Esophageal Motility Disorders-2015

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Outline

- Define Specific Disorders
- Practical Approach to the Chicago Classification
- Treatment approach to motility disorders
Traditional Manometry Diagnosis
Spastic Disorders

Achalasia-
• Aperistalsis, intact usually poorly relaxing LES

Distal Spasm
• >20% simultaneous contractions

High Pressure (Nutcracker)
• Distal amplitude > 180 mm Hg

Traditional Manometry Diagnosis
Impaired Peristalsis

Aperistalsis
• Traditionally “Scleroderma esophagus”
• Most of these do not have scleroderma!

Nonspecific Esophageal Motility Disorder (NEMD)

Disorder of Ineffective Motility (IEM)
• 50% or more swallows with failed or weak (<30 mm Hg) contractions
Achalasia

- Aperistalsis: Absent, Simultaneous
- Incomplete Relaxation
- LES Hypertension

Diffuse Esophageal Spasm

- Manometry
- Barium Swallow
Normal Swallow in HRM

Outflow Obstruction


Pandolfino Thorac Surg Clin 2011;21:46
Achalasia Subtypes

Pandolfino Thorac Surg Clin 2011;21:465-

Is this type III achalasia or spasm?
Other Spastic Disorders

Nutcracker (super squeezer)
- **Major:**
  - Peristaltic pressure in distal esophagus >180 mm Hg
- **Minor:**
  - Repetitive, prolonged (>6 sec) contractions

Jackhammer Esophagus
- **DCI** >8000
- Can be due to increased pressure, prolonged contractions or a combination

DES
- >20 % simultaneous contractions

HRM examples of high pressure peristalsis

Chicago Classification of weak esophagus with normal GEJ relaxation

Absent peristalsis
- 100% of swallows with no peristalsis
- Normal IRP (LES relaxation)
- Still may need to do barium to exclude achalasia

Weak peristalsis (at least 50% with)
- Failed peristalsis
- Diffuse large hypotensive breaks
- Rapid segmental contractions between proximal and distal segments with a small break??

Examples

Bulsiewicz et al Am J Gastroenterol 1999,104
There are several mechanisms that may lead to impedance bolus escape

How has HRM (and stationary impedance?) redefined the diagnosis of disorders with impaired peristalsis in the esophagus?

- NEMD - Very nonspecific
- IEM - More specific

HRM allows us to characterize every swallow and perhaps have a better understanding of the efficiency of each swallow

- Remaining questions:
  - Is 50% the correct number?
  - Do any of these numbers predict outcomes?
    - Particularly in regards to surgical outcomes
  - Why do some patients have symptoms and others do not with the same manometry findings?
HRM Take Home Points from my experience

- Computer tends to overcall EG Outflow Obstruction
- Type I and II achalasia are very specific but still take a history and compare to a barium study
  - Be careful with Type III (Type IV)
    - Compare with barium
    - Does not respond well to treatment
    - Is it a DES variant??
  - Spasm or DES also needs to be carefully correlated with the rest of the clinical situation
- HRM has expanded number of “weak” diagnoses, but all need to be carefully correlated with the clinical situation
  - Small breaks probably are “normal”
- Impedance may help better understand the significance of motility findings on HRM
Achalsia-Treatment

Goal is to disrupt LES
  • Return of peristalsis is unusual

Options
  • Medical Therapy
    • Nitroglycerin
    • Calcium channel blockers
    • Endoscopic Botox injection
  • Pneumatic Dilation
  • Heller myotomy
    • Usually with fundoplication

Regardless of treatment, all need endoscopy with careful retroflexed view

Either graded pneumatic dilation (PD) or laparoscopic surgical myotomy with a partial fundoplication are recommended as initial therapy for the treatment of achalasia in those fit and willing to undergo surgery

PD and surgical myotomy should be performed in high-volume centers of excellence

The choice of initial therapy should be guided by patients’ age, gender, preference, and local institutional expertise

ACG Guidelines AJG 2013
Achalsia-Treatment

Botulinum toxin therapy is recommended in patients who are not good candidates for more definitive therapy with PD or surgical myotomy.
- 100 units given in 4-5 injections into the tightest portion of LES

