

Clinical and Manometric Features of the Lower Esophageal Muscular Ring

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OBJECTIVE: In contrast to the well-recognized Schatzki's ring, the lower esophageal muscular ring remains a poorly defined entity. The purpose of this study is to report on the clinical features of three patients with lower esophageal muscular rings and review the literature on this disorder, to better understand its importance as a cause of dysphagia.

METHODS: Three patients presenting to the West Roxbury VA Medical Center were identified as having a contractile, focal narrowing in the distal esophagus by upper GI series. Clinical histories were obtained and endoscopic and manometric evaluations were performed.

RESULTS: The three patients had symptoms consisting of chronic, intermittent dysphagia for both liquids and solids. The results of barium swallows and upper endoscopic examinations were similar and revealed a focal, thick constriction of variable luminal diameter located a few centimeters above the squamocolumnar junction. Esophageal motility testing revealed peristaltic, high-amplitude, long-duration, and multiple peaked contractions. Lower esophageal sphincter function was normal. The patients derived partial or only temporary relief of dysphagia with esophageal dilation with rigid dilators. All three patients had significant symptomatic responses to anticholinergic agents.

CONCLUSIONS: Lower esophageal muscular rings are an uncommon but important cause of dysphagia. Significant esophageal motility abnormalities can be found in symptomatic patients. Distinguishing the lower esophageal muscular ring from the Schatzki's ring is important because of differences in the treatment and outcome of the two conditions. (*Am J Gastroenterol* 2000;95:43–49. © 2000 by Am. Coll. of Gastroenterology)

INTRODUCTION

In 1953, in two independent reports, Schatzki and Gary (1) and Ingelfinger and Kramer (2) described a group of patients with the characteristic history of longstanding, intermittent dysphagia for solid food without associated weight loss. Schatzki and Gary showed that the symptoms were associated with a web-like fixed mucosal constriction at the squamocolumnar junction in the distal esophagus, and named

this constriction the "lower esophageal ring." Ingelfinger and Kramer, on the other hand, postulated that a contractile muscular ring at the gastroesophageal junction caused the symptoms in their reported cases. Over the years, ring-like narrowings in the lower esophagus have come to be known as the lower esophageal mucosal ring, or Schatzki's ring, and lower esophageal muscular ring.

Schatzki's rings are far more prevalent than the lower esophageal muscular rings and respond well to esophageal dilation. Symptomatic muscular rings are seldom recognized. Here we describe a series of three patients with lower esophageal muscular rings with distinctive clinical, radiological, manometric, and endoscopic findings. We also review the reported cases of this entity in the literature. The lower esophageal muscular ring has several notable features that differentiate it from the Schatzki's ring. The distinction is important because of differences in the treatments and outcomes of the two conditions.

MATERIALS AND METHODS

The diagnosis of lower esophageal muscular ring was made by the characteristic radiological finding of an annular constriction of the distal esophagus whose size and width varied during the course of the radiological examination. After the diagnosis was made, a detailed clinical history was obtained and esophageal manometry performed.

Measurement of esophageal pressures was performed by standard techniques using a water-perfused catheter system. All examinations were performed after an overnight fast and medications known to affect esophageal motility were withheld. The manometric catheter had recording sites arranged at 5-cm intervals (Zinetics Medical, Inc. Salt Lake City, UT). Six lumens of the manometric assembly were perfused with sterile water using a pneumohydraulic pump (Arndorfer Medical Specialties, Greendale, WI). The pressures were recorded by means of a computerized motility system (Synectics, Polygraph, Irving, TX). Esophageal body contraction pressure, duration, and velocity were reported as a mean and SD of a minimum of 10 dry or wet swallows at sites <5 cm above the lower esophageal sphincter. Lower esophageal sphincter pressure was measured by the station pull-through