

# BENIGN DISEASE OF ESOPHAGUS

## 양성 식도 질환

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- I. Perforation and fistula
- II. Benign tumor
- III. Strictures
- IV. Congenital diseases
- V. Motility disorders
- VI. Hiatal hernia and GERD

# I. PERFORATION AND FISTULA

## 천공과 누공

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# PERFORATION

- Common causes:
  - 1) 기구에 의한 천공: 내시경 풍선 확장술
  - 2) 기구 이외 원인에 의한 천공
    - (1) 외상성 천공: 둔상, 관통상, 수술 후 합병증
    - (2) 이물섭취
    - (3) 자연천공
- Fever, leukocytosis: mediastinal drainage

TABLE 73-1 Causes of Esophageal Perforation

## Endoesophageal Instrumentation

Esophagoscopy  
Transesophageal echocardiography  
Bougienage  
Pneumatic dilation  
Sclerosis of esophageal varices  
Placement of intraesophageal tubes (nasogastric, Sengstaken-Blakemore, prostheses)  
Traumatic endotracheal intubation

## Periesophageal Surgery

Mediastinoscopy  
Thyroid surgery  
Anterior spinal surgery  
Vagotomy  
Pulmonary resection  
Antireflux surgery  
Thoracic aneurysm resection

## Trauma

Penetrating  
Foreign body  
Caustic ingestion

## Barotrauma

Postemetic  
Blunt trauma—neck, thorax, abdomen  
Compressed air ingestion  
Miscellaneous—seizure, childbirth, defecation, brain disease

## Tumor

Esophagus  
Lung  
Mediastinal

## Infection

Tuberculosis  
Histoplasmosis  
Syphilis  
Acquired immunodeficiency syndrome

# PERFORATION

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- Symptom

경부식도 천공: 국소 종창, 연하곤란, 피하기증

흉부식도 천공: 발열, 빈맥, 속, 흉통(subxiphoid, substernal) 전신독성 증상

- Diagnosis

CXR: reactive pleural effusion, subcutaneous emphysema

식도조영술: Gastrografin으로 시행

식도 내시경: 천공 의심시 시행하지 않음

- Treatment

보존요법: 심하지 않고 일찍 발견 시 /경부식도. 수술요법

# BOERHAAVE'S SYNDROME

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Barogenic perforation

# HISTORY

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- October 29, 1723, Hermann Boerhaave
  - Professor of medicine at Leyden University
  
- Baron Jan van Wassenaer
  - Grand admiral of the Holland fleet

# BOERHAAVE'S SYNDROME

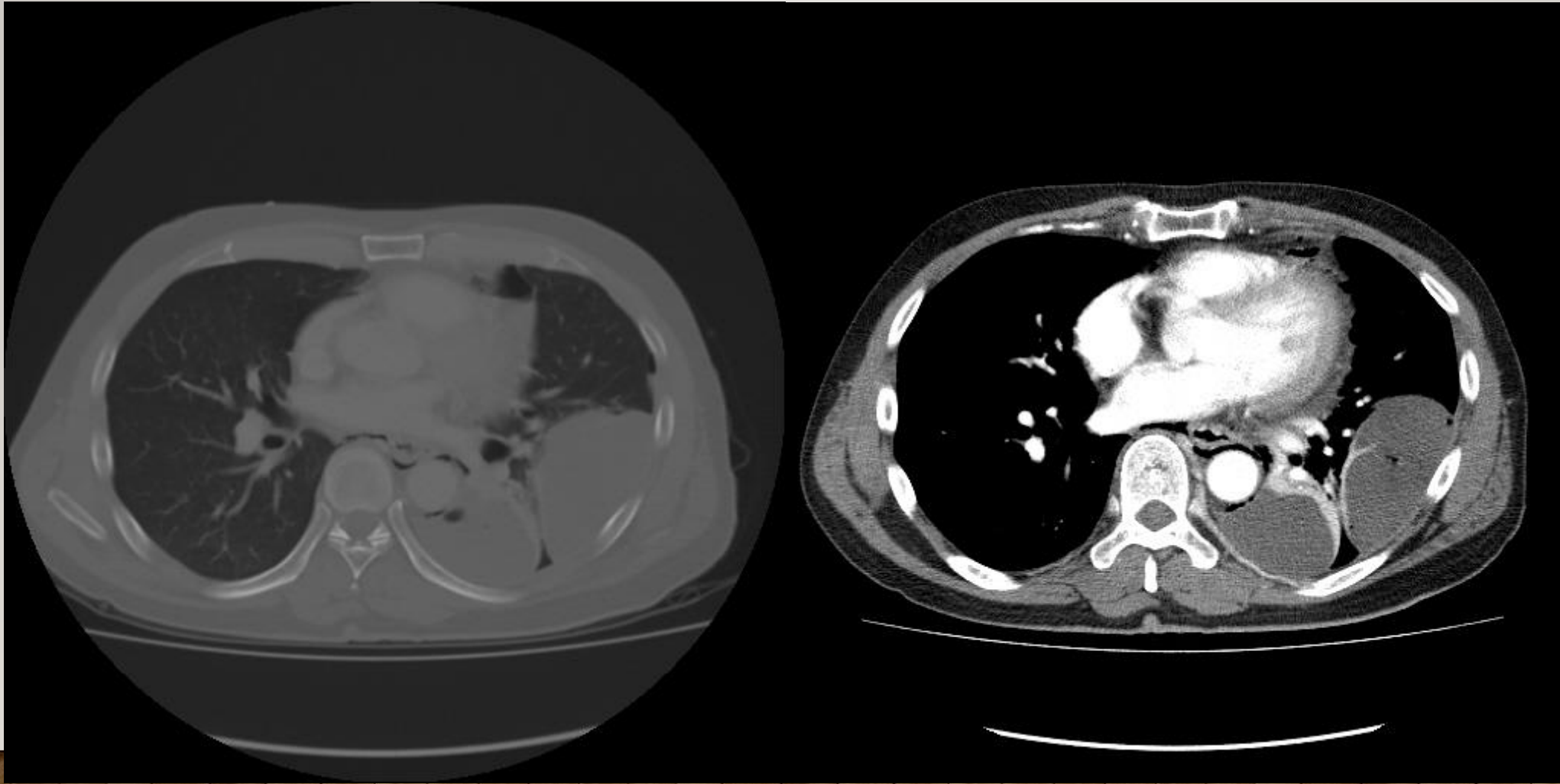
## -PATHOPHYSIOLOGY

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- Alcohol, sedatives, general anesthesia and repetitive vomiting
- Failure of the upper esophageal sphincter to relax -> intraesophageal pressure-> esophageal rupture
- Mallory-Weiss SD(massive hematemesis +/- melena)
  - Persistent retching or vomiting-> no relaxation of LES
  - > Single or multi-mucosal tear at the EGJ
- Left posterolateral wall of the esophagus to be the site of rupture
  - splaying of muscle fibers in that region or the entrance of blood vessels and nerves.

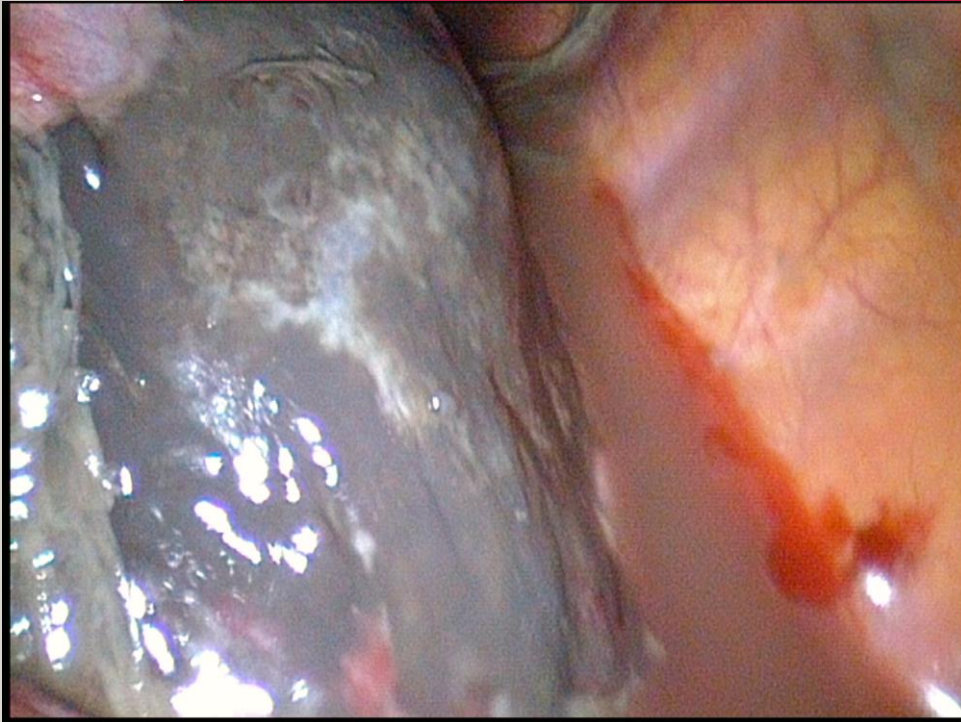


# BOERHAAVE'S DISEASE

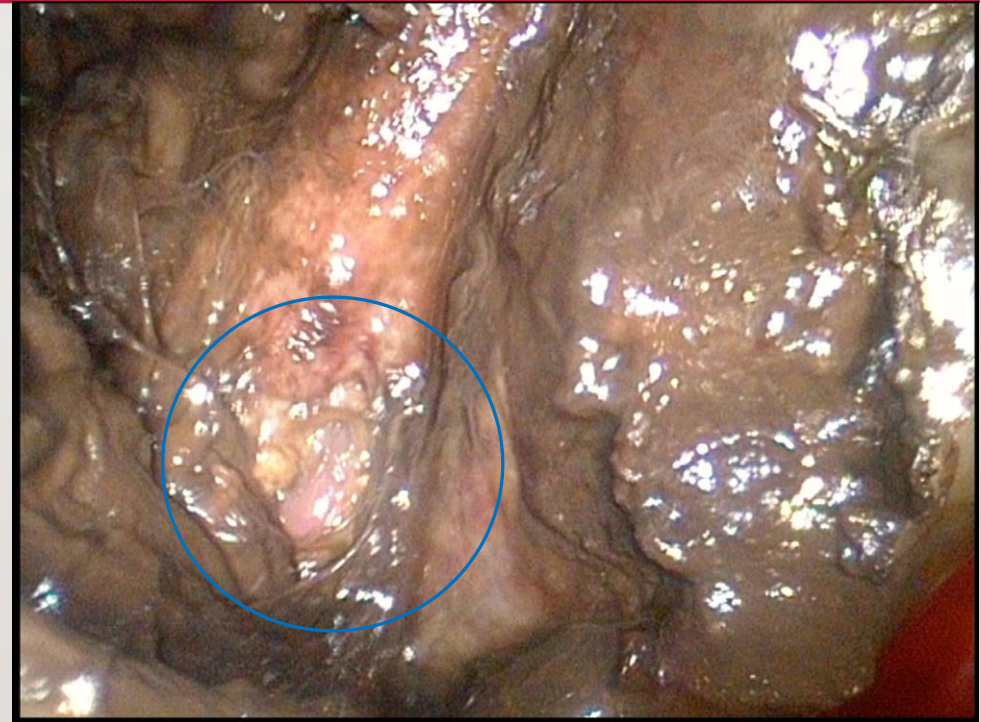


# PERFORATION OF ESOPHAGUS

Left lower posterior mediastinum



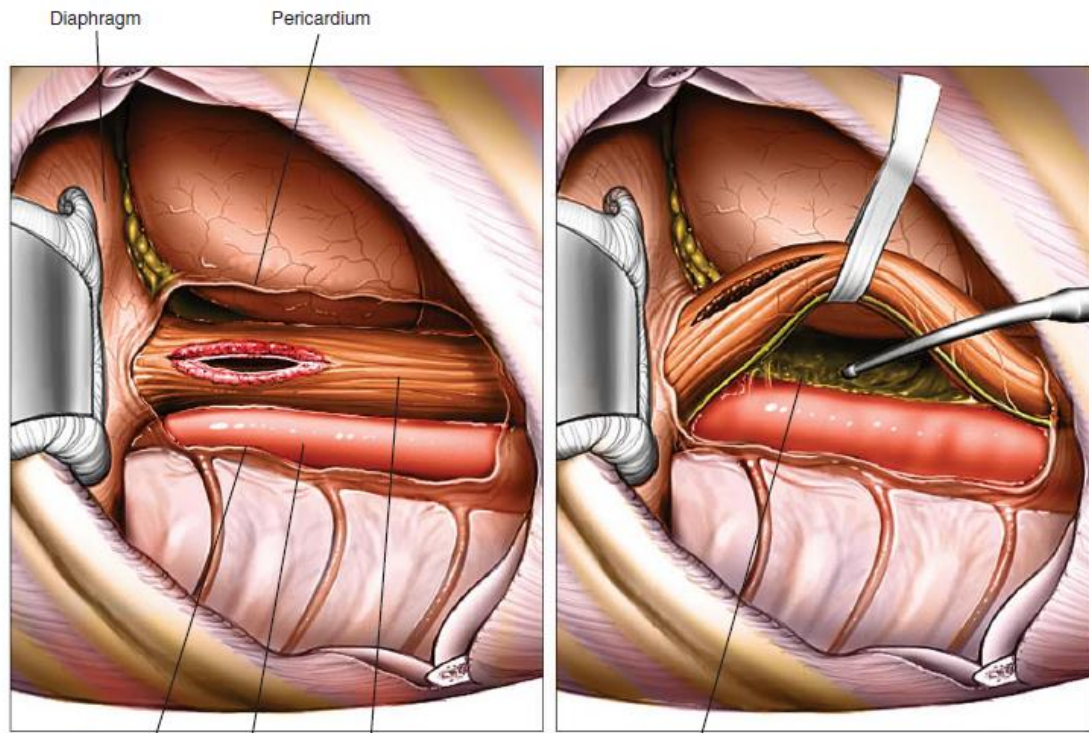
Left lower posterior mediastinum



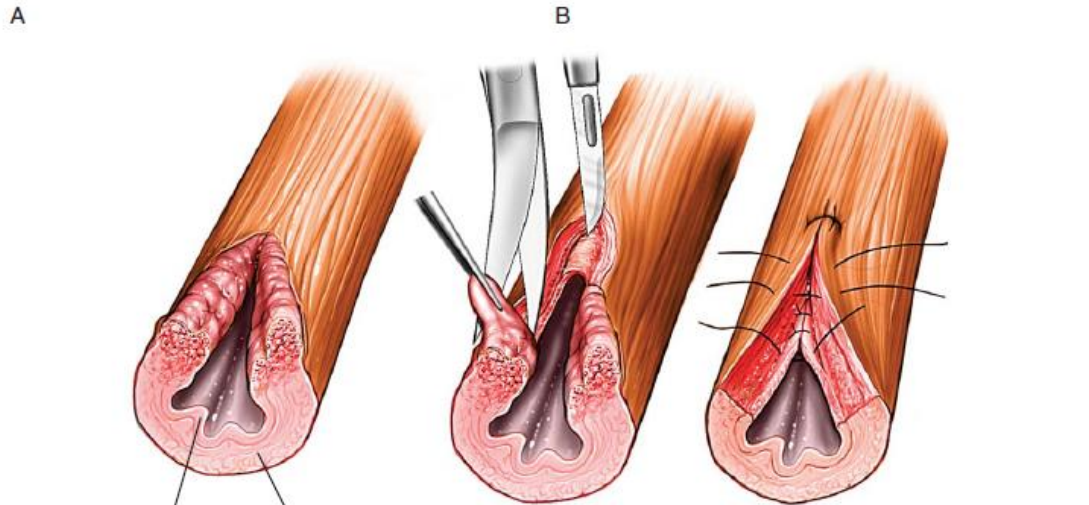
# PRIMARY TREATMENT OF ESOPHAGEAL PERFORATION

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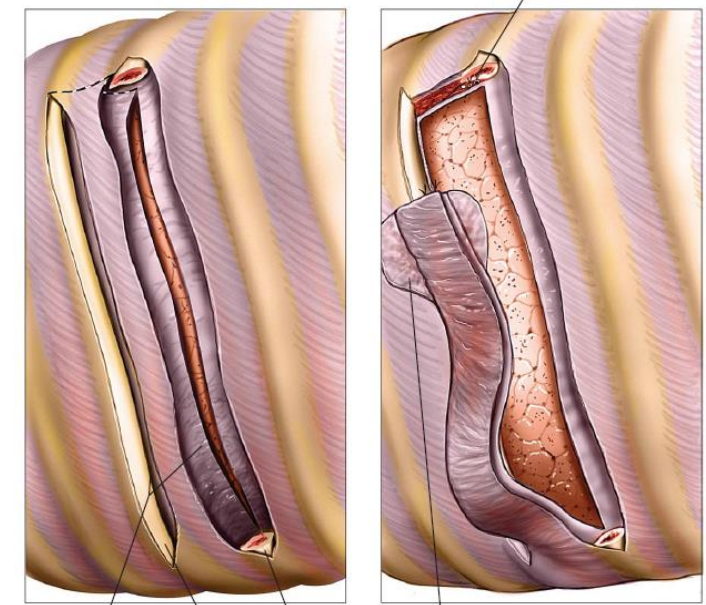
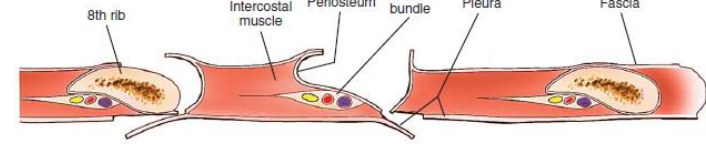
1. Debridement and drainage of the mediastinum and pleural spaces
2. Control of esophageal leak
3. Re-expansion of the lung
4. Prevention of gastric reflux
5. Nutrition support
6. Appropriate antibiotics
7. Postoperative localization and drainage of residual septic foci



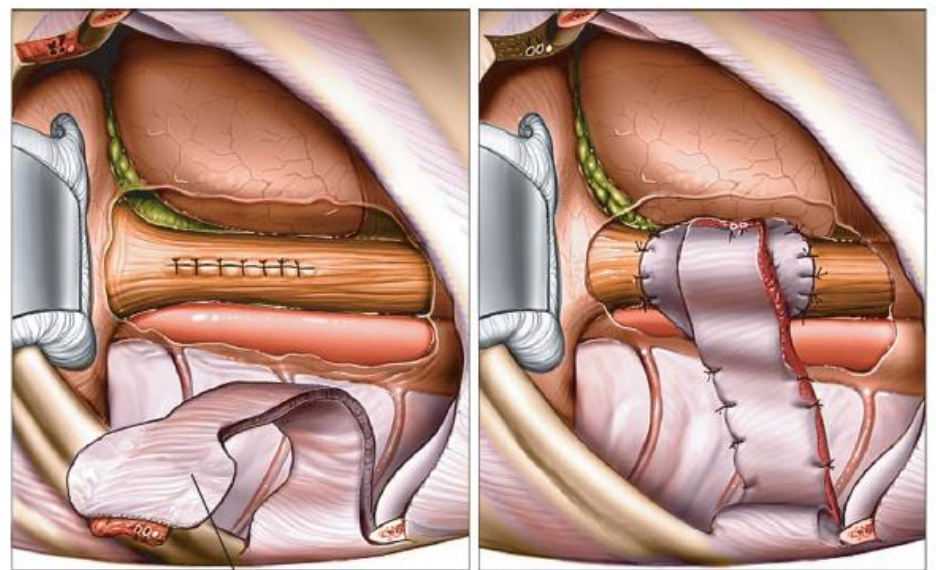
Diaphragm Pericardium  
 Mediastinal pleura Aorta Esophagus  
 Right mediastinal pleura



A B  
 Mucosa Muscularis



A B  
 Periosteum 8th rib 7th rib Pleura



Intercostal muscle

# REINFORCEMENT OPTIONS

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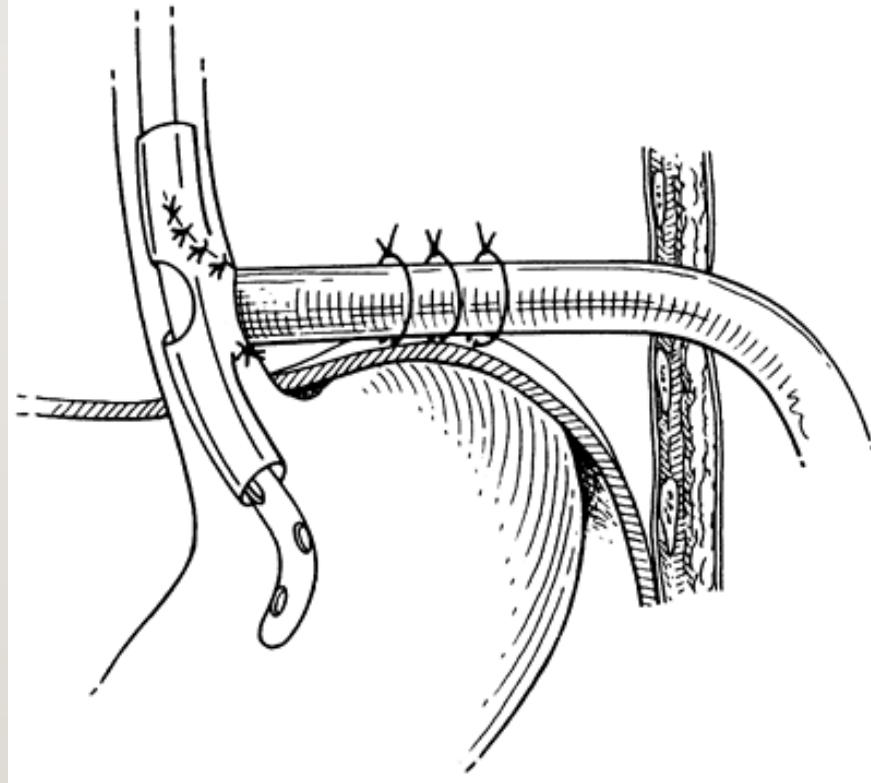
- Pedicled Pericardial fat
- Transposition of Omentum
- Pedicled Intercostal Muscle flap

# OPERATION AFTER FAILURE OF PRIMARY CLOSURE

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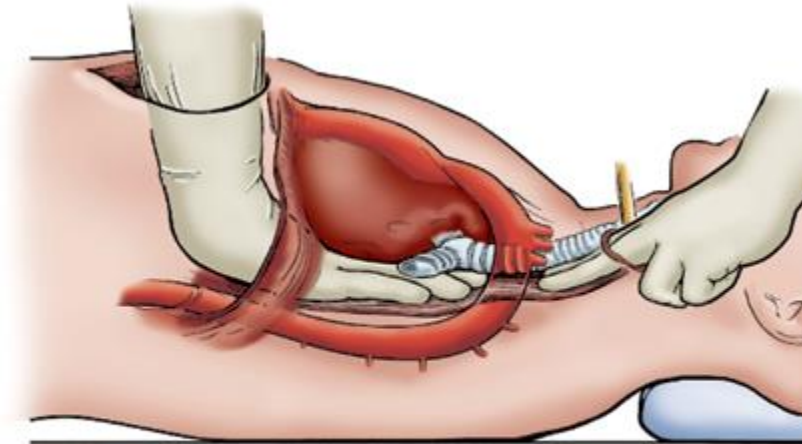
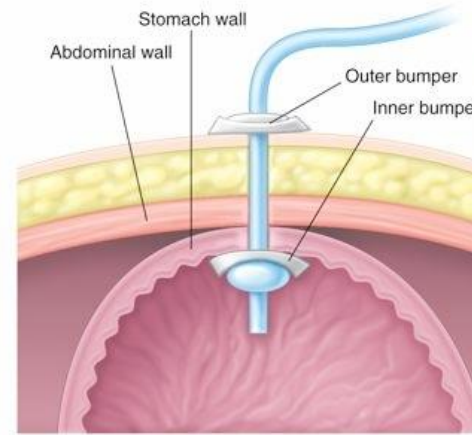
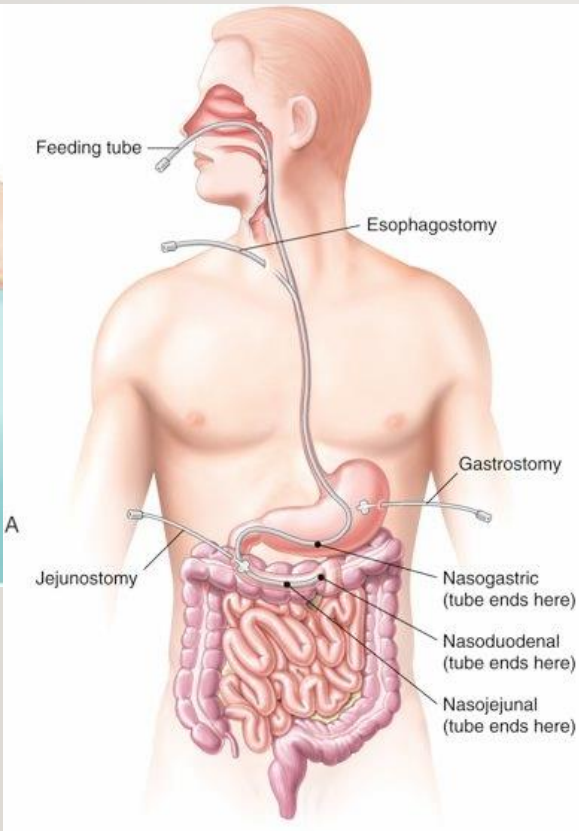
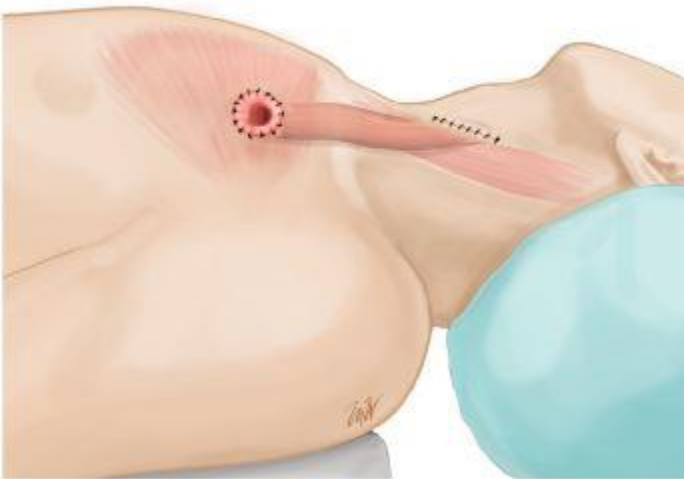
- Closure with buttress or patch
- Exclusion and diversion
- T-tube fistula
- Thoracic drainage and irrigation
- Intraluminal stents
- Resection and reconstruction

# POST-OPERATION ESOPHAGOGGRAPHY



# I. ESOPHAGEAL DIVERSION AND GASTROSTOMY

## II. TRANSHIATAL ESOPHAGECTOMY



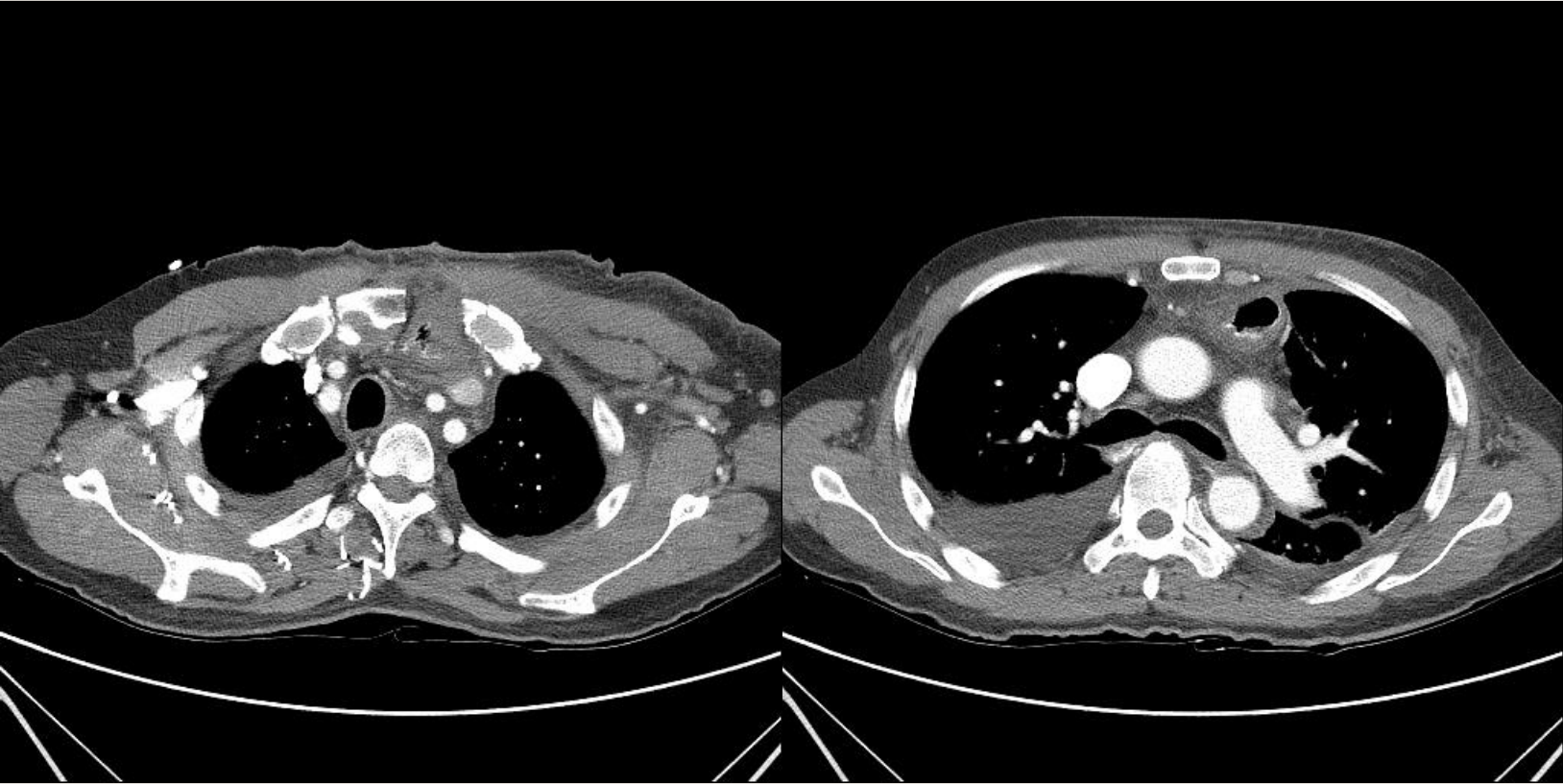
Source: Zinner MJ, Ashley SW: *Maingot's Abdominal Operations*, 12th Edition: [www.accesssurgery.com](http://www.accesssurgery.com)

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# INTERPOSITION OF COLON THROUGH SUBSTERNAL ROUTE

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# FISTULA

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- 계실성 병변과 후천성 누관
  - 1) 흉부 중앙의 식도 계실 : traction diverticulum
  - 2) 식도벽내 계실증: acquired fistula
- 원인: 악성 종양.TB
- Treatments
  - Stenting or fistulectomy and primary closure
  - Esophagostomy
  - Esophageal bypass

# I. 행위 급여 목록 [식도]

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- 식도 절개술 Esophagotomy
  - 가. 경부 접근 Cervical Approach
  - 나. 흉부 접근 Thoracic Approach
- 식도조루술 Esophagostomy
- 식도봉합술 Suture of Esophagus
  - 가. 경부접근
  - 나. 흉부 접근
  - 다 복부접근

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

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- 식도절개술(경부접근) 13-7-10-7-16
- 식도절개술(흉부접근) 5-2-5-3-6
- 식도조루술 14-13-7-20-15
- 식도봉합술(경부접근) 52-46-39-43-34
- 식도봉합술(흉부접근) 104-95-92-127-92
- 식도봉합술(복부접근) 3-4-4-10-6

## II. BENIGN ESOPHAGEAL TUMOR

### 양성식도종양

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# BENIGN TUMOR 양성종양

- 식도 종양의 1% 미만 발생
- EUS for diagnosis
- Mid thoracic lesion 가 가장 많이 발생

Box 36-2

## Classification of Benign Esophageal Tumors

### Mucosa (First and Second Esophageal Ultrasound [EUS] Layers)

- Squamous papilloma
- Fibrovascular polyp
- Retention cyst

### Submucosa (Third EUS Layer)

- Lipoma
- Fibroma
- Neurofibroma
- Granular cell tumor
- Hemangiomas
- Salivary gland-type tumor

### Muscularis Propria (Fourth EUS Layer)

- Leiomyoma
- Duplication cyst

### Periesophageal Tissue (Fifth EUS Layer)

- Foregut cyst

# LEIOMYOMA 평활근종

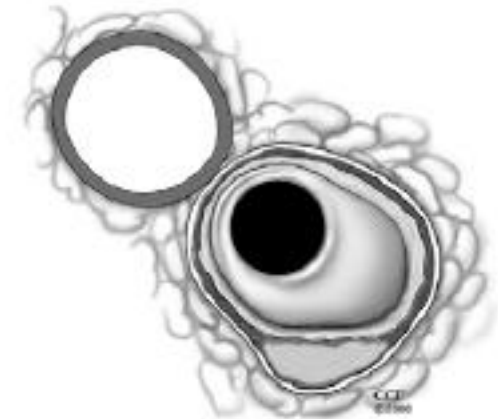
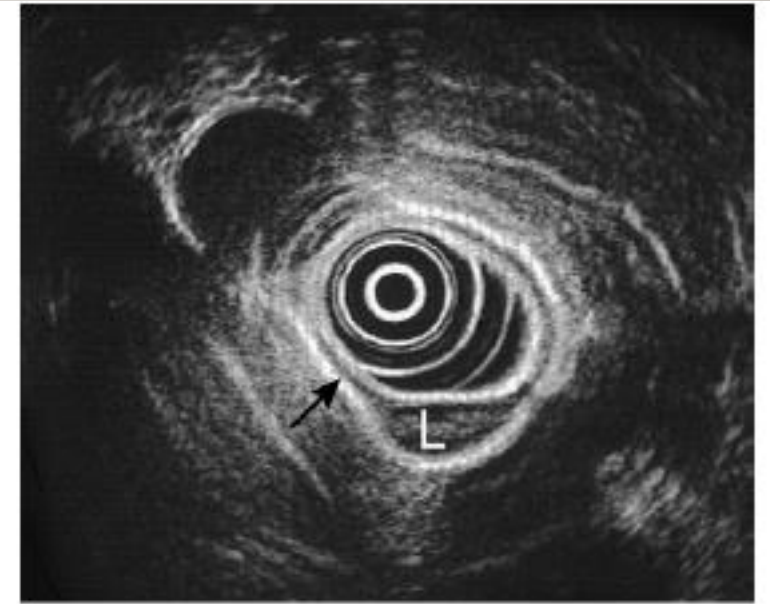
## Box 39-1 Indications for Surgical Resection of Leiomyoma

- Unremitting symptoms
- Increasing size of tumor during follow-up
- Need to obtain histologic diagnosis (i.e., clinical diagnosis in doubt)
- Facilitation of other esophageal procedures

- Endoscopic resection: <2cm
- VATS
- Open thoracotomy
- Robotic enucleation

# LEIOMYOMA 평활근종

- Muscularis propria(confined to the fourth EUS layer)
- Symptomatic mass should be resected.
- Malignant transformation is rare
- Enucleation with preservation of mucosa layer
- D/Dx: Leiomyosarcoma, GIST



**Figure 36-23**

An esophageal leiomyoma (L). Above: Esophageal ultrasound (EUS) of this most common benign tumor demonstrates a hypoechoic, homogeneous, well-demarcated tumor with no associated lymphadenopathy. EUS balloon overdistention blends the first three ultrasound layers into one hyperechoic layer. Tumor arises from and is confined to the fourth ultrasound layer (arrow). Below: A benign leiomyoma arises from and is confined to the muscularis propria.



