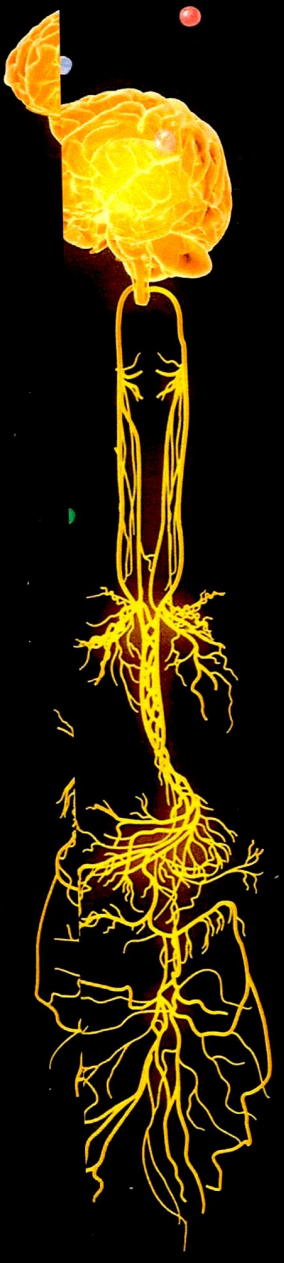
Medical

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NEