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Barrett's Esophagus and Esophageal Cancer

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Description

Barrett's esophagus is a premalignant condition in which the stratified squamous epithelium in the distal esophagus is replaced to a variable extent by metaplastic columnar epithelium. It is significant from an oncologic perspective because of the close association between Barrett's esophagus and the development of adenocarcinoma of the esophagus. Barrett's esophagus develops as a sequel of chronic inflammation caused by reflux of gastric contents, including acid, pepsin, and bile acids. Esophageal motility studies and pH monitoring suggest that these patients exhibit weak lower esophageal sphincter tone and slow clearance of gastric acid. Although Barrett's esophagus can be recognized or suspected by its appearance on endoscopy, a definitive diagnosis of Barrett's esophagus must be based on biopsy and histologic analysis.

The histologic features of Barrett's esophagus should include a demonstration of goblet cells interspersed among mucin-type columnar cells. This represents the so-called specialized columnar epithelium and is pathognomonic of the process. It is difficult to determine the incidence of Barrett's esophagus. The majority of individuals with Barrett's esophagus in the general population are probably asymptomatic and therefore do not seek medical attention. Historically, Barrett's esophagus has been taken to mean specialized columnar epithelium that was determined to be more than 3 cm in length, and consequently, much of the published information regarding the incidence and natural history was generated by analyzing patients with long segments of the disease. It is now recognized that intestinal metaplasia of less than 3 cm in length should be classified as Barrett's. It has been reported that up to 33% of all patients undergoing upper endoscopy may have histologic evidence of Barrett's esophagus. Approximately 10% of patients with frequent reflux symptoms will have a long segment of Barrett's esophagus identified. 19 Numerous reports have confirmed that patients with Barrett's esophagus are at increased risk to develop adenocarcinoma of the esophagus.

The median incidence of esophageal adenocarcinoma in patients with the disease to be approximately 1 cancer per 100 patient-years of follow-up. The overall risk was approximately 40 times higher than that of the general population. The annual rate of cancer development in these patients is estimated to be approximately 0.8%. Information on the risk of developing adenocarcinoma in short segments (less than 3 cm) of Barrett's esophagus is more limited, but the available data suggest it is associated with significant potential for malignant degeneration. The detection of esophageal epithelial dysplasia is an important clinical factor used to stratify patients with Barrett's esophagus.

All patients were without carcinoma at entrance to the study and were followed for a mean of 5.2 years. Six patients had low-grade dysplasia, and one patient had high-grade dysplasia at the start of the study. By the end of the observation period, five patients had developed adenocarcinoma, ten scored as low-grade dysplasia, and three were scored as high-grade dysplasia. Thus, it is suggested that low-grade dysplasia may be helpful in identifying individuals who are likely to progress to high-grade dysplasia or adenocarcinoma. It is clear, however, that not all high-grade dysplasia progresses to cancer, and regression of a short segment of Barrett's esophagus that contained high-grade dysplasia has been reported. The optimal management of Barrett's esophagus has not been established. No prospective randomized trials have compared alternative treatment strategies. Comparing published series can be problematic because of biopsy sampling errors, differences in pathologic interpretation, and variations and improvements in endoscopic and surgical techniques. Although complete agreement has not been reached regarding the best approach for these patients, most experts depend on the degree of dysplasia associated with Barrett's esophagus to guide treatment recommendations.