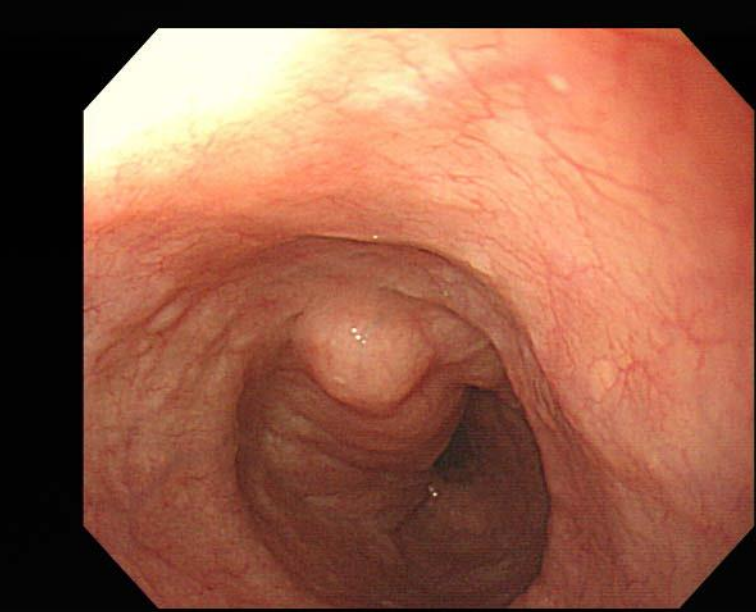
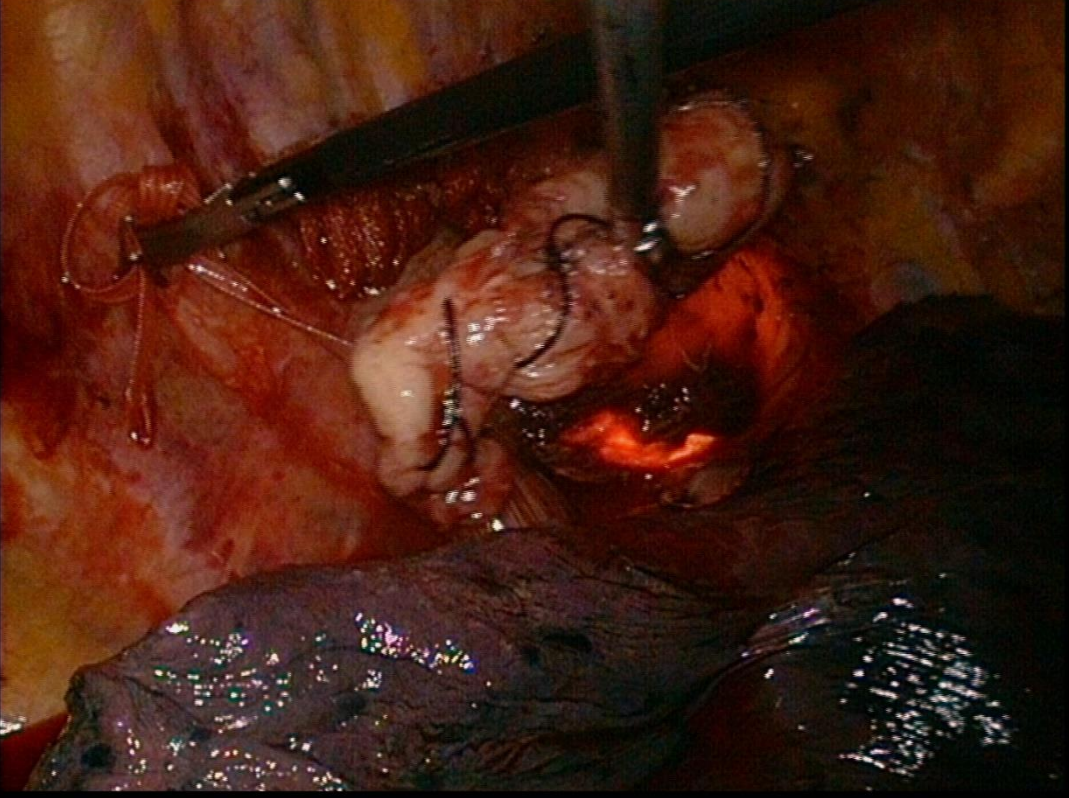
# SURGERY OF BENIGN ESOPHAGEAL TUMORS

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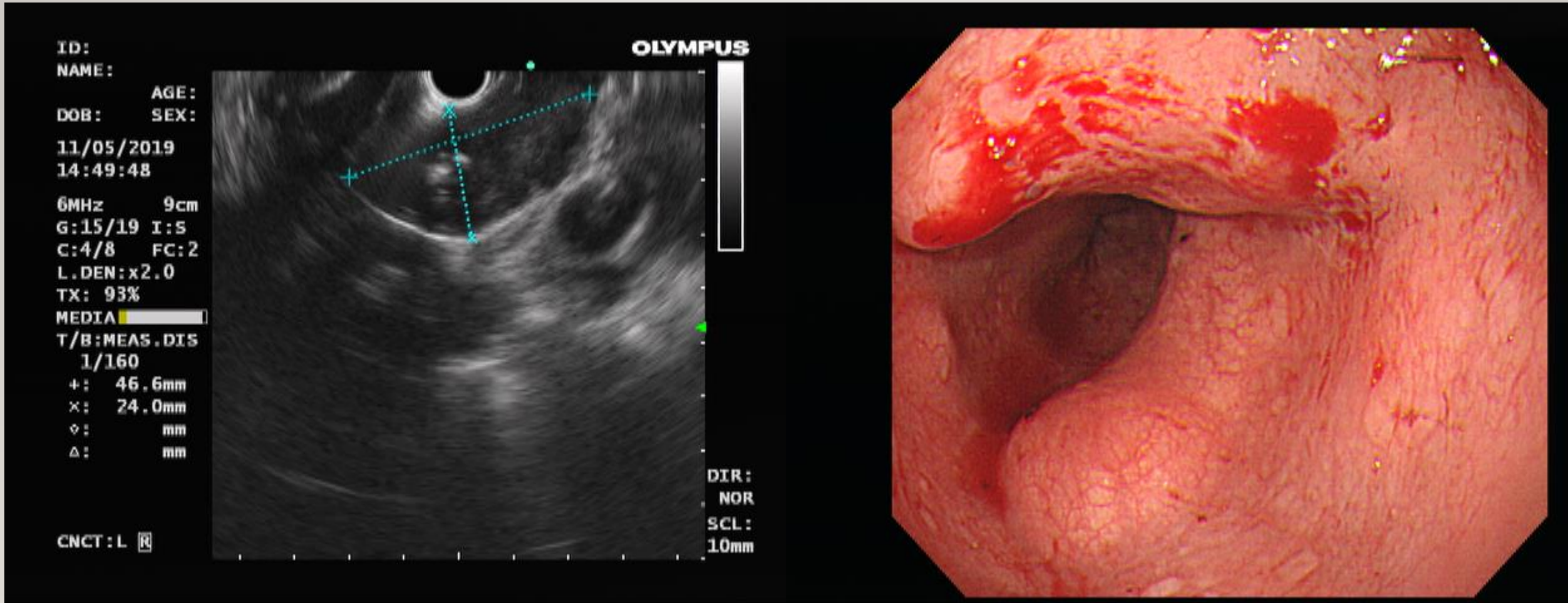
- Enucleation of tumors
- VATS enucleation of tumors
- Robot assisted enucleation of tumors

# LEIOMYOMA

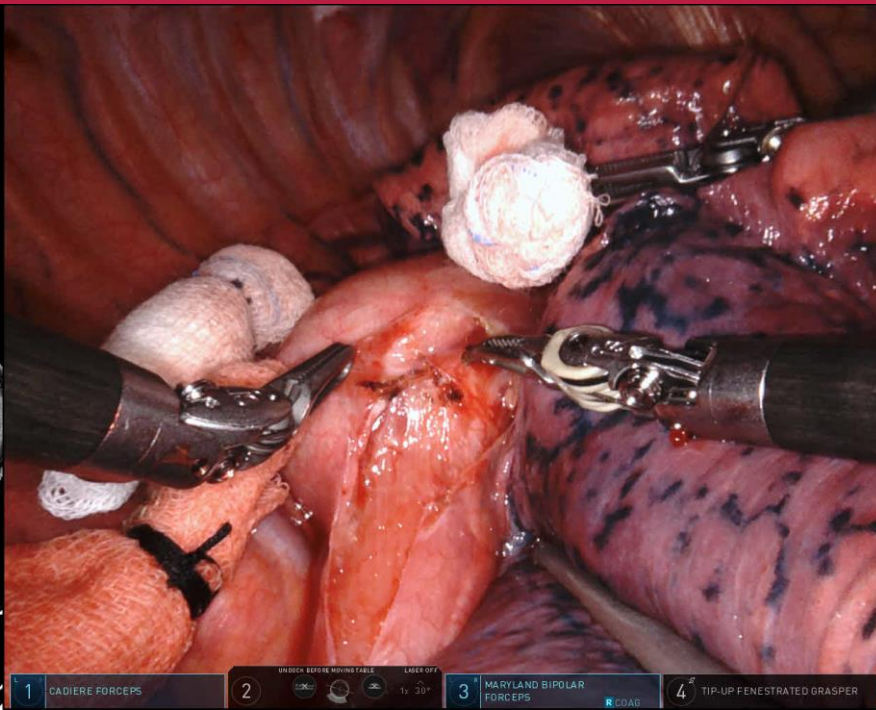
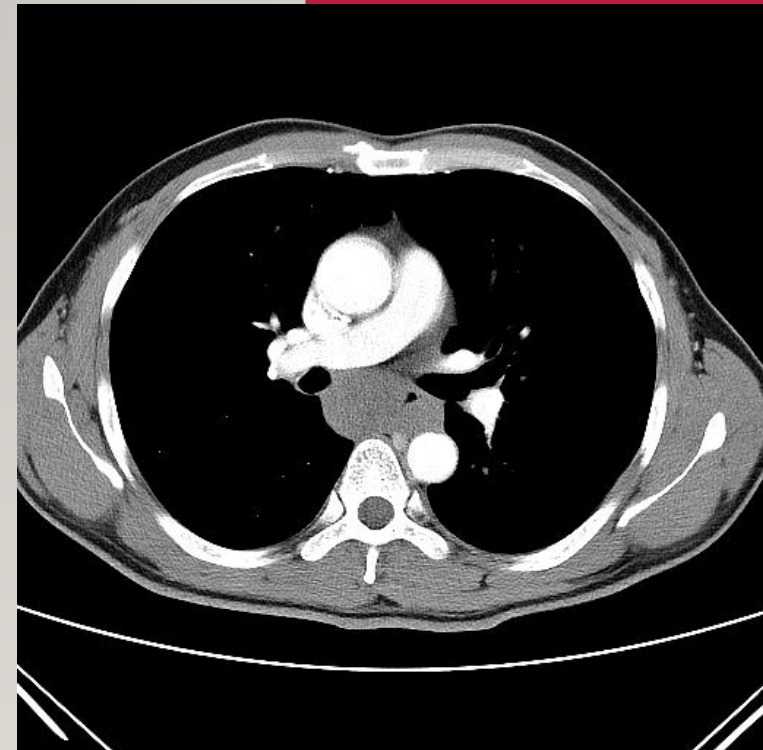
- VATS Enucleation



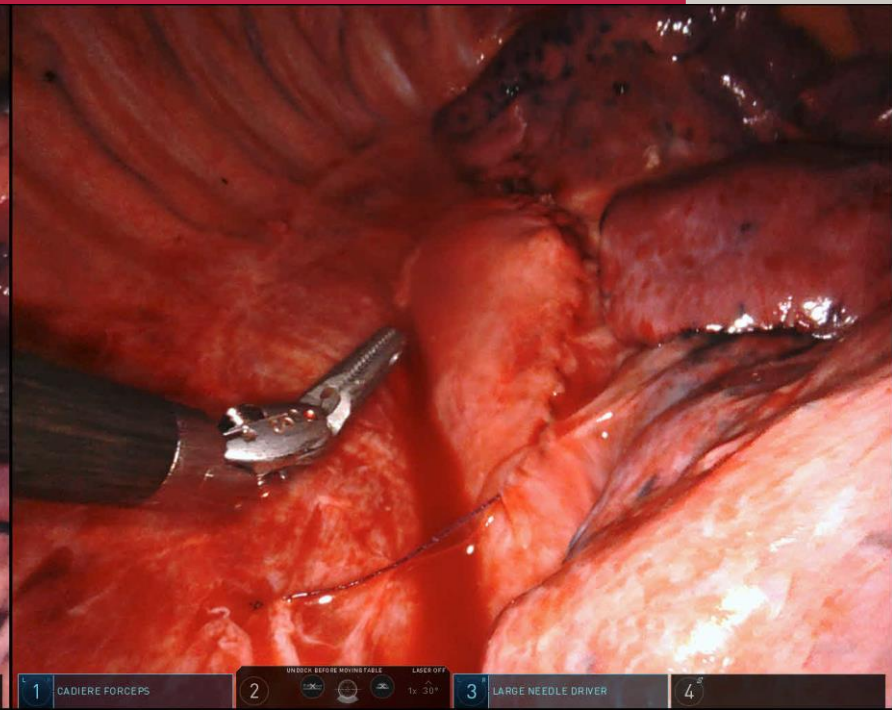
# ROBOT ASSISTED ESOPHAGEAL ENUCLEATION



# ROBOT ASSISTED ESOPHAGEAL ENUCLEATION



1 CADIERE FORCEPS 2 UNLOCK BEFORE MOVING TABLE LASER OFF 1x 30° 3 MARYLAND BIPOLAR FORCEPS COAG 4 TIP-UP FENESTRATED GRASPER



1 CADIERE FORCEPS 2 UNLOCK BEFORE MOVING TABLE LASER OFF 1x 30° 3 LARGE NEEDLE DRIVER 4

# 행위 급여 목록 [식도]

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- 식도양성종양적출술 Resection of Esophageal Benign Tumor

가. 식도입구부 Subpharyngeal

나. 흉부접근

주 : 흉강내시경 기구를 이용하여 폐전방부위를 견인하여 늑막개방후 식도근육층을 박리하여 종양부위를 적출하는 경우에도 소정점수를 산정한다.

다. 복부접근 Abdominal Approach

# 진료행위 연도별 환자추이 (심사년도 기준2015-2019)

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- 식도부지법 180-197-172-173-174
- 식도이물제거술 (경부 접근) 12-20-18-10-20
- 식도이물제거술 (흉부 접근) 8-9-17-12-14
  
- 식도양성종양적출술 (식도입구부) 5-3-5-9-3
- 식도양성종양적출술 (흉부 접근) 55-52-43-62-48
- 식도양성종양적출술 (복부 접근) 7-7-11-12-10

# III. STRICTURE

## 협착

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# CAUSTIC INJURY

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Chemical burn

Children: Accident

Adult: Accidents, or Suicide

- 알칼리성 부식제/양젓물
- 빙초산 표백제 <황산
- 전암성 질환 유발

**TABLE 70-1** Commonly Ingested Caustic Substances

## **Acid-Containing Substances**

Toilet bowl cleaning products  
Automotive battery liquid  
Rust removal products  
Metal cleaning products  
Cement cleaning products  
Drain cleaning products

## **Alkali-Containing Substances**

Ammonia-containing products  
Oven cleaning products  
Swimming pool cleaning products  
Automatic dishwasher detergent  
Hair relaxers  
Bleaches



# CAUSTIC INJURY

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The anatomies of severely damaged (stricture) sites

- 1. Cricopharyngeal level
- 2. mid-esophagus at the level of aortic arch and Left main stem bronchus
- 3. The distal esophagus just above the lower esophageal sphincter

# EARLY TREATMENT OF CAUSAL INJURY

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- Broad spectrum anti biotics and anti fungal agent and NPO
- Endoscopic examination and frequent PEX, CXR, CT
- Corticosteroid: no proved benefit

**TABLE 70-2** Classification of Burns by Depth of Injury

Grade	Depth	Endoscopy
First degree	Mucosal	Mucosal hyperemia and edema
Second degree	Transmucosal, with or without involvement of muscularis. No extension to periesophageal tissue.	Hemorrhagic, exudative, ulcerative pseudomembranes
Third degree	Full-thickness injury with extension into periesophageal tissue. May involve mediastinal or intraperitoneal organs.	Complete obliteration of esophageal lumen by massive edema; charring and eschar; full-thickness necrosis with perforation.

