

Prevalence of Esophageal A and B-rings in Patients Presenting with Solid Food Dysphagia

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Introduction

Esophageal A (EAR) and B-rings (EBR) have been identified as a primary cause of solid food dysphagia, but the prevalence of these rings as a cause of solid food dysphagia is uncertain. The purpose of this investigation is to evaluate the prevalence of constricting EAR and EBR as a primary cause of solid food dysphagia.

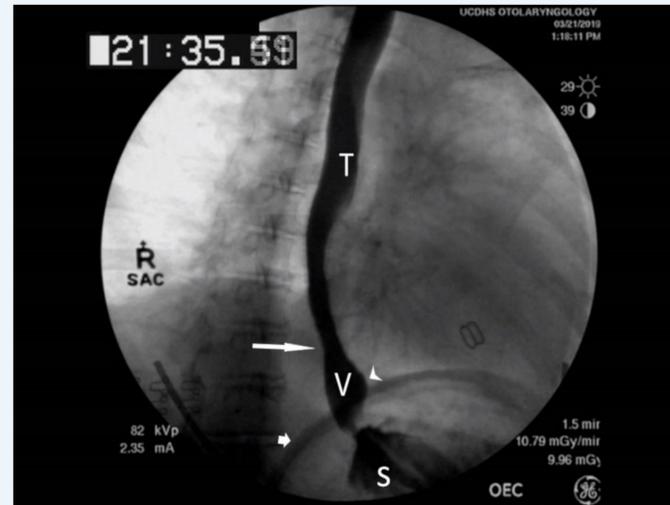


Figure 1
 Normal anatomy of the lower esophagus on fluoroscopy. T denotes tubular esophagus, V denotes vestibular esophagus, S denotes the stomach with rugae. Large arrow denotes tubulovesibular junction or A level, arrowhead denotes Gastro-Esophageal junction or B level and Small arrow denotes level of the diaphragm.

Characteristic	Overall cohort (N=900)
Hiatal Hernia	306 (34)
Esophageal A-Ring	42 (4.7)
Esophageal B-Ring	100 (11)
Cricopharyngeal Webs	267 (30)
Cricopharyngeus Muscle Bar	225 (25)
Ineffective Esophageal Motility	392 (44)
Hiatal Hernia	306 (34)

Table 1
 Finding Characteristics of 900 Video Fluoroscopic Esophagram

Results

The VFE of 900 patients with solid food dysphagia were reviewed. Mean age (\pm SD) of the cohort was 63 (\pm 15) years and 53% was female. The mean (\pm SD) EAT-10 of the entire cohort was 18 (\pm 19). EAR was identified in 4.7% (42/900), EBR in 11% (100/900) and HH in 34% of studies (306/900). Of the entire cohort, only 1.9% (17/900) had their dysphagia symptoms attributed to a constricting EAR or EBR (0.1 and 1.8% respectively). There was a significant association between the presence of HH and both EAR (OR=7.8, 95% CI 3.7-16.6, $p < 0.001$) and EBR (OR=31, 95% CI 14.9-65.2, $p < 0.001$).

Methods & Materials

The charts of all persons with solid food dysphagia undergoing a video fluoroscopic esophagram (VFE) between 1/1/16 and 5/30/18 were identified from an electronic dysphagia database. Patient demographics, Eating Assessment Tool (EAT10) and the prevalence of EARs, EBRs and hiatal hernia (HH) were recorded.



Figure 2
 Video fluoroscopy of the lower esophagus demonstrating an Esophageal B-ring (Shatzki's ring) with sliding hiatal hernia. Arrowhead denotes Gastro-Esophageal junction with a stricture and small arrow denotes level of the diaphragm demonstrating a sliding hiatal hernia.

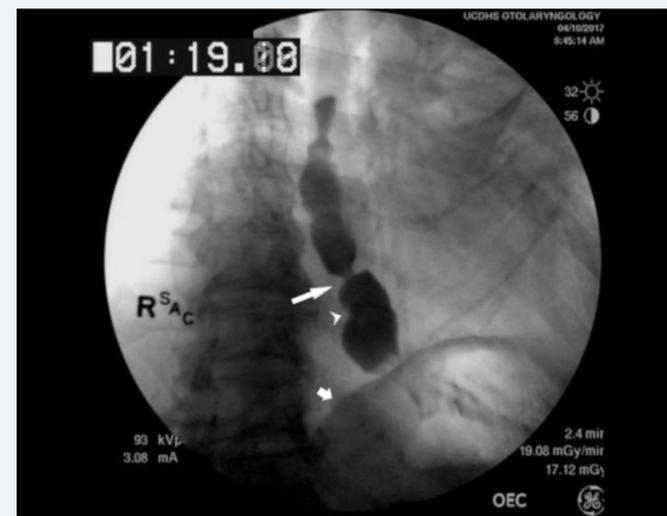


Figure 3
 Video fluoroscopy of the lower esophagus demonstrating an Esophageal A-ring. Large arrow denotes tubulovesibular junction with a stricture, arrowhead denotes Gastro-Esophageal junction with a stricture and small arrow denotes level of the diaphragm demonstrating a sliding hiatal hernia.

Conclusions

The prevalence of esophageal A- and B-rings on swallowing fluoroscopy is 5 and 11% respectively. Symptomatic A and B-rings as a primary source of dysphagia, however, are rare (<2%), and alternative causes of swallowing dysfunction such as esophagitis, cricopharyngeus muscle dysfunction, cricopharyngeal webs and ineffective esophageal motility should be sought.