Pharmacologic therapy for achalasia is recommended for patients who are unwilling or cannot undergo definitive treatment with either PD or surgical myotomy and have failed botulinum toxin
- SL NTG or Procardia prior to meals
- sildenafil

ACG Guidelines AJG 2013

Pneumatic Dilation

Rigiflex dilator
- Start with 30 mm (35 and 40 if fails)

Control location with fluoroscopy or endoscopy
- This is not a TTS balloon although one may become available at some point
- Pneumatic not hydraulic dilation

Inflate to 8-12 PSI for 15-60 seconds

Rule out perforation with contrast swallow after procedure

0.5-4% perforation rate
- Many, but not all can be managed without surgery
Myotomy

Most commonly performed laparoscopically
Must extend an adequate distance both up the esophagus and down the stomach
Usually includes a partial fundoplication

RCT: Myotomy versus Pneumatic

![Graph showing success rate over time for myotomy and pneumatic therapy.](NEJM 2011)
POEM: 5 Steps

1. Measurements
2. Mucosotomy
3. Tunnel
4. Myotomy
5. Closure

Achalasia: Dysphagia versus Reflux

- Inadequate myotomy
- GERD
- Dysphagia
- "Aggressive" myotomy
Controversies in follow-up of achalasia

Should you base treatment on symptoms alone or barium

- Some advocate for a second dilation, especially if there is still poor esophageal emptying

Should there be surveillance endoscopy?

- Squamous cancer
  - Probably minimal to not increased at all.
  - Not enough to advocate for screening program
- Barrett’s and adenocarcinoma
  - We all have seen several cases
  - Adequate treatment produces reflux
  - ? Worse with POEMS
  - Routine or symptom based PPI?
Treatment of other spastic disorders

Agents to lower pressure
  • Nitrates- SL Tablet or Spray
  • Calcium Blockers- Nifedipine (SL or oral) or diltiazem orally
  • sildenafil

Agents to lower sensitivity
  • Trazodone 25-50 mg qhs
  • TCA Low dose
  • SSRI

Botox

Rarely Myotomy
  • ?Role of POEMS

Treatment of “weak” disorders

Rule out and/or treat reflux

Prokinetics

Swallowing therapy
  • Take advantage of gravity!

Aperistalsis at increased risk of stricture and Barrett’s
Ambulatory Reflux Monitoring

**Limitations**

- Discomfort from prolonged nasal intubation
- False negative studies brought about by
  - Activity changes
  - Dietary changes

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Impedance-pH Monitoring Catheter

- Allows measurement of acid and nonacid reflux
- Reasonable choice for monitoring patients on therapy
- Values and interpretation of nonacid reflux not as well characterized and difficult to interpret

Reflux Events

A-Acid
B-Weakly acid
C-NonAcid

Hila et al CGH 2007;5:172-7

Catheter-Free pH Monitoring System

- Small pH sensor and radiotransmitter placed in the esophagus
- Data recorder (receiver) worn by patients
- Capsule detaches from esophagus and is passed through the digestive tract
- Allows patients to eat and partake in everyday activities
- Issues
  - Expense, failures, sampling rate
Ambulatory Reflux Monitoring
Define The Question!

• Does the patient have reflux?
  • Monitor off therapy
  • Tubeless or Tube-based testing OK

• Is the patient’s reflux refractory to Rx?
  • Monitor on therapy
  • Gastric and/or impedance monitoring may help

• Is GERD causing proximal symptoms?
  • Proximal or Impedance monitoring

Approach to pH testing for proximal symptoms

Dual channel (distal/proximal), impedance pH is the best tool
  • BRAVO if patient can’t tolerate

Should be off PPI for at least 5 days

Consider study “positive” if
  • Increased distal acid exposure
  • Increased proximal (?>3%) even if distal normal

Possibly positive
  • Positive SAP with normal acid exposure
  • Acid events or nonacid impedance events
  • Proximal impedance events may be important
Thank You!!!