# OPERATION OF CAUSTIC INJURY

**TABLE 70-3** Indications for Surgery in Caustic Injuries to the Esophagus

## Early Indications

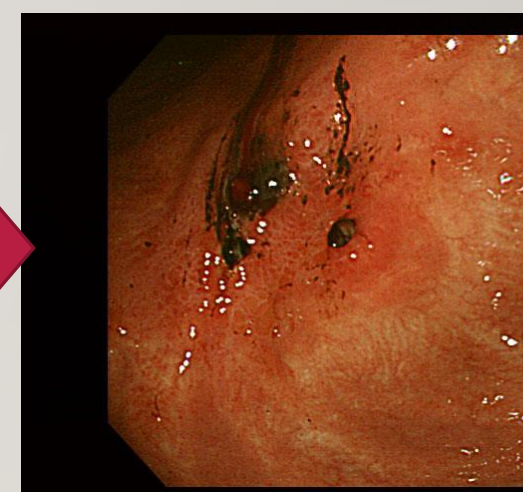
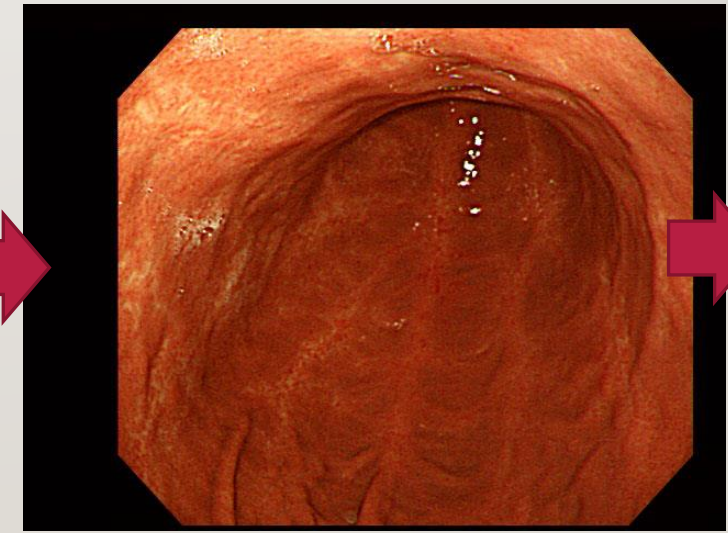
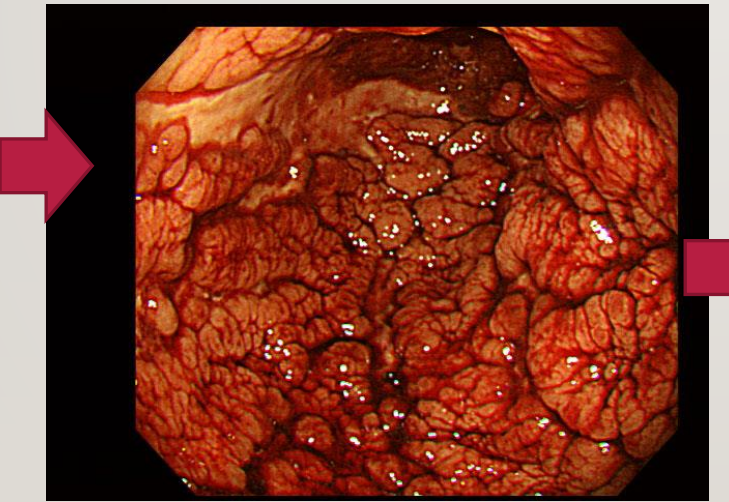
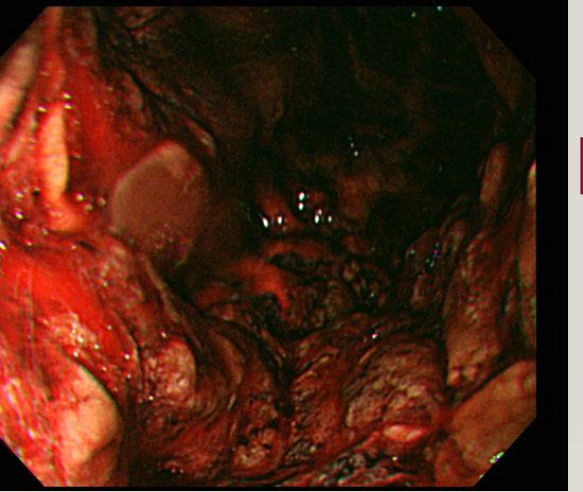
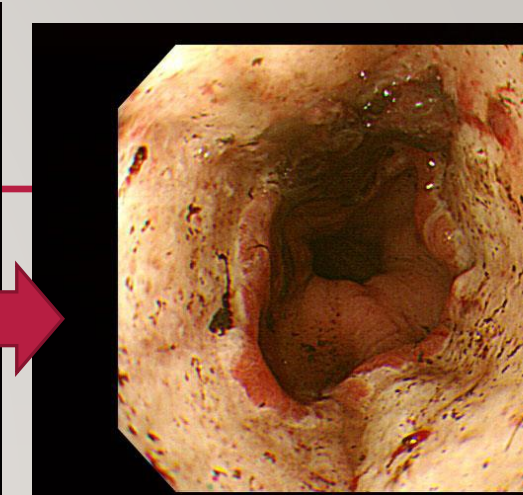
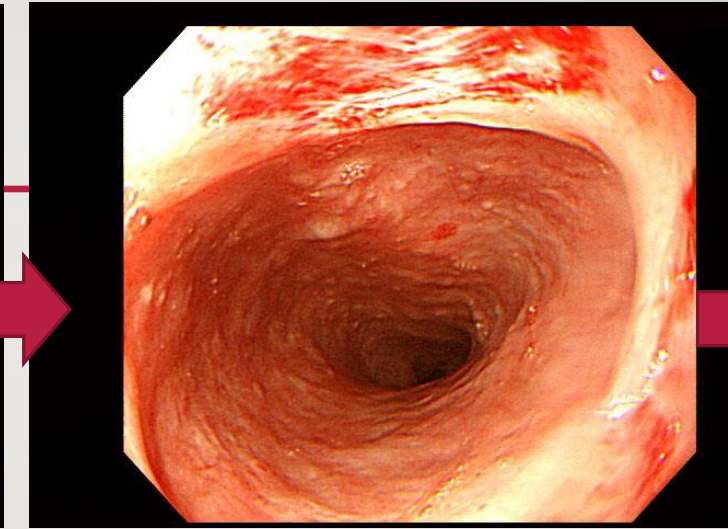
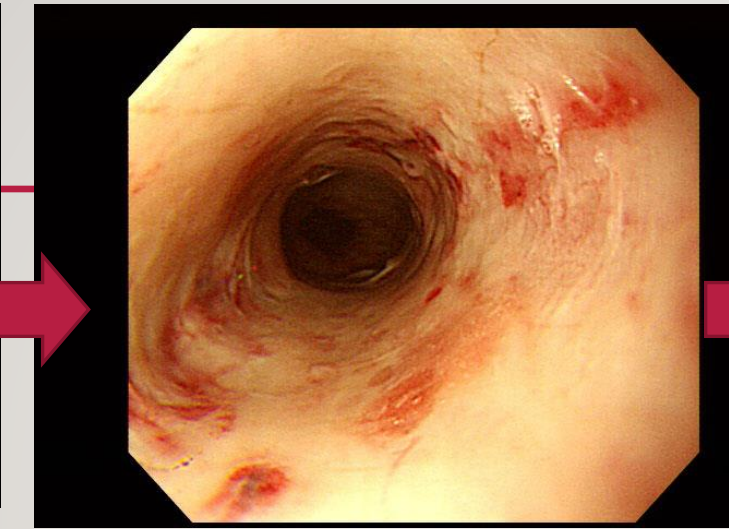
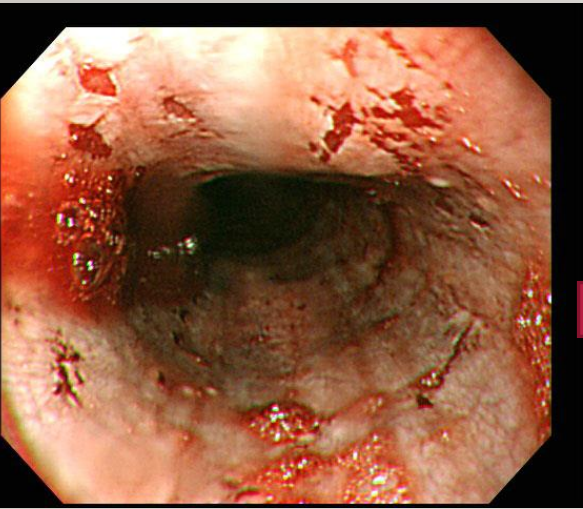
Esophageal perforation  
Transmural necrosis  
Grade 2 or 3 injury

## Late Indications

Complete stenosis in which all attempts have failed to establish a lumen  
Perforation after dilation  
Fistula formation  
Inability to dilate or maintain the lumen above a 40-Fr bougie  
Patients who are unwilling or unable to undergo prolonged periods of dilation  
Esophageal carcinoma

- Esophagostomy and esophagectomy
- +/- gastrectomy
- Drainage and second look operation
- Delayed reconstruction with conduit
- Plastysma flap or jejunal flap : short segment

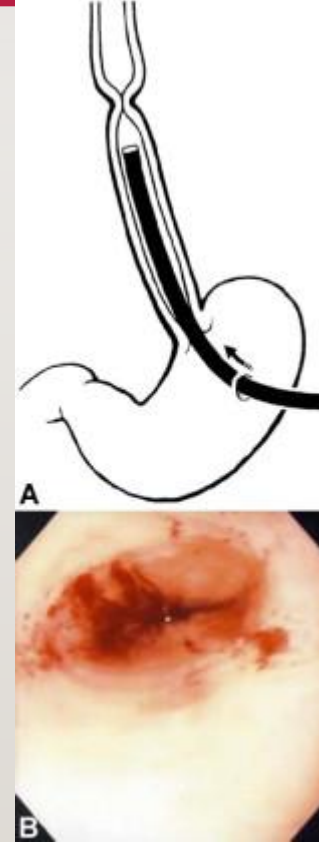
# CASE (ACID)



# ENDOSCOPIC DILATATION



- Endoscopic balloon dilatation and cutting



- Gastrostomy with retrograde dilatation

# SURGICAL OPTIONS

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**TABLE 70-4** Options for Esophageal Replacement

	Advantages	Disadvantages
Reverse gastric tube	Useful when right gastroepiploic supply poor or disrupted	Technically difficult
Gastric pull-up	Single anastomosis, reliable blood supply	Acid reflux, bulky
Colon interposition	Maintains propulsion	Three anastomoses required; development of redundancy
Jejunal interposition	Maintains peristalsis, diameter match with esophagus Less gastroesophageal reflux	Often requires free vascular anastomosis Variable vascular anatomy Redundancy develops

# I. 행위 급여 목록 [식도]

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- 식도부지법 Bougination of Esophagus
- 식도우회재건술 Esophageal Bypass Reconstruction
  - 가. 경복부 접근                      나. 흉복부 접근                      다. 경흉복부 접근
- 단순식도절제술 Simple Esophagectomy
  - 가. 경복부접근                      나. 흉복부접근                      다. 경흉복부 접근
- 식도절제후 재건술 Esophageal Reconstruction after Resection

(주: 단순식도절제술 또는 식도양성종양 근치수술과 동시에 실시한 경우 소정점수를 각각 산정한다.)

- 가. 피판성형 with Patch    나. 위이용 with Stomach    다. 공장이용 with Jejunum
- 라. 유리공장이식 Jejunal Free Flap    마. 대장이용 with Colon

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

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- 단순식도절제술(경북부접근) 24-19-7-7-9
- 단순식도절제술(홍북부접근) 19-28-13-40-35
- 단순식도절제술(경홍북부접근) 12-9-12-10-12
- 식도부지법 180-197-172-173-174
- 식도우회재건술(경북부접근) 22-28-36-28-31
- 식도우회재건술(홍북부접근) 4-3-2-5-12
- 식도우회재건술(경홍북부접근) 5-5-3-4-9



## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

---

- 식도절제후재건술(피판성형) 2-1-1-2-4
- 식도절제후재건술(위이용) 735-834-712-813-742
- 식도절제후재건술(공장이용) 20-27-20-27-18
- 식도절제후재건술(유리공장이식) 18-12-22-21-19
- 식도절제후재건술(대장이용) 53-57-41-33-47

# IV. CONGENITAL DISEASE

## 선천성 식도질환

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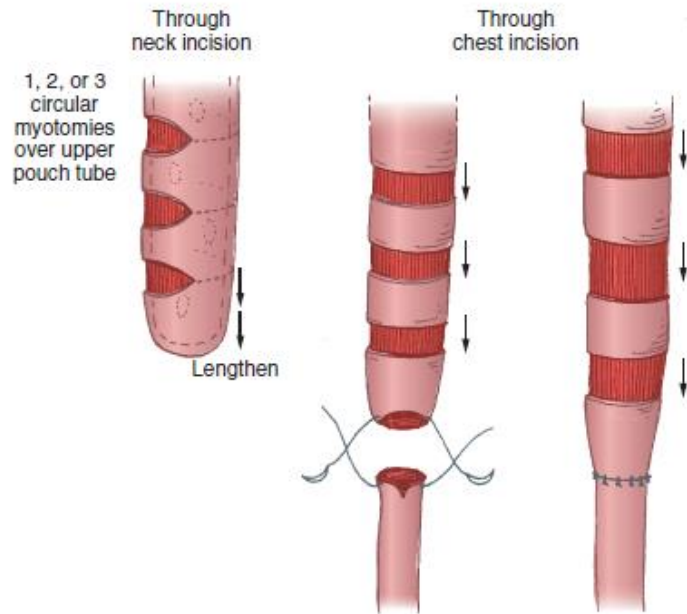
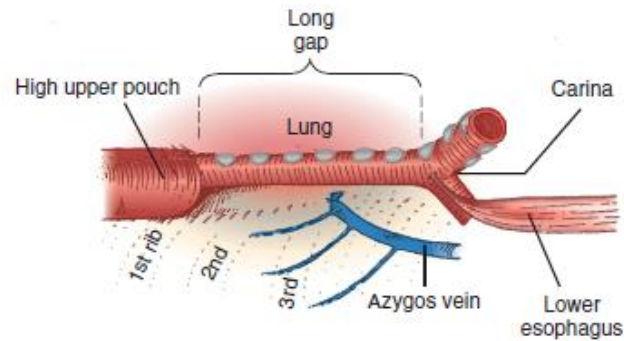


# 식도 폐쇄 및 기관식도루

- 발생 빈도 1/1500~3000, 30-76% combined other anomalies (VACTERL, 20%)
- 5가지 형태
- 1) EA with distal TEF (h-형) (86%)
- 2) EA without TEF
- 3) TEF without EA(H-형)
- 4) 기타 식도 폐쇄증



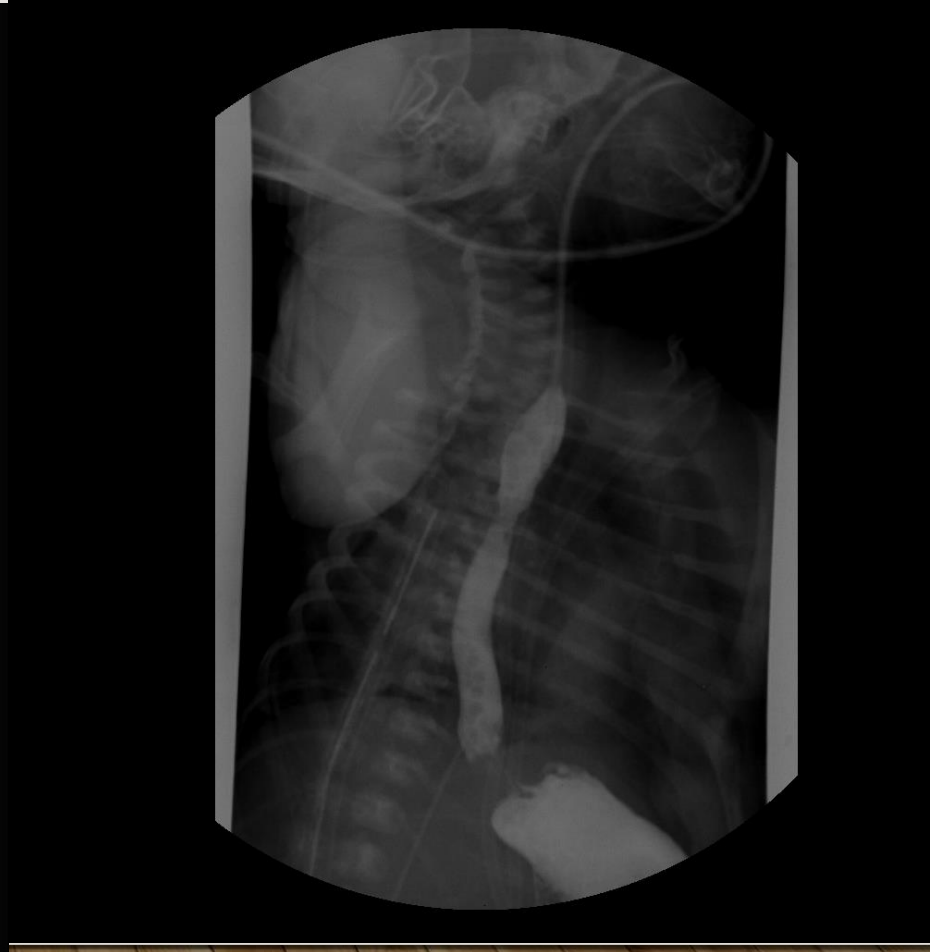
# SURGICAL REPAIR OF LONG-GAP ATRESIA



**TABLE 10-3** Complications Associated With Esophageal Atresia and Its Repair

Complication	Incidence (%)*
Anastomotic leak	15-20
Recurrent fistula	3-10
Anastomotic stricture	10-35
Gastroesophageal reflux	55-82
Tracheomalacia	10-20
*See text for references.	

# CASE



# PEDIATRIC SURGERY

---

- VATS repair
- Extra-pleural approach
- Reconstruction using colon graft

# I. 행위 급여 목록 [식도]

---

- 선천성식도무공증 수술 Operation for Congenital Esophageal Atresia
  - 가. 식도문합 Primary Anastomosis
  - 나. 기관식도루제거 Excision of Tracheoesophageal Fistula
  - 다. 「가」와 「나」동시 실시

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

---

- 선천성식도무공증수술 (식도문합) 12-9-9-10-4
- 선천성식도무공증수술 (기관식도루제거) 21-10-14-13-8
- 선천성식도무공증수술 (식도문합과 기관식도루제거 동시에) 47-55-47-70-46



# V. MOTILITY DISORDER

## 운동장애 질환

---



# CLASSIFICATION OF ESOPHAGEAL MOTILITY DISORDERS

---

- ◆ Inadequate LES relaxation

  - Classic achalasia

  - Atypical disorders of LES relaxation

- ◆ Uncoordinated contraction

  - Diffuse esophageal spasm

- ◆ Hypercontraction

  - Nutcracker esophagus

  - Isolated hypertensive LES

- ◆ Hypocontraction

  - Ineffective esophageal motility

# LOCATION OF ESOPHAGEAL MOTILITY DISORDERS



상부 식도

괄약근 운동장애

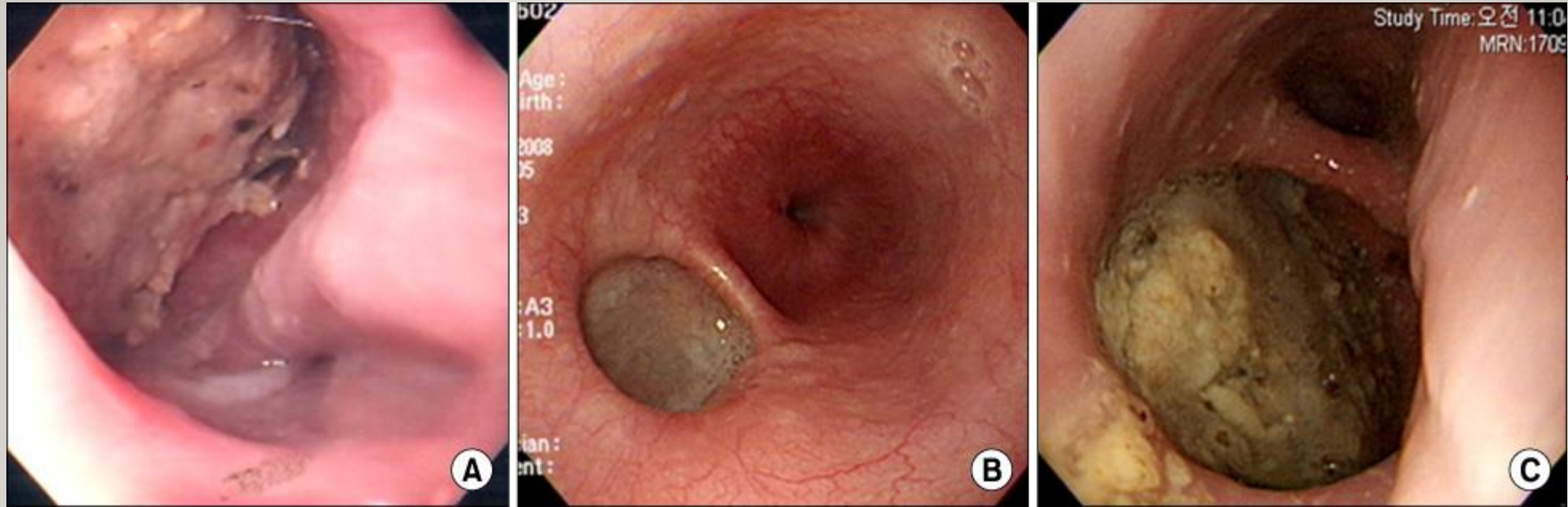
- Zenker's diverticulum

체부 및 하부 식도

괄약근 운동장애

- Achalasia
- Diffuse esophageal spasm
- Nonspecific esophageal motor dysfunction
- Secondary motor dysfunction
- Epiphrenic diverticulum





(A) Pharyngoesophageal, (B) Midesophageal and © Epiphrenic esophageal diverticula.

