's Esophagus).
- These cells can continue to change and can develop into a pre-malignant condition called dysplasia.
- Without treatment, dysplasia can lead to cancer of the esophagus.

Clinical manifestations

- Frequent heartburn and regurgitation of stomach contents
- Sore throat
- Difficulty swallowing food
- Indigestion.
- Blood in vomit or stool.
- Nocturnal regurgitation (acidic or bitter liquid coming up to the chest or mouth during the night.
- Less commonly, chest pain

Diagnostic studies

- History collection
- Physical examination

Upper endoscopy:

The lining of the esophagus is checked for abnormalities with the help of endoscope. The endomicroscope is used to analyze the tissue during an endoscopy

Chromoendoscopy:

A chromoendoscopy is a procedure that uses staining to identify abnormal areas that may be malignant (cancerous). During the endoscopy, apply stains to the esophagus with a liquid called Lugol's solution. The dye stains only the normal cells; unstained areas may be malignant.

Biopsy:

The diagnosis of Barrett esophagus requires biopsy confirmation of specialized intestinal metaplasia (SIM) in the esophagus

Ultrasonography:

When high-grade dysplasia or cancer is found on surveillance endoscopy, endoscopic ultrasonography (EUS) is needed to evaluate for surgical management.

Management

The goal is to heal the erosions of the esophageal lining and prevent the condition from spreading. Patients should undergo periodic surveillance endoscopy to identify histological markers for increased cancer risk (dysplasia)

Pharmacological management

- proton pump inhibitor: reducing gastric acid secretion
- muscle relaxant: to reduce acid reflux

The management options for high-grade dysplasia include the following:

- **Surveillance endoscopy**, with intensive biopsy at 3-month intervals until the cancer is detected
- **Endoscopic ablation**: uses radiowaves delivered through an endoscope to destroy abnormal and cancerous cells.
- **Endoscopic mucosal resection (EMR)**. lifts the abnormal lining and cuts it off the wall of the esophagus before it's

removed through the endoscope. The goal is to remove any precancerous or cancer cells contained in the lining. If cancer cells are present, an ultrasound is done first to be sure the cancer hasn't moved deeper into the esophagus walls

- **Photodynamic therapy (PDT).** A laser through an endoscope kills abnormal cells in the lining without damaging normal tissue. Before the procedure, the patient takes a drug known as Photofrin, which causes cells to become light-sensitive.

Dietary management

Patients should avoid the food which causes increased acid secretion such as:

- Fried or fatty foods
- Chocolate
- Peppermint
- Alcohol
- Coffee
- Carbonated beverages
- Citrus fruits or juices
- Tomato sauce
- Ketchup
- Mustard
- Vinegar
- Aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs)

Lifestyle modification: avoid certain lifestyles which increase the risk of acid reflux such as:

- Avoid eating meals before going to bed.
- Take small and frequent diet
- Don't lie down immediately after having meal
- Elevate head end of the bed while sleeping

CONCLUSION

Barrett's oesophagus describes a metaplastic change to the epithelium of the lower oesophagus due to continuous exposure to gastric acid that predisposes to esophageal adenocarcinoma. Treatment strategies for Barrett's esophagus aim to alleviate symptoms control GERD and reduce the risk of cancer. The first priority in treatment of this is to stop damage of esophageal lining that can done through proper dietary and lifestyle modification.

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