Esophageal Dilation

Risks and Rewards

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Learning Objectives:

1. Understand more about the safety and efficacy of dilation
2. Be aware of the pitfalls and complications.
3. Become more comfortable with the different methods of dilation
4. Learn appropriate billing codes that reimburse for dilation
5. Receive instruction and pearls from other members currently performing dilation in their practices.
Dysphagia and Food Bolus Impaction.

- Common complications and presentations of GERD and Peptic Disease.
- Usually results from an underlying stricture.
- Often is a presenting symptom in an otherwise silent disease.
- The severity of disease doesn’t always correlate with the severity of symptoms.
- Can also be the presenting complaint of Esophageal Cancer.
If you see these patients will you be prepared to dilate them???

OR will you CHOOSE!!
What do you expect to find?:

- Schatzki’s Stricture Ring
- Reflux Esophagitis
- Eosinophilic Esophagitis
- Malignancy
- Zenkers Diverticula
- Webs
- Other
Barium Roentegram of stricture
Distal Esophageal Stricture
3 Basic types of Dilators

- Bougie
- Wire Guided Bougie
- Balloon
Traditional™ Mercury-filled Bougies

Benefits:
- Completely radiopaque due to special and chemical method
- Non-allergic, does not attract particulate
- Sterilization and proper disposal
- Long-lasting

Features:
- Densely packed mercury
- One piece, 36 FR to 60 FR (in 2 FR increments)
- Comes in a full set, 36 FR to 60 FR, or individually packed
- Three-year warranty on product and workmanship
- Non-chrome, non-radiopaque bougies, with purchase of same product

Traditional™ For some, there’s no substitute.
Our classic mercury-filled bougie is still a favorite among many who prefer a mercury-filled bougie. Due to its design, it makes disposal safe and easy. Yes, it’s traditional by name, but there’s nothing traditional about it.
Savary-Gilliard Dilator over guide wire
Hercules 3 Stage Balloon Dilators
Clinical Course of Dilated Stricture

- 76 patients with benign strictures treated with bougienage.
- Record review study, initial eval. Contrast, EGD- biopsy.
- Serial dilation up to 44 fr or greater. Return when symptomatic
- Mean time to return was 21 months
- 569 subsequent dilations were performed, 1 complication
- Reoccurrence in 65%
- Redilations were successful with very low morbidity and mortality over long term follow up.
Natural History of Benign Strictures

- 154 patients with bougienage for treatment of benign stricture
- 84.5% experienced relief of dysphagia.
- The risk of requiring further dilation was greatest during the first year. 43% required no further dilation. 36% over 4 yrs.
- A smaller fraction required dilations each year, the mean being less than once a year.
- 46% required further dilations with 2/3 rds of this group needing regular dilations in subsequent years.
- There were no markers such as caliber size, esophagitis, or cause or severity that predicted need for subsequent dilations.
Guidelines for Use of Esophageal Dilation!!

INDICATIONS: 1. Symptomatic obstruction of the esophagus from reflux disease, malignancy, anastomosis, radiation, corrosive burns, rings, webs.

CONTRAINDICATIONS: 2. Pharyngeal or cervical deformities, large thoracic aneurysms, active malignant disease. Anticoagulation should be stopped prior. Concurrent radiation therapy or biopsies of mucosa do not prohibit dilation at the same procedure.
Guidelines contd.

- Planned procedure
- Pre procedure investigation: endoscopy / contrast study are complimentary; endoscopy alone is reasonable.
- Things to look for:
  - Angulations, diverticula, hiatal hernia, small stomach, long tight strictures that prevent passage of scope, malignancy, achalasia.
  - These findings should alert you to use a guide wire and balloon dilator rather than a bougie. OR consider referral
  - Bougies dilation is more suited for simple reflux strictures and Schatzki’s rings. 16-20mm or 44-52 Fr is desirable.
Complications:

- Perforation rates for benign stricture dilation 1.1% with mortality of 0.5%. ¹
- Perforation rates for malignant stricture dilation 6.4% with mortality of 2.3%. ¹

Symptoms:
- Persistent chest pain, tachycardia, SOB, Fever

Diagnosis:
- Water soluble contrast study
- Medical emergency
Outcomes:

- Benign reflux induced strictures: graded stepwise dilation between 13-20mm gives good relief in 85-93% of cases.
- PPI therapy at usual or (double dose if restenosis occurs) greatly reduces the need for subsequent redilations. Superior to H2 blockers.
- Dilation is less effective in malignant, radiation, or corrosive induced strictures. Deployable metal stenting may be more palliative in these settings.
Safety of Single Dilation Technique

- Dilation of simple Schatzki’s ring only.
- 33 patients in a prospective study over 24 months. They passed a large bougie (46-58Fr) increasing the diameter a mean of 11-17 mm.
- No complications occurred
- 68% remained symptom free at 1 Year
- 35% at Year 2.
- Only 11% by Year 5.
- For those that recurred, repeat treatments were performed, again with no complications. Neither initial ring size or the presence of esophagitis predicted symptomatic recurrences.
- They concluded that single dilations of simple rings were safe, easy, well tolerated, and could be repeated as needed.
Single Dilation Vs Biopsy Forceps

- Randomized 26 patients to either single 52 Fr Maloney dilation or 4 quadrant endoscopic biopsy of the ring.
- The subjects answered a dysphagia related score 0-5. Completed 11 questions to arrive at eating/diet score.
- The dysphagia and diet score improved by 91% at 3 months in both groups. 84% and 85% at 1 year. With one failure in each group and one recurrence at 6 months in the Maloney group.
- 55% of dilation group described procedure as easy.
- 100% of the biopsy group described it as easy.
- Authors recommended this as a safe alternative to dilation.
Balloon Vs Bougienage

- Swine study measured radial forces and longitudinal shear forces.
- Maloney bougie, Savary-Gilliard bougie, Balloon dilator had radial forces of 6.42, 4.46, and 4.04 N respectively.
- However, mean shear forces were 16.92, 6.92 and 1.44 N respectively.
- They concluded that the lower shear forces of the balloon may make it more safe and less likely to cause injury.
Comparison of Perforation Rates

- 348 dilations were reviewed on 142 patients over 4 yrs
- Maloney, balloon, Savary were performed 102, 156, 90 respectively.
- 4 perforations occurred, all in the Maloney dilator group when passed blindly into complex strictures. Outcomes of surgery were good with no deaths.
- It would suggest that Savory guide wire and endoscopically viewed balloon dilations are more suited for complex strictures.
- Most perforations occurred when a Maloney bougie is passed blind into a complex stricture.
Distal Esophageal Stricture
Peptic disease Stenosis/Stricture
Balloon Dilation: wire/deflated balloon
Initial Inflation: Direct Visualization
Balloon Inflated: 17mm
Summary and Recommendations!

1. Esophageal Dilation is indicated for the treatment of symptomatic obstruction; and is highly effective with low morbidity and mortality when performed carefully (grade B)!

2. It should be performed as a planned procedure when possible, and a tissue diagnosis obtained prior.

3. Make sure the patient knows the small risk of perforation and the need for surgery if that were to occur.
Summary contd.

4. Oral anticoagulants should be discontinued prior to dilation. Heparin can be used to bridge patients who are high risk for thromboembolism, and should be discontinued 4-6 hrs before procedure and restarted 4-6 hrs after.

5. Endocarditis prophylaxis rules apply.

6. Both push dilators (bougies) and balloon dilators give good results (Grade A). Results appear best at luminal diameter 13-15mm. A single large dilator appears safe in simple uncomplicated strictures. A cautious graded approach is recommended in patients with tight, tough, or complex strictures (Grade B). In most cases it is desirable to use either a guide wire or endoscopically controlled technique. Fluoroscopy can be helpful in tortuous or complex cases.
Summary Contd.

7. Patients should be observed closely following dilation. Most are performed safely as a planned outpatient visit. If pain, SOB, fever, or tachypnea develop; Chest X-ray, and contrast studies should be performed urgently.

8. Dilation is only one part of the management of the patient. Patients with reflux induced strictures need maintenance with PPI at standard or high dose to reduce need for further dilations. Those with malignant strictures need more detailed and multidisciplinary team approach and may require stenting.

9. Be cautious or refer in complex cases, with large hiatal hernias, Zenkers diverticula, webs, previous Gastric Bypass, Fundoplication, tortuous, tight lesions.

10. If balloon or bougie dilators are not readily available, four quadrant biopsy of a schatzkys ring is also a reasonable and effective treatment.
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