# ZENKER'S DIVERTICULUM

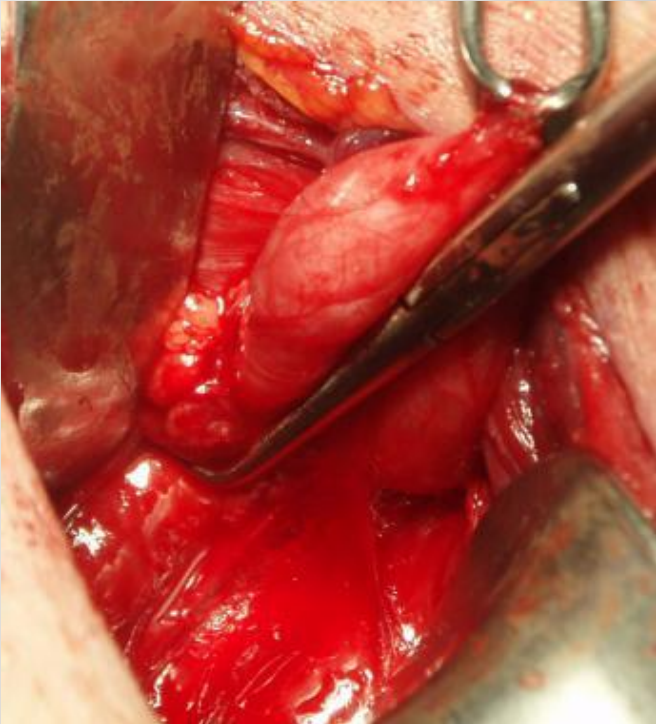
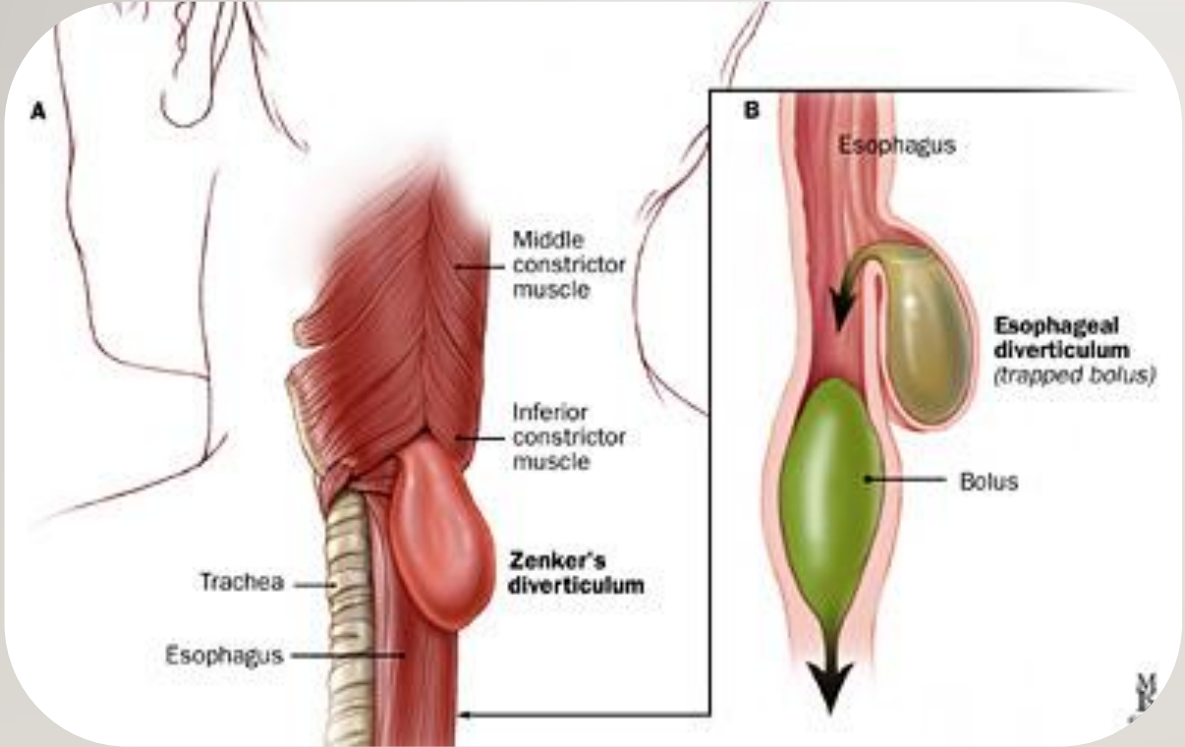
---

- 27 cases described in 1877 by Zenker and Ziemssen
- Most common esophageal diverticulum
- Killian's triangle, C6,7 Vertebra level
- Pathogenesis: UES incomplete opening -> pulsion explanation favored (increase pressure in lumen forces tissue through weak spot in muscle layer)
- Location: hypopharynx of elderly (superior to upper esophageal sphincter)
- May become larger and sequester food, with regurgitation, aspiration or mass effect in the neck
- Treatment: surgical resection of larger lesions

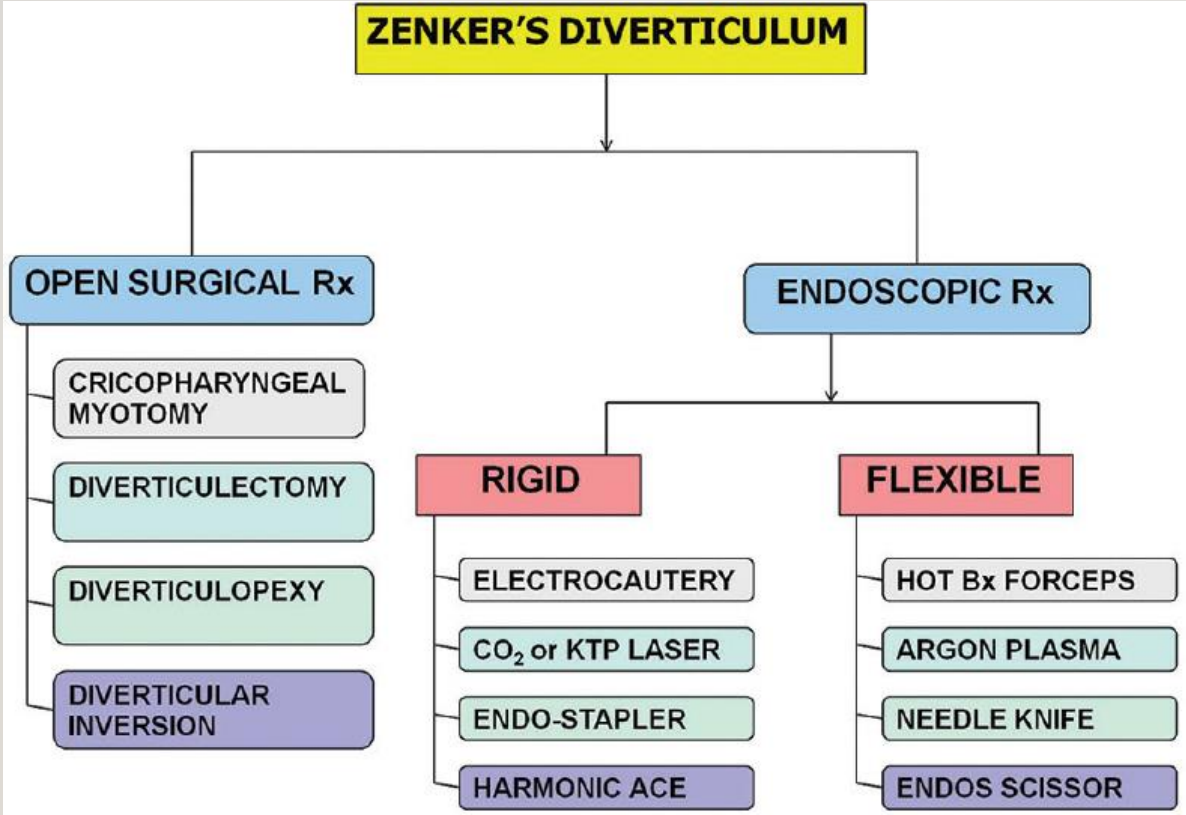


# ZENKER'S DIVERTICULUM -KILLIAN'S TRIANGLE

---



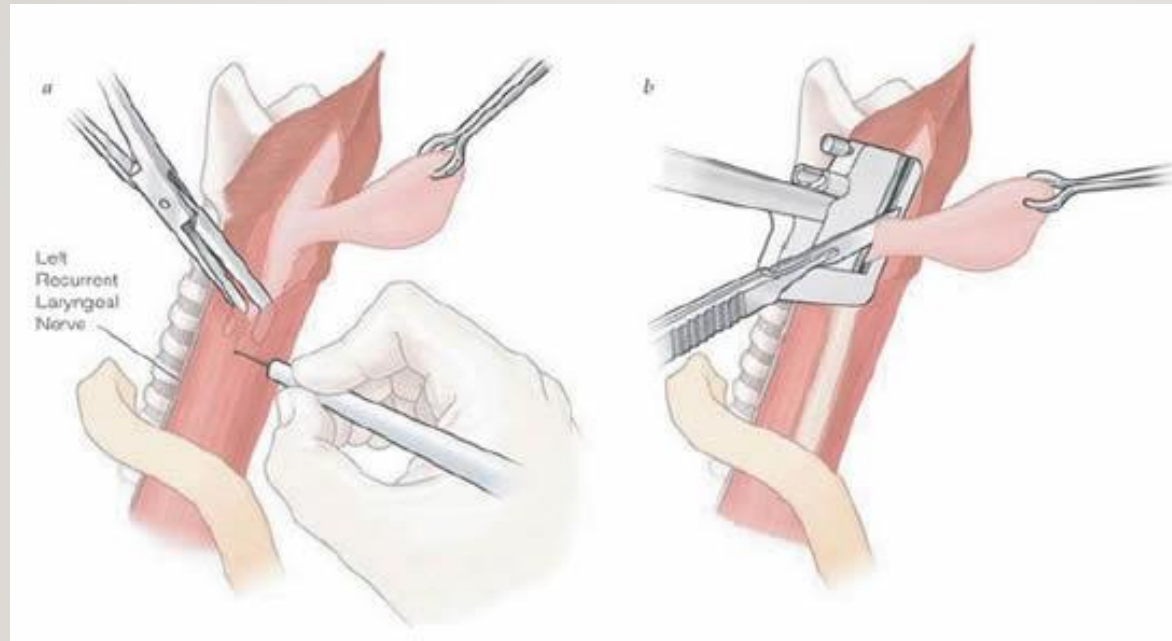
# ZENKER'S DIVERTICULUM





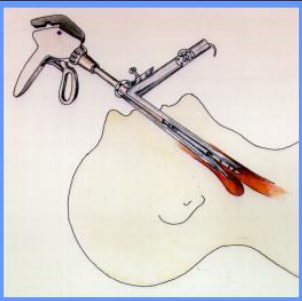
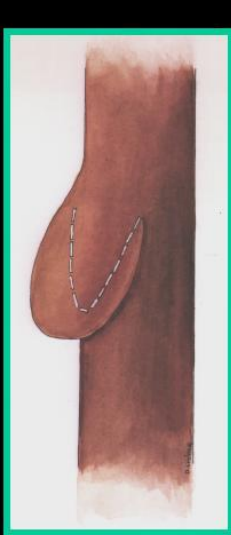
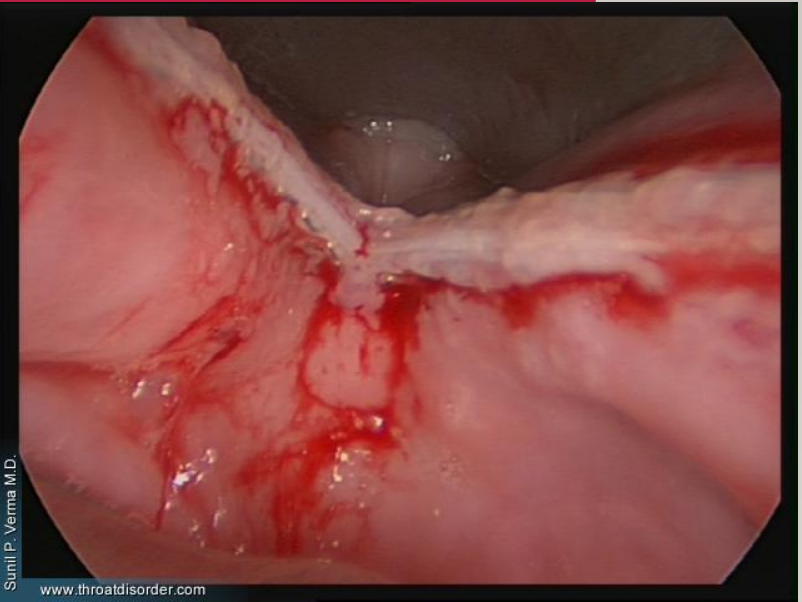
# ZENKER'S DIVERTICULUM -DIVERTICULECTOMY

---



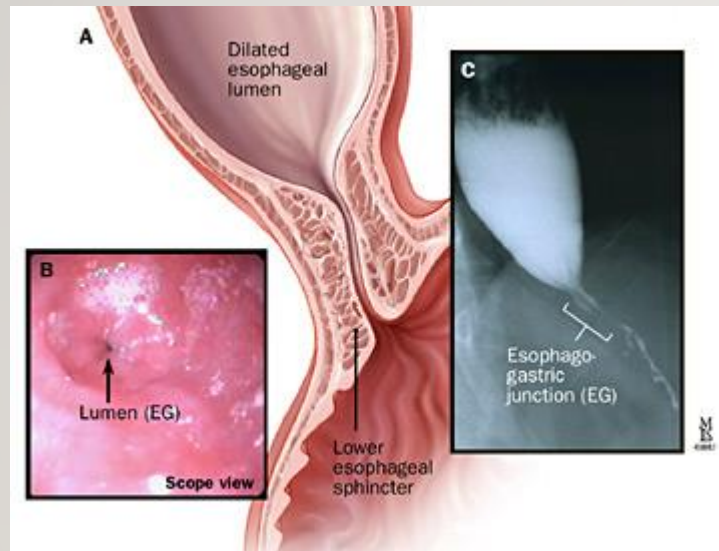
# ZENKER'S DIVERTICULUM

## -TRANSORAL REPAIR OF ZD (ENDOSTAPLER)



# ACHALASIA

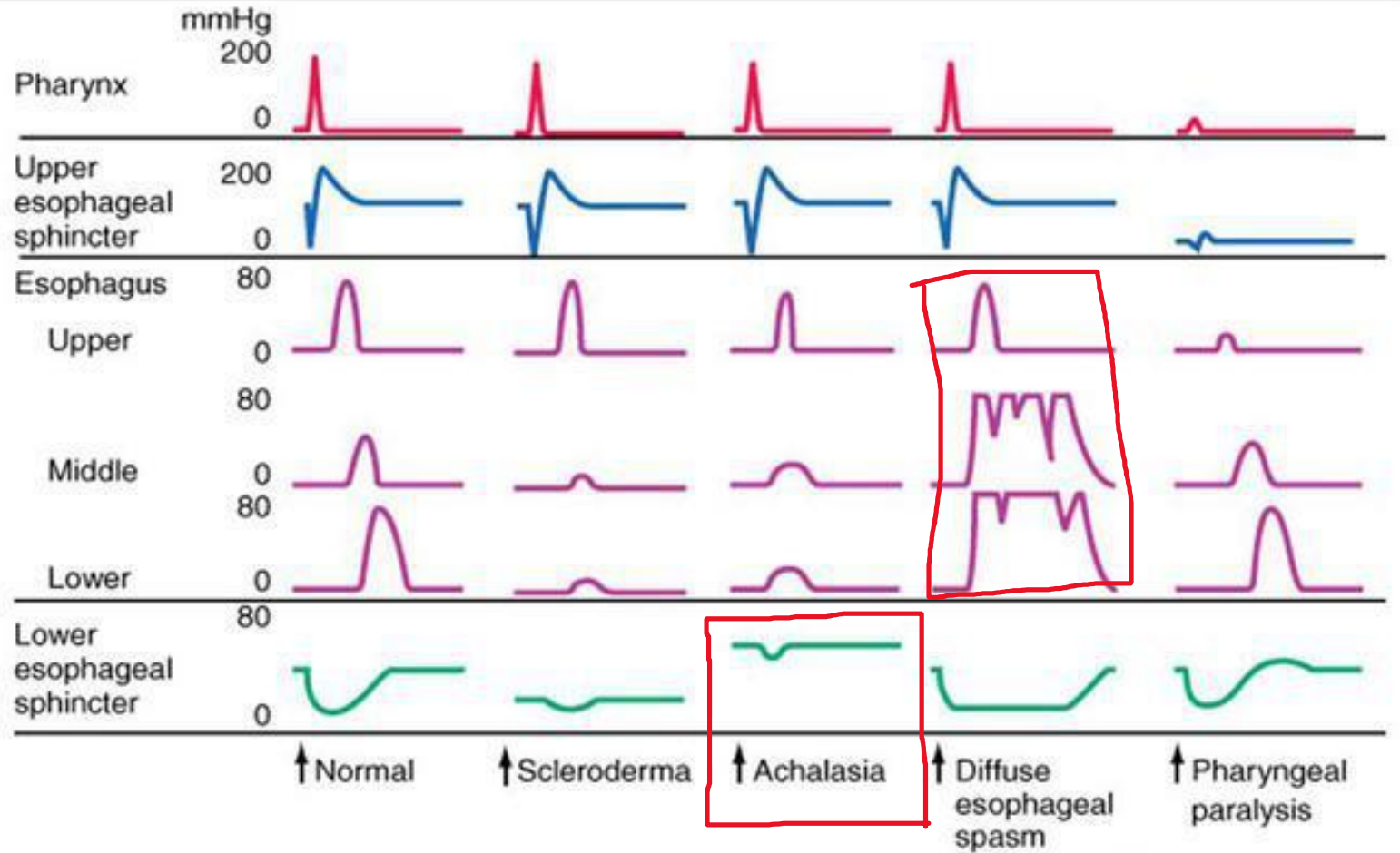
---



- Absence of peristalsis and failure of relaxation of LES.
- T-cell mediated destruction of Myenteric neural plexus

