Study shows long-term efficacy of minimally invasive therapy for patients with Barrett's esophagus

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According to a new study by researchers at the Perelman School of Medicine at the University of Pennsylvania, patients with Barrett's esophagus and early or pre-cancerous cells have been shown to significantly benefit from minimally invasive therapy delivered through an endoscope – a medical instrument used to look inside an organ or cavity in the body. Until recently, patients with these conditions were treated by surgery to remove the whole esophagus. Study results show that endoscope-based therapies have a high success rate; all of the damaged cells were removed in up to 95 percent of cases, greatly reducing the chances of cancer progression. Additionally, in over two-thirds of cases, patients had no biological signs of the return of disease for years. The study appears in the February issue of *GIE: Gastrointestinal Endoscopy*.

The esophagus is the tube that connects the mouth with the stomach. Barrett's esophagus, which can be a precursor to cancer of the esophagus, is a condition in which the cells of the lower esophagus become damaged, typically from persistent exposure to stomach acid. Barrett's esophagus affects over three million people in the United States. Men develop Barrett's esophagus twice as often as women.

"This study is one of only a few that focuses on the long-term effects of minimally invasive techniques for the treatment of Barrett's esophagus," said Gregory G. Ginsberg, MD, professor of Medicine and director of

Endoscopic Services at Penn Medicine, and corresponding author on the study. "We examined patients from as far back as 1998 and had an average follow-up of nearly three years. This gives us a more complete measure of assessing the longer-term benefits of these types of intervention."

Among the therapies evaluated in the new study were radiofrequency ablation and endoscopic resection. In radiofrequency ablation, a balloon or small paddle that transmits energy is attached to the endoscope to burn away a thin layer of the esophageal mucosa, removing the damaged cells. It is a half-hour outpatient procedure performed under mild sedation.

In an endoscopic resection, an endoscope is inserted down the throat to reach the esophagus. Its light and camera enable the doctor to see and navigate, and it has tools for removal of the affected tissue. Both procedures are far less invasive and less expensive than an esophagectomy, a major surgery that removes the esophagus in patients with advanced conditions.

Approximately 10 percent of patients with long-term gastroesophageal reflux disease (GERD) will develop Barrett's esophagus. GERD is a chronic regurgitation of acid from the stomach into the lower esophagus, which often results in recurring heartburn and, less commonly, difficulty swallowing. A small percentage of patients with Barrett's esophagus will develop high grade dysplasia, a more serious condition. High grade dysplasia isn't cancer, but it is the step before cancer. The risk of developing esophageal cancer from high grade dysplasia has been examined in several studies and ranges from 20 percent to 50 percent. Overall, patients with Barrett's esophagus have a less than 1 percent risk of developing esophageal cancer over their lifetimes. Esophageal cancer is especially invidious; it has a less than 15 percent five-year survival rate.

Results of the study also show that in as many as one-third of the cases, manifestations of the disease returned. "These findings of recurrence make it clear that Barrett's esophagus patients should undergo life-long periodic endoscopic exams to watch for precancerous esophagus cells. If we find these cells, we can treat them via the endoscope to prevent esophageal cancer," said Ginsberg.

Barrett's esophagus is named after Norman Barrett (1903-1979), who described the condition in 1950.

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