

ZENKER'S DIVERTICULUM

Background

1. Definition: herniation of the esophageal mucosa posteriorly between the cricopharyngeus muscle and the inferior pharyngeal constrictor muscles (Killian's triangle)
2. General Information
 - Located immediately above the upper esophageal sphincter
 - Is a false diverticulum (involves only mucosa and submucosa)

Pathophysiology

1. Pathology of Disease
 - Unique to humans; no animal model
 - Due to defect in muscular fibers of cricopharyngeus
 - Two different processes that occur in conjunction:
 - Abnormal muscle activity in cricopharyngeus leading to disordinated swallowing
 - Presence of increased intraluminal pressure on the mucosa of the pharynx resulting in distention of the mucosa
 - Over time, increased pressure causes herniation of esophageal mucosa posteriorly
2. Incidence
 - US: 0.01-0.11%; less outside US (Europe>Mideast>Asia)
3. Risk Factors
 - Male predominance
 - Peak incidence in the seventh to ninth decades
 - Mostly in 60s (mean age 75)
4. Morbidity / Mortality
 - In very rare cases, squamous cell carcinoma can be present in the diverticulum

Diagnostics

1. History
 - Most common initial presenting complaints - dysphagia and/or food sticking at back of throat
 - Odynophagia never a symptom of ZD
 - Other symptoms:
 - Halitosis (foul breath)
 - Regurgitation of undigested food into mouth
 - Heart burn
 - Cough
 - Dysphagia (98% of patients)
 - Complaints of changes in voice
 - Noisy deglutition
 - Mild-to-moderate weight loss frequent secondary to dysphagia
 - Aspiration and pneumonia are potentially serious complications
2. Physical Examination
 - Halitosis

- Diverticulum can reach sizes of 15 cm or more, but rarely palpable
- Demonstrable weight loss
- 3. Diagnostic Testing
 - Laboratory evaluation - little or no value
 - Diagnostic imaging
 - Barium swallow (study of choice)
 - Posterior midline pouch >2 cm diameter arising just above cricopharyngeus muscle
 - If no other abnormality found, no further testing indicated
 - Other studies
 - Endoscopy avoided due to high risk of esophageal perforation and difficulty evaluating upper esophagus
 - Endoscopy indicated if contrast study shows esophageal mucosal irregularities to exclude neoplasia

Therapeutics

1. No medical management of ZD
2. Small and asymptomatic ZDs don't require treatment
3. Surgery is mainstay of treatment:
 - Diverticulectomy with cricopharyngeal myotomy, or
 - Diverticulopexy with cricopharyngeal myotomy, or
 - Endoscopic division of the diverticular wall (Dohlman technique)
 - Endoscopic staple assisted esophagodiverticulostomy (ESED)-
contraindicated for diverticula smaller than 3 cm
4. Long term prognosis after therapy
 - Operative time and hospital stay markedly reduced in patients undergoing endosurgical approach.
 - 92% of patients undergoing endosurgical approach and 94% of those undergoing open approach were symptom-free or significantly improved after median follow-up of 27 and 48 mo, respectively.
 - At minimum follow-up of 5 and 10 years, most patients asymptomatic after either procedure

Follow-Up

1. Return to Office
 - Time frame for return visit
 - Recommendations for earlier follow-up
2. Refer to Specialist
 - Recommendations / urgency
3. Admit to Hospital
 - Recommendations / urgency

Differential Diagnosis

1. Traction diverticulum (located near the midpoint of the esophagus)
2. Epiphrenic diverticulum (located immediately above the lower esophageal sphincter)
3. Thyroid mass
4. Achalasia

Prognosis

1. Successful, uncomplicated outcomes reported in 93-100% of patients undergoing surgical correction
2. Key to effective surgical management of Zenker diverticulum and best prognosis:
 - o Early recognition,
 - o Division of cricopharyngeus muscle, and
 - o Removal of diverticulum as reservoir

Prevention

1. None known

Patient Education

1. <http://www.mayoclinic.org/dysphagia/treatment.html>
2. http://www.dukehealth.org/services/voice_care_center/programs/zenkers_diverticulum

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