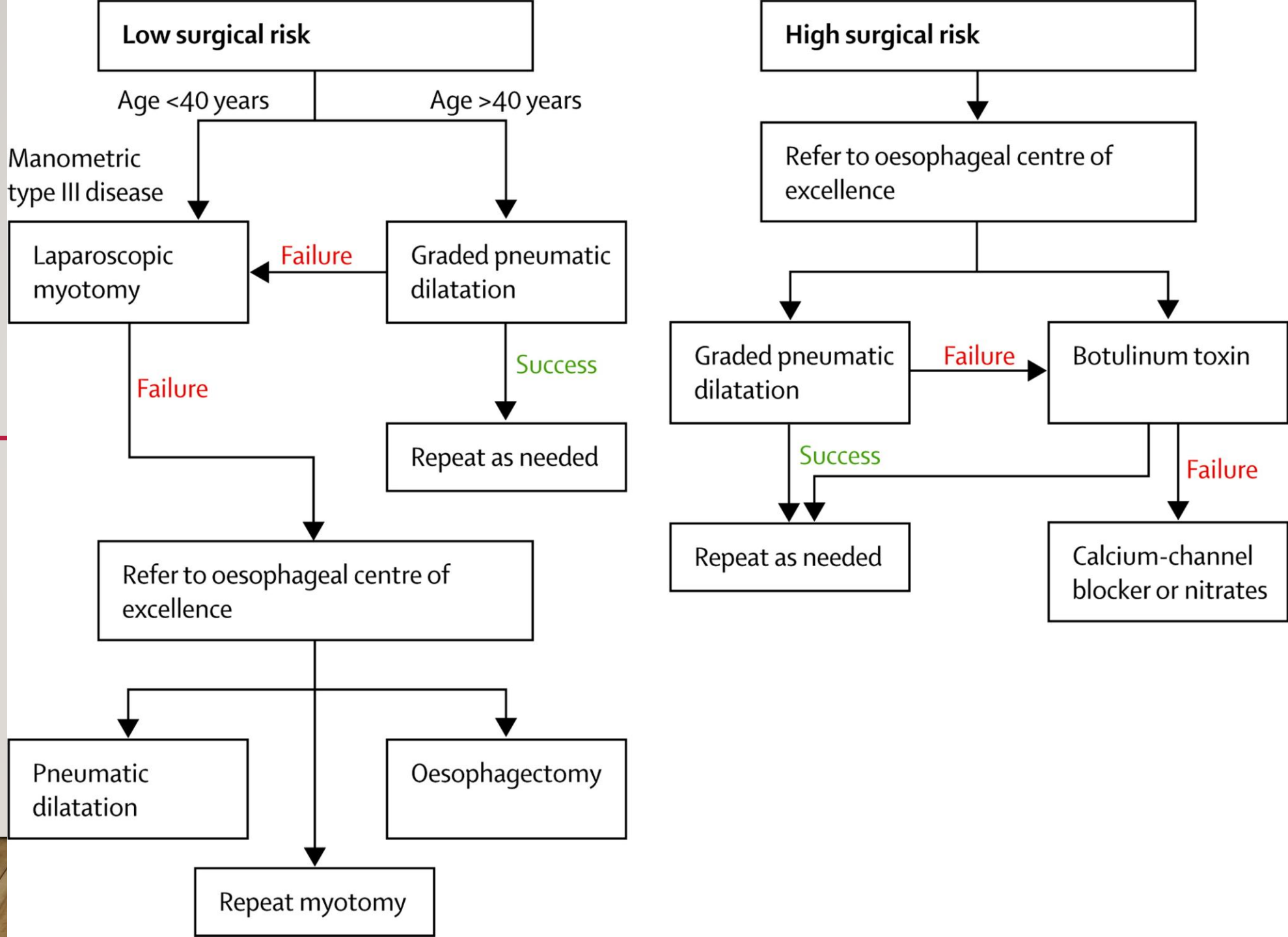
# ACHALASIA

# Esophageal manometry



# ACHALASIA

The Lancet 2014

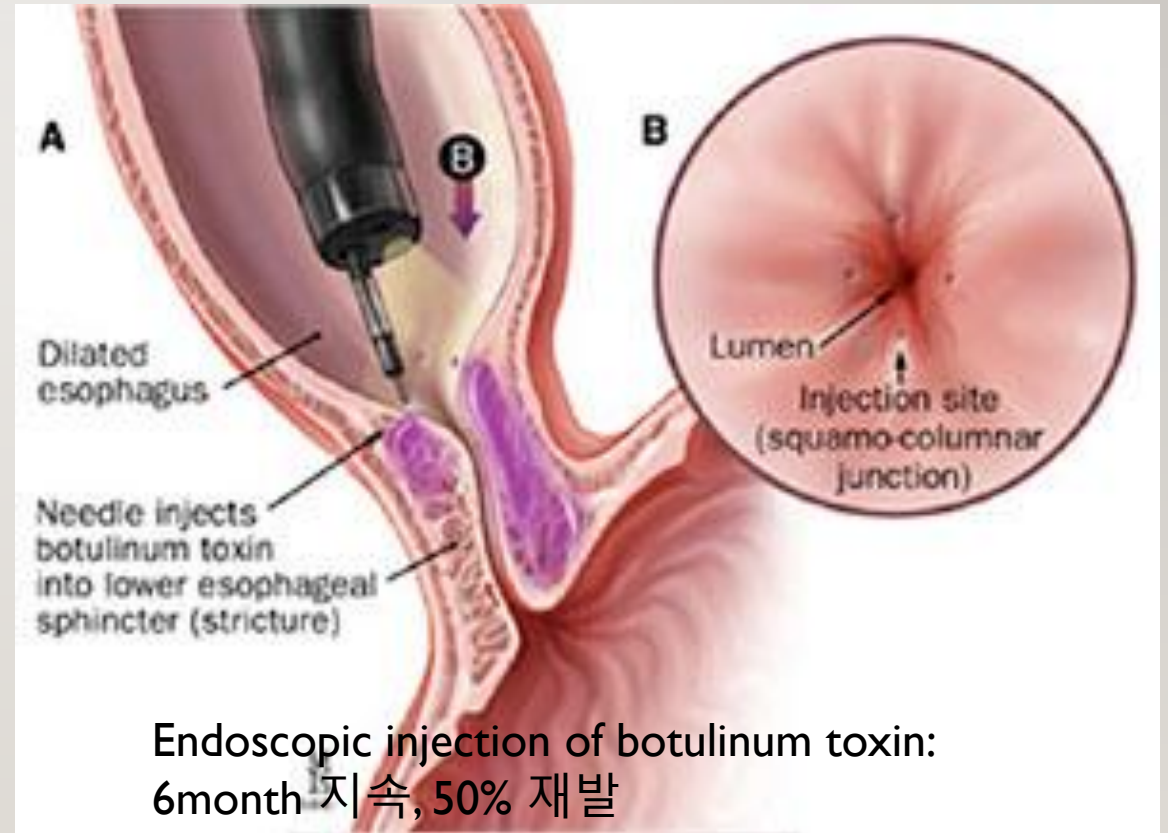
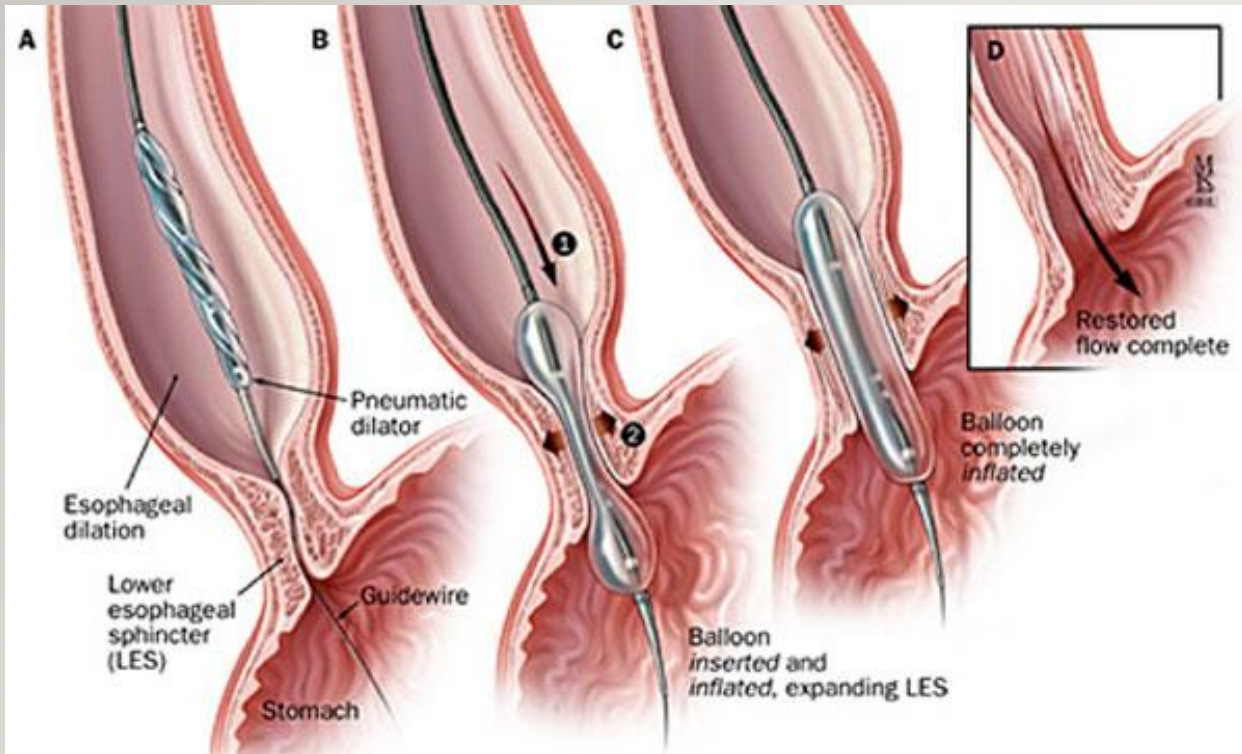


# MEDICAL TREATMENT FOR ACHALASIA

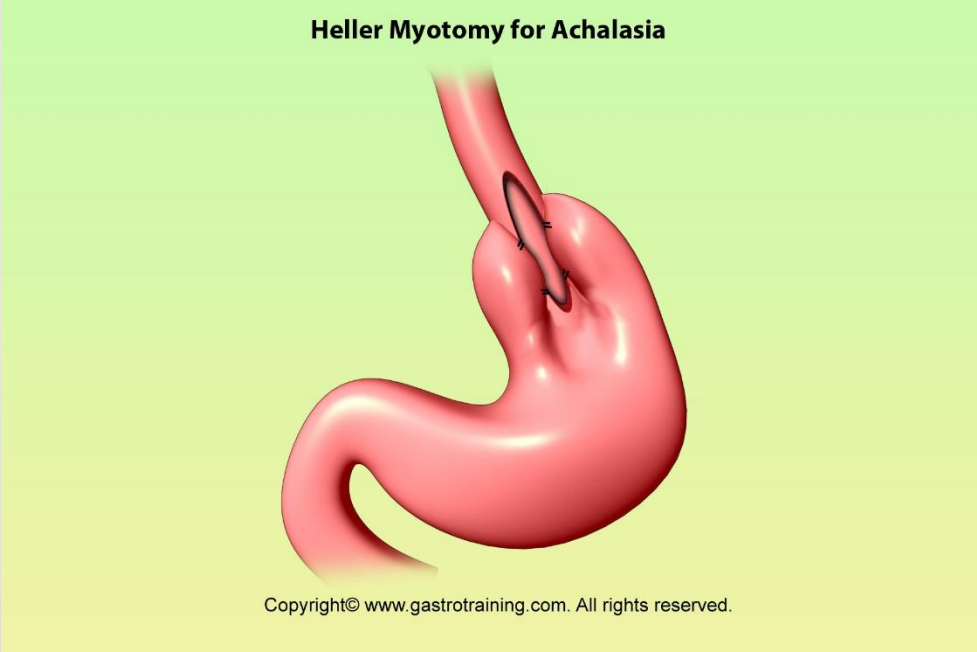
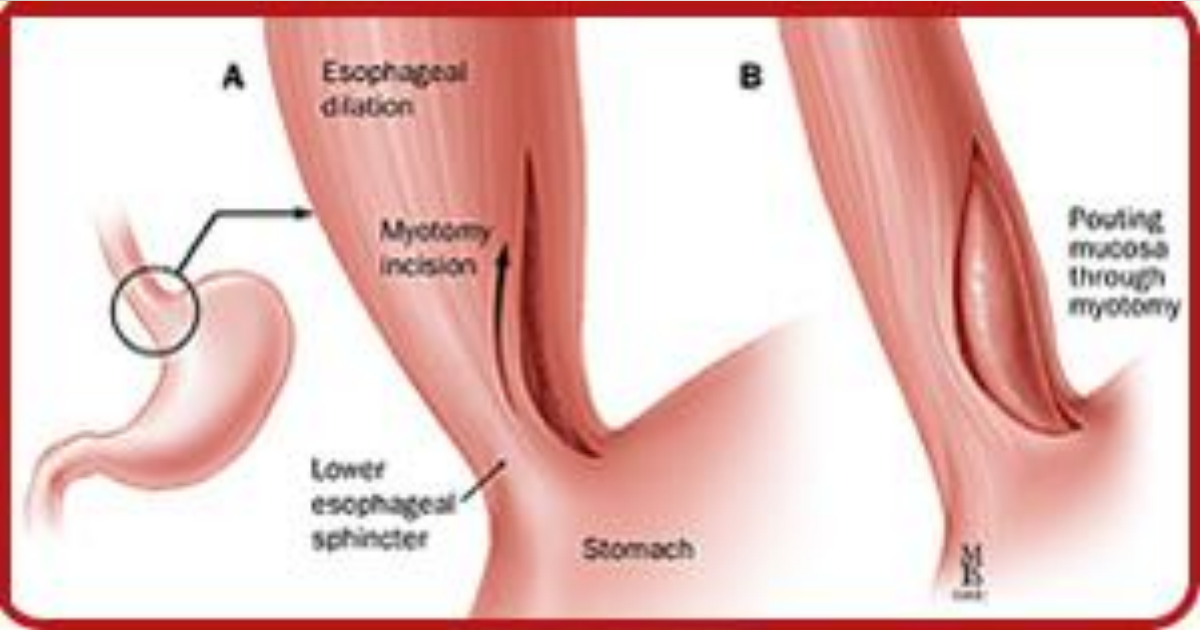
**Table IV.** Indications for pharmacologic treatment of achalasia.

- 1) Patients with initial achalasia
- 2) Patients who refuse pneumatic dilation and myotomy
- 3) Patients with vigorous achalasia before pneumatic dilation.
- 4) Patients who underwent pneumatic dilation with poor results or who refuse a second dilation
- 5) Patients with incomplete myotomy or recurrence of muscular stenosis
- 6) Children
- 7) Elderly patients
- 8) Patients with high risks for invasive procedures

# INTERVENTION FOR ACHALASIA



# SURGERY FOR ACHALASIA



Heller's myotomy and partial fundoplicaton



# MODIFIED HELLER'S MYOTOMY

---

- Heller myotomy
- -first performed in 1913
- Performed both anterior and posterior myotomies

Approach has evolved over time

-transabdominal and transthoracic approaches

-only single anterior myotomy made

+/- the addition of an antireflux procedure

# I. 행위 급여 목록 [식도]

---

- 식도분문수술 Operation of Achalasia
  - 가. 식도근절개술 [헬러술식] Esophagomyotomy
    - (1) 흉부접근
    - (2) 복부접근
  - 나. 식도항역류수술 Esophageal Antireflux Operation
    - (1) 흉부접근
    - (2) 복부접근
  - 다. 기타 분문성형술 Other Esophagocardioplasty
    - (1) 흉부접근
    - (2) 복부접근
  - 라. 식도 게실 절제술 Esophageal Diverticulectomy
    - (1) 경부접근
    - (2) 흉부접근

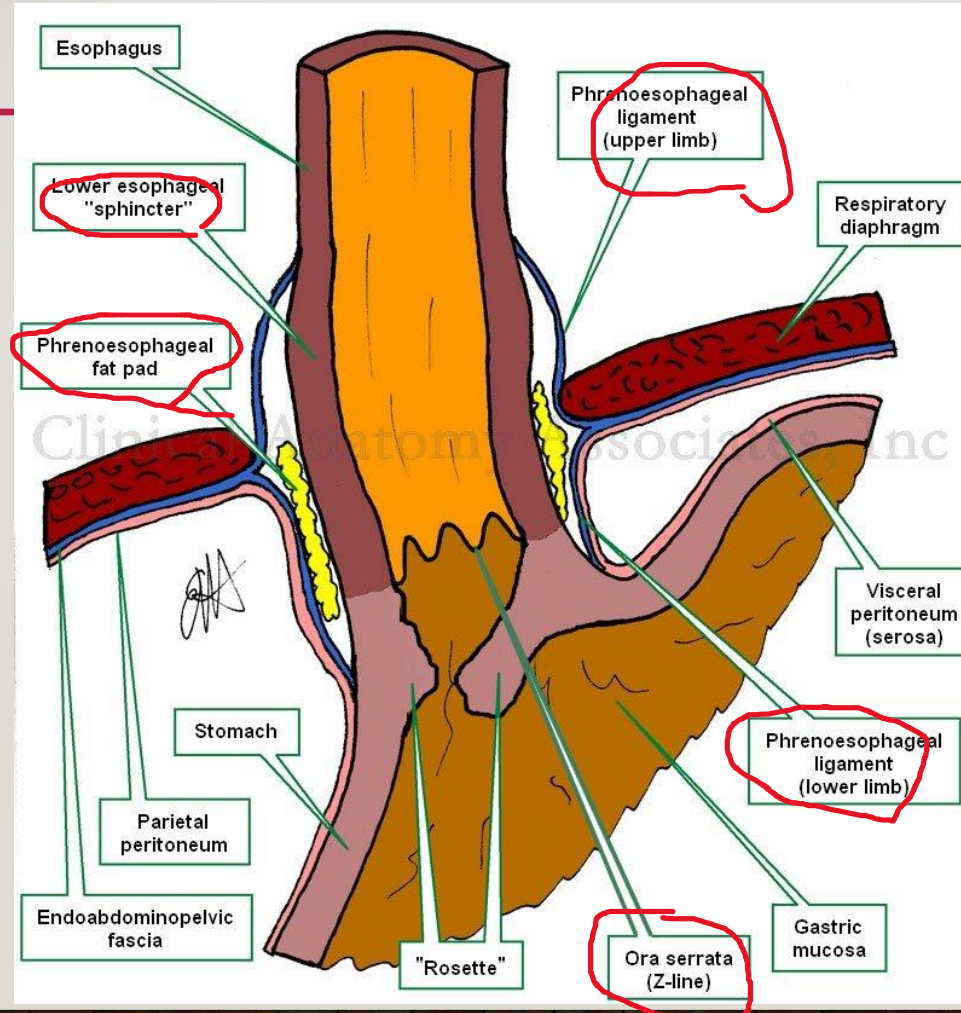
## VI. HIATAL HERNIA AND GERD

식도열공허니아 및 위식도역류성질환

---



# PHRENOESOPHAGEAL MEMBRANE(LIGAMENT)

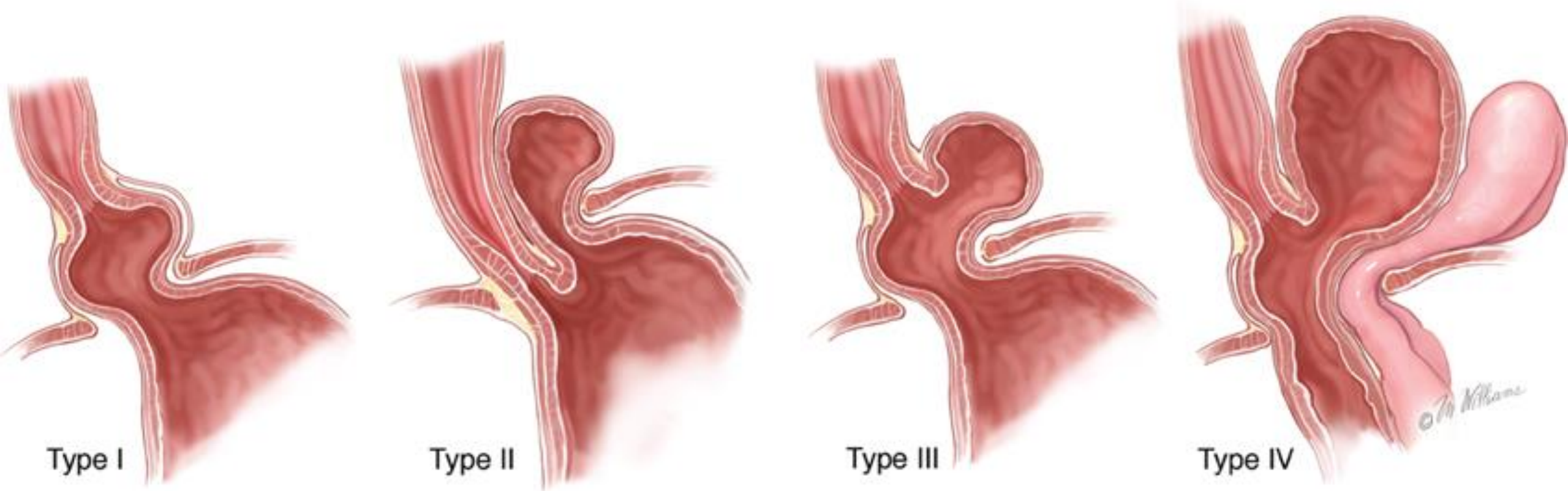


I. Sliding hiatal hernia: GEJ > 2cm above hiatus: > 95% of all hernia

II. Paraesophageal hiatal hernia: GEJ remain below diaphragm, fundus protrusion through hiatus

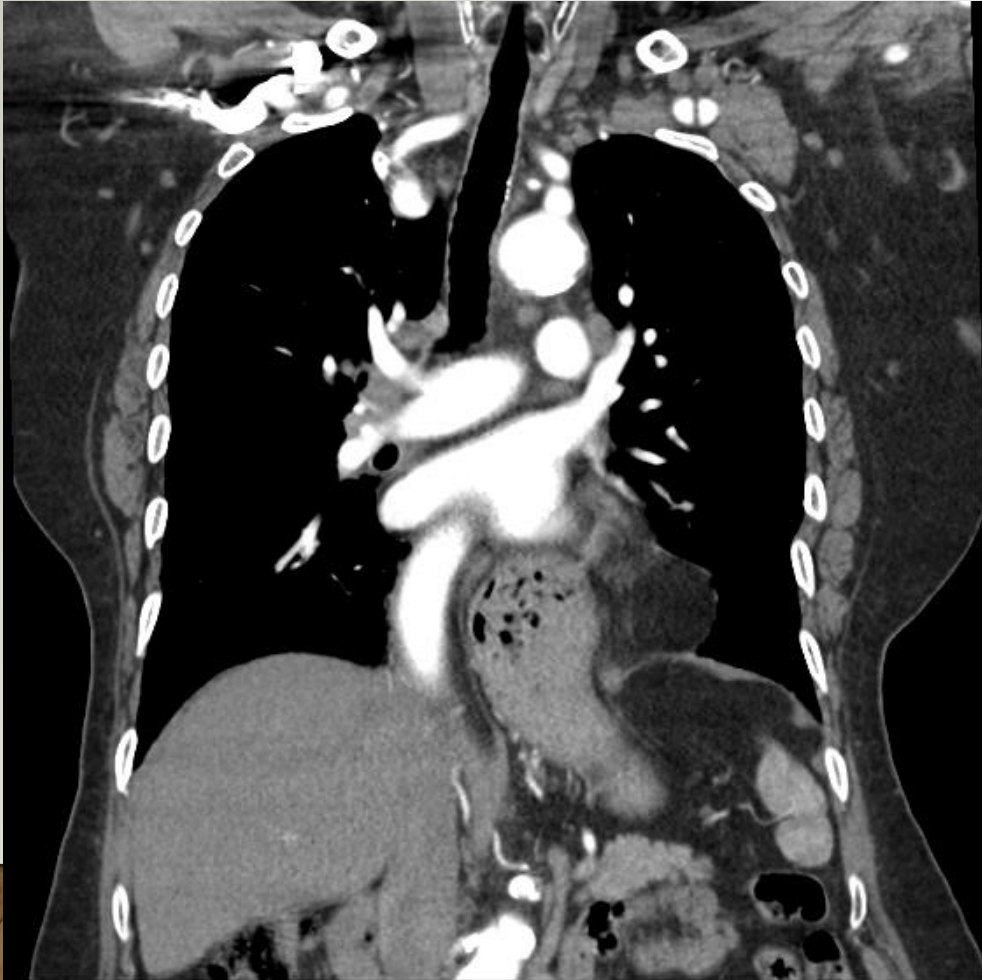
III. Combined hiatal hernia: GEJ above the diaphragm, fundus hernia beside distal esophagus

IV. Multi-organ hiatal hernia

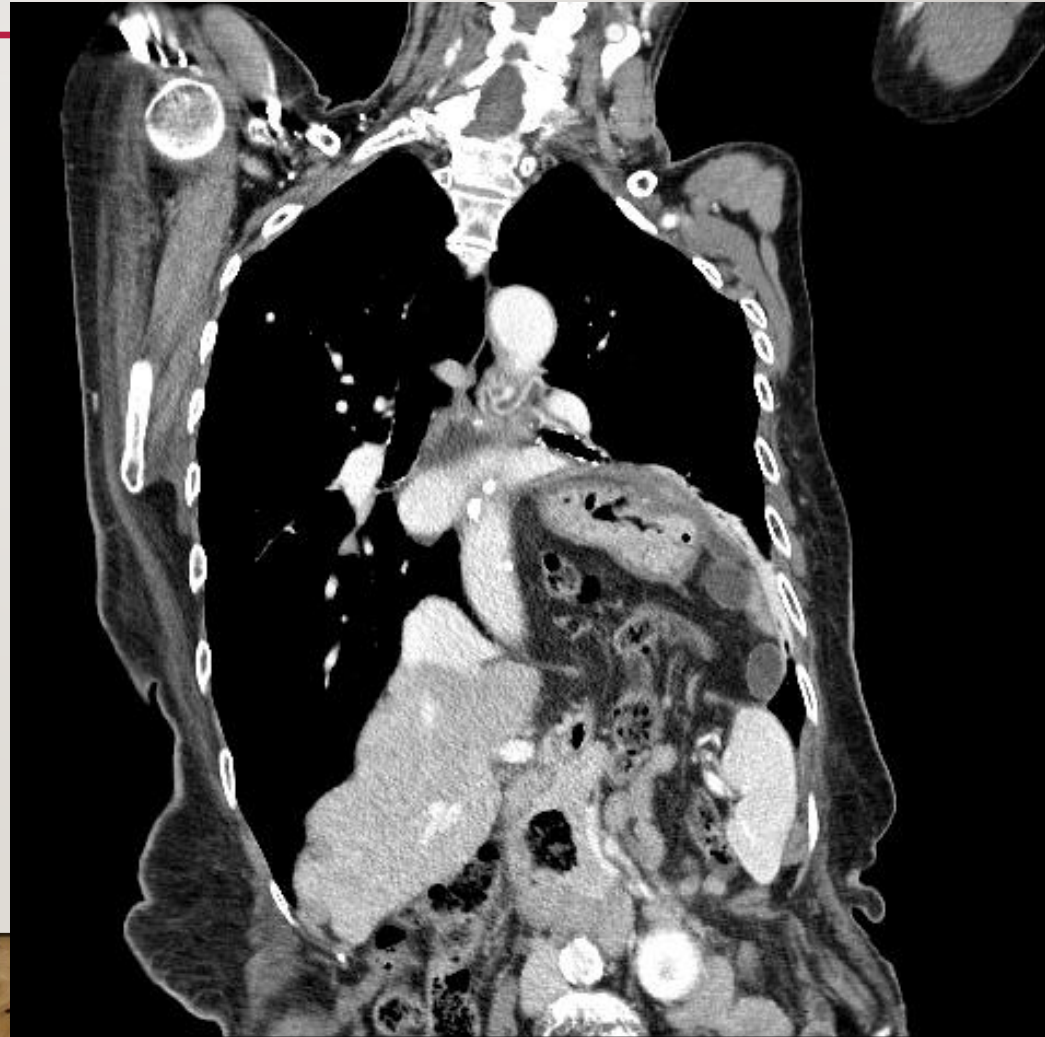
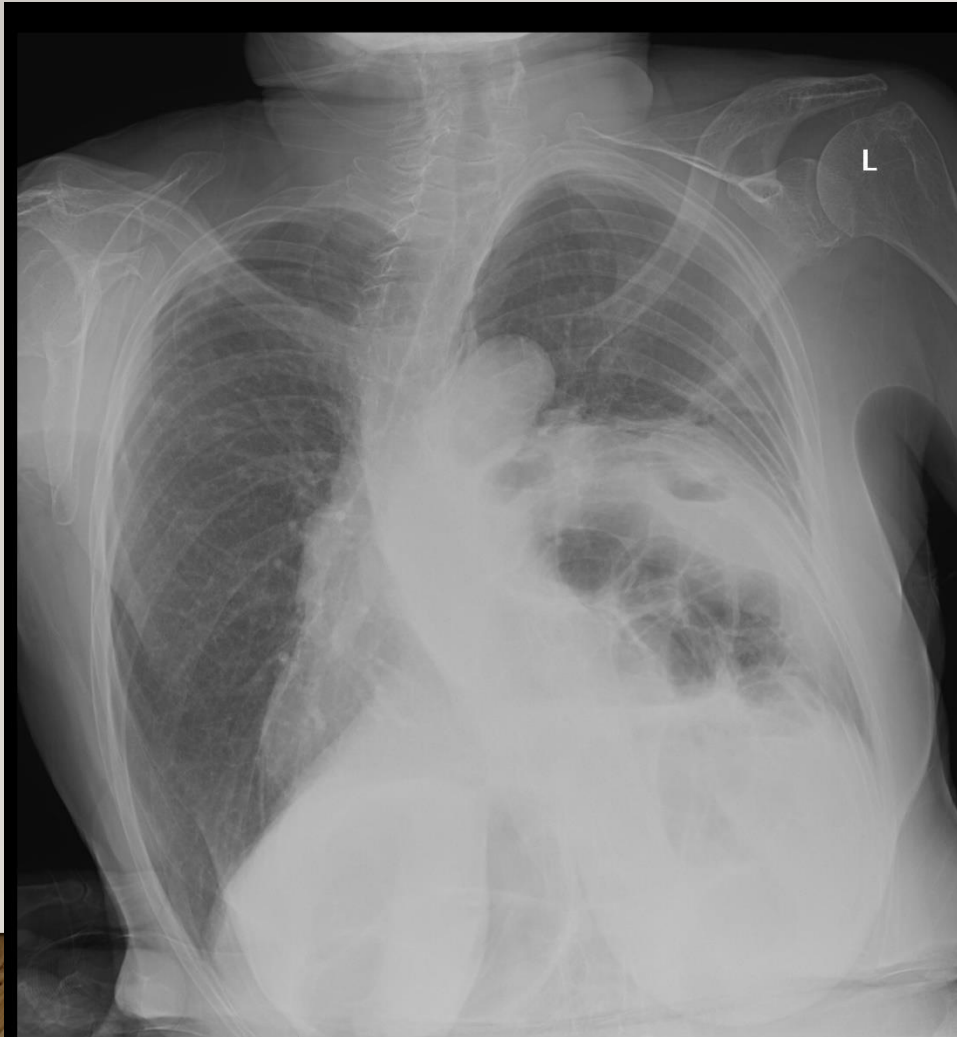


# COMBINED HIATAL HERNIA

---



# MULTI-ORGAN HIATAL HERNIA



# PRINCIPLE OF ANTI-REFLUX SURGERY

---

1. Restoration of the intraabdominal length of esophagus  
1.5 -2.0 c m of tension free intra abdominal esophagus
2. Closure of the crural defect
3. Reconstruction of a functional LES.  
Preservation of Vagus nerve



# INDICATION OF ANTI-REFLUX SURGERY

---

- Symptoms refractory to medical therapy
- Inability or unwillingness to maintain lifelong acid suppression
- Development of complications of GERD(stricture or persistent erosive esophagitis)

# ANTIREFLUX SURGERY SUMMARY

---

- Nissen fundoplication (1956) : 360°
- Collois (1957): gastropasty
- Dor (1962): anterior
- Toupet repair(1963) : 270° posterior
- Transthoracic Belsey Mark IV repair (1967) :270 ° anterior
- Hill's posterior gastropexy (1967)

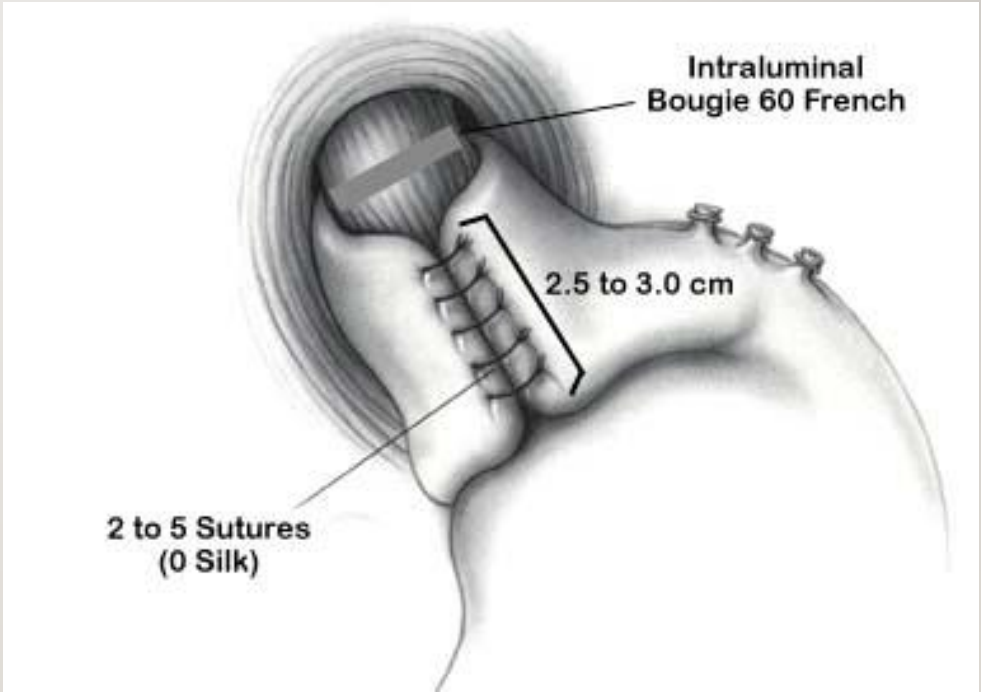
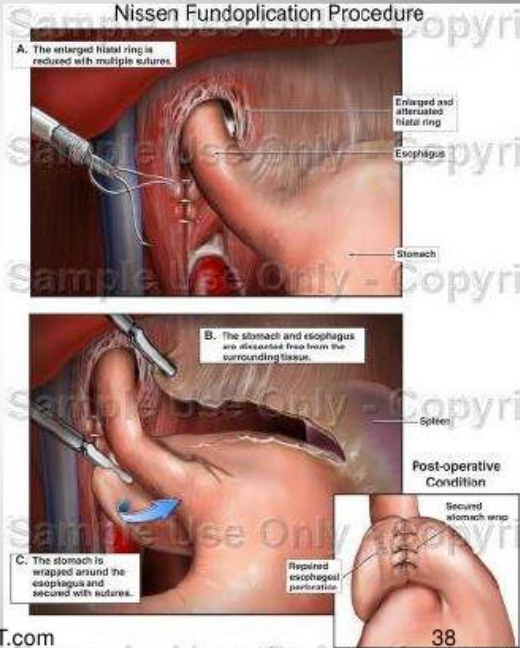
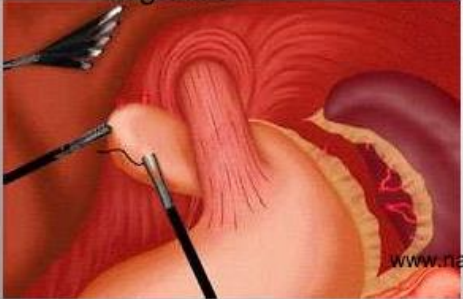
# NISSEN FUNDOPLICATION

## Surgery

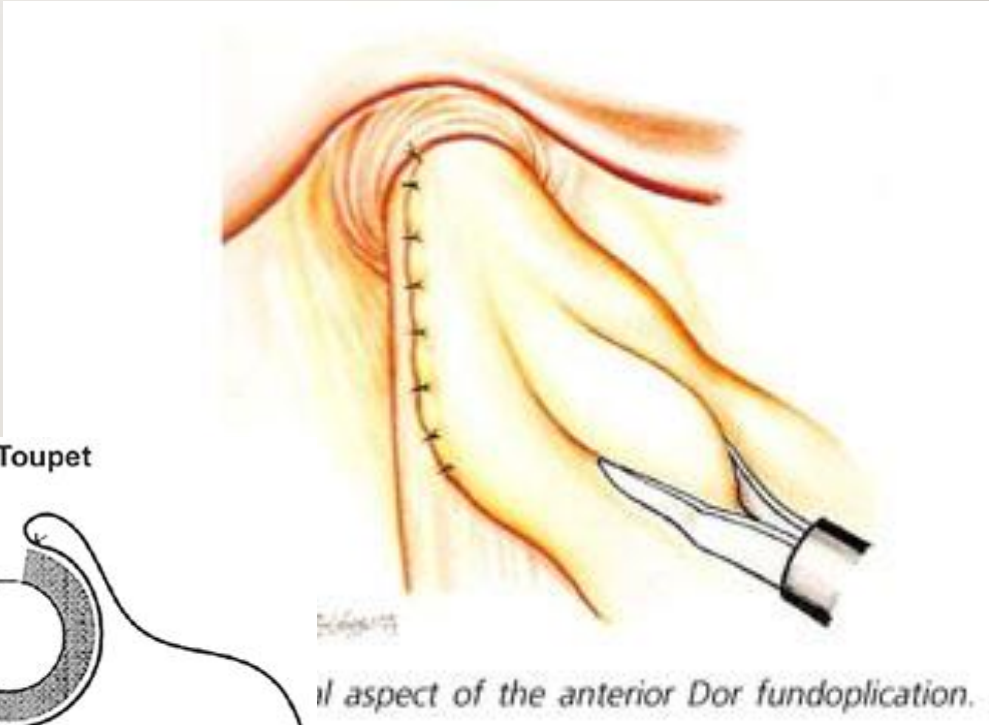
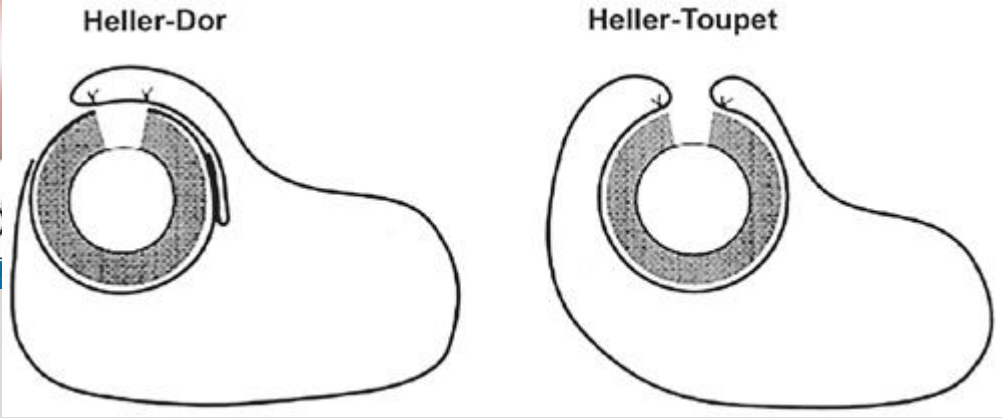
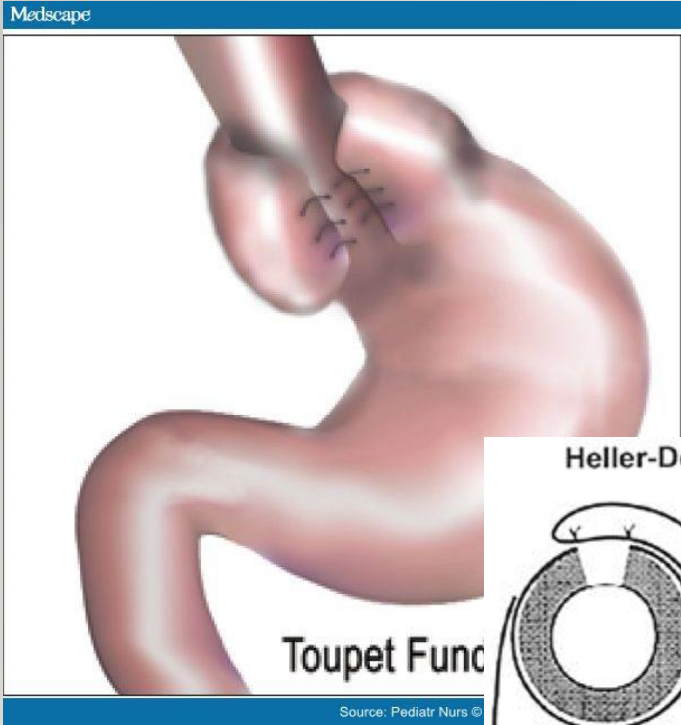
### Laparoscopic Nissen Fundoplication

- Indications
  - Failed drug treatment
- Complications

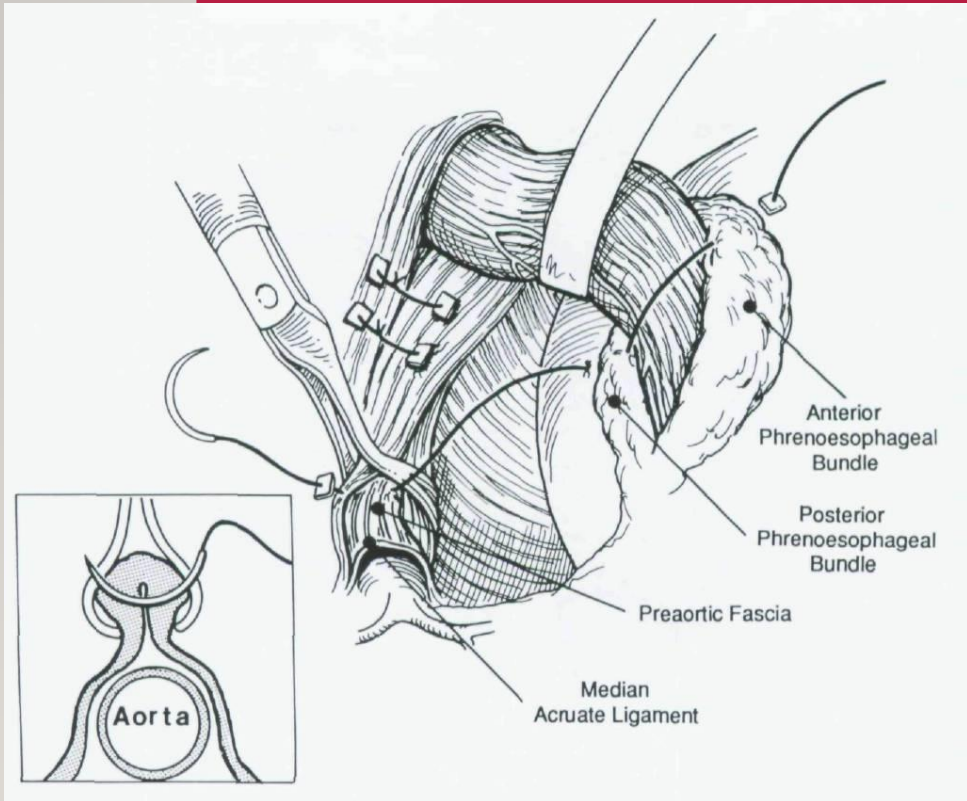
- Goal
  - Restore natural integrity of LES & maintain normal deglutition



# TOUPET VS DOR FUNDOPLICATION

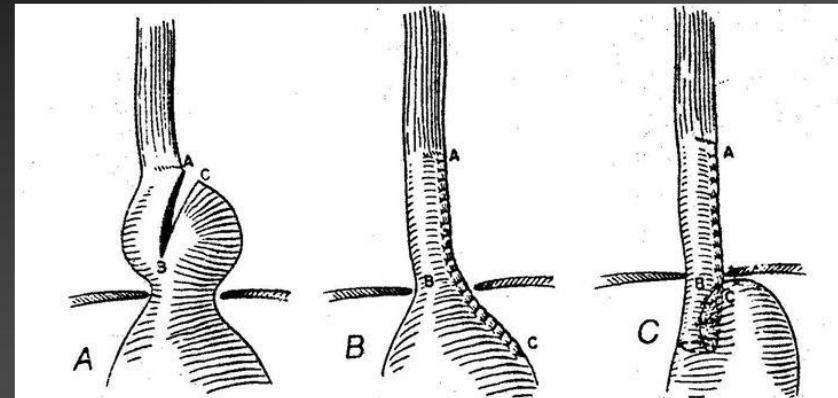


- Hill's gastropexy



## Collis gastroplasty

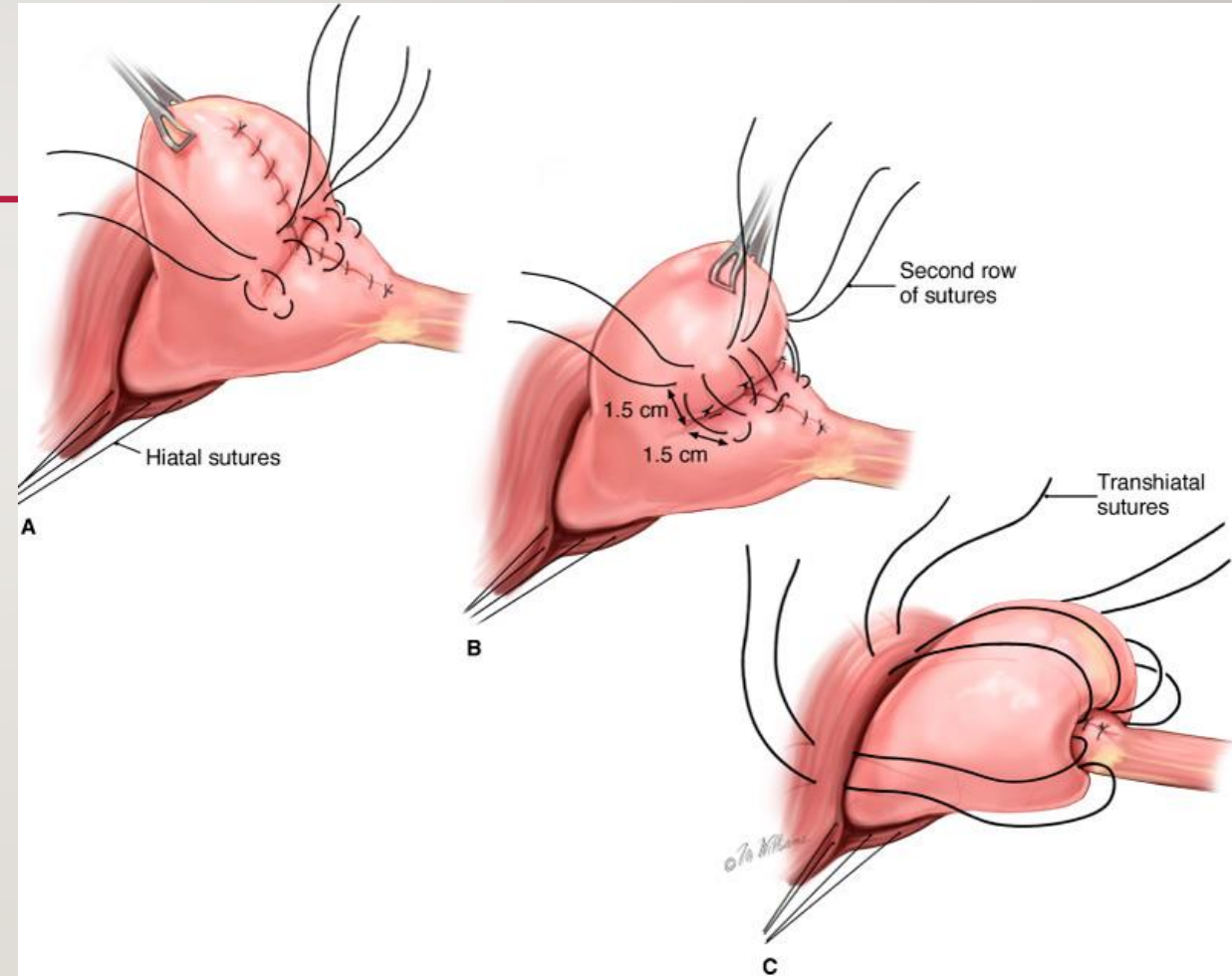
### Collis Gastroplasty



Lengthens short esophagus for fundoplication

# BELSEY MARK IV REPAIR

- Transthoracic repair to control GERD
- Typically performed through a left thoracotomy(thoracoscopy)
- Distal esophagus and proximal stomach are mobilized and delivered through the esophageal hiatus
- Anterior 270 degree plication of the fundus is performed onto the esophagus
- The fundoplication is buttressed by the diaphragmatic crura



Source: Sugarbaker DJ, Bueno R, Krasna MJ, Mentzer SJ, Zellos L: *Adult Chest Surgery*: <http://www.accesssurgery.com>

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# I. 행위 급여 목록 [식도]

---

- 식도분문수술 Operation of Achalasia

- 가. 식도근절개술 [헬러술식] Esophagomyotomy

- (1) 흉부접근

- (2) 복부접근

- 나. 식도항역류수술 Esophageal Antireflux Operation

- (1) 흉부접근

- (2) 복부접근

- 다. 기타 분문성형술 Other Esophagocardioplasty

- (1) 흉부접근

- (2) 복부접근

# I. 행위 급여 목록 [식도]

---

- 단순식도절제술 Simple Esophagectomy
  - 가. 경복부접근                      나. 흉복부접근                      다. 경흉복부 접근
- 식도열공탈장 정복술 Repair of Hiatal Hernia
  - 가. 흉부접근                      나. 복부접근
- 식도우회재건술 Esophageal Bypass Reconstruction
  - 가. 경복부 접근                      나. 흉복부 접근                      다. 경흉복부 접근



## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

---

- 식도분문수술-식도근절개술 [헬러술식]-흉부접근 1-4-4-9-6
- 식도분문수술-식도근절개술 [헬러술식]-복부접근 12-13-12-12-11
  
- 식도분문수술-식도항역류수술-흉부접근 2-3-2-4-2
- 식도분문수술-식도항역류수술-복부접근 186-223-230-293-316
- 식도분문수술-기타 분문성형술-흉부접근 1-0-1-0-0
- 식도분문수술-기타 분문성형술-복부접근 4-3-6-3-3

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

---

- 식도열공탈장정복술(흉부접근) 7-4-9-7-3
- 식도열공탈장정복술(복부접근) 148-148-175-216-298



\* 양성 식도질환과 관련된 진료 행위에 대한 설명을 위해  
다음은 참고 자료로 첨부하였습니다.

---

I. 양성식도질환 관련 진료행위: 행위 급여 목록[식도]: 2020년 3월판:

II. 진료행위 연도별 건수 (2015—2019, 심사년도 기준)

보건의료빅데이터개방시스템 (<https://opendata.hira.or.kr/>)

# I. 행위 급여 목록 [식도]

---

- 식도 절개술 Esophagotomy
  - 가. 경부 접근 Cervical Approach
  - 나. 흉부 접근 Thoracic Approach
- 식도조루술 Esophagostomy
- 식도봉합술 Suture of Esophagus
  - 가. 경부접근
  - 나. 흉부 접근
  - 다. 복부접근

# I. 행위 급여 목록 [식도]

---

- 단순식도절제술 Simple Esophagectomy
  - 가. 경복부접근                      나. 흉복부접근                      다. 경흉복부 접근
- 식도열공탈장 정복술 Repair of Hiatal Hernia
  - 가. 흉부접근                      나. 복부접근
- 식도우회재건술 Esophageal Bypass Reconstruction
  - 가. 경복부 접근                      나. 흉복부 접근                      다. 경흉복부 접근

# I. 행위 급여 목록 [식도]

---

- 식도절제후 재건술 Esophageal Reconstruction after Resection

(주: 단순식도절제술 또는 식도양성종양 근치수술과 동시에 실시한 경우 소정점수를 각각 산정한다.)

- 가. 피판성형 with Patch 나. 위이용 with Stomach 다. 공장이용 with Jejunum
  - 라. 유리공장이식 Jejunal Free Flap 마. 대장이용 with Colon
- 식도부지법 Bougination of Esophagus
  - 식도이물제거술 Removal of Esophageal Foreign Body
    - 가. 경부접근
    - 나. 흉부접근

# I. 행위 급여 목록 [식도]

---

- 식도양성종양적출술 Resection of Esophageal Benign Tumor

- 가. 식도입구부 Subpharyngeal

- 나. 흉부접근

- 주 : 흉강내시경 기구를 이용하여 폐전방부위를 견인하여 늑막개방후 식도근육층을 박리하여 종양부위를 적출하는 경우에도 소정점수를 산정한다.

- 다. 복부접근 Abdominal Approach

- 선천성식도무공증 수술 Operation for Congenital Esophageal Atresia

- 가. 식도문합 Primary Anastomosis

- 나. 기관식도루제거 Excision of Tracheoesophageal Fistula

- 다. 「가」와 「나」동시 실시



# I. 행위 급여 목록 [식도]

---

- 식도분문수술 Operation of Achalasia
  - 가. 식도근절개술 [헬러술식] Esophagomyotomy
    - (1) 흉부접근
    - (2) 복부접근
  - 나. 식도항역류수술 Esophageal Antireflux Operation
    - (1) 흉부접근
    - (2) 복부접근
  - 다. 기타 분문성형술 Other Esophagocardioplasty
    - (1) 흉부접근
    - (2) 복부접근
  - 라. 식도 게실 절제술 Esophageal Diverticulectomy
    - (1) 경부접근
    - (2) 흉부접근

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

---

- 식도절개술(경부접근) 13-7-10-7-16
- 식도절개술(흉부접근) 5-2-5-3-6
- 식도조루술 14-13-7-20-15
- 식도봉합술(경부접근) 52-46-39-43-34
- 식도봉합술(흉부접근) 104-95-92-127-92
- 식도봉합술(복부접근) 3-4-4-10-6

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

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- 단순식도절제술(경북부접근) 24-19-7-7-9
- 단순식도절제술(흥북부접근) 19-28-13-40-35
- 단순식도절제술(경흥북부접근) 12-9-12-10-12
  
- 식도열공탈장정복술(흥부접근) 7-4-9-7-3
- 식도열공탈장정복술(북부접근) 148-148-175-216-298
  
- 식도우회재건술(경북부접근) 22-28-36-28-31
- 식도우회재건술(흥북부접근) 4-3-2-5-12
- 식도우회재건술(경흥북부접근) 5-5-3-4-9

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

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- 식도절제후재건술(피판성형) 2-1-1-2-4
- 식도절제후재건술(위이용) 735-834-712-813-742
- 식도절제후재건술(공장이용) 20-27-20-27-18
- 식도절제후재건술(유리공장이식) 18-12-22-21-19
- 식도절제후재건술(대장이용) 53-57-41-33-47

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

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- 식도부지법 180-197-172-173-174
- 식도이물제거술(경부접근) 12-20-18-10-20
- 식도이물제거술(흉부접근) 8-9-17-12-14
- 식도양성종양적출술(식도입구부) 5-3-5-9-3
- 식도양성종양적출술(흉부접근) 55-52-43-62-48
- 식도양성종양적출술(복부접근) 7-7-11-12-10

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

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- 선천성식도무공증수술 (식도문합) 12-9-9-10-4
- 선천성식도무공증수술 (기관식도루제거) 21-10-14-13-8
- 선천성식도무공증수술 (식도문합과 기관식도루제거 동시에) 47-55-47-70-46
  
- 식도 게실 절제술(경부접근) 8-7-8-13-13
- 식도 게실 절제술(흉부접근) 12-26-24-23-23

## II. 진료행위 통계(환자수) (2015-2019, 심사년도 기준)

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- 식도분문수술-식도근절개술 [헬러술식]-흉부접근 1-4-4-9-6
- 식도분문수술-식도근절개술 [헬러술식]-복부접근 12-13-12-12-11
  
- 식도분문수술-식도항역류수술-흉부접근 2-3-2-4-2
- 식도분문수술-식도항역류수술-복부접근 186-223-230-293-316
- 식도분문수술-기타 분문성형술-흉부접근 1-0-1-0-0
- 식도분문수술-기타 분문성형술-복부접근 4-3-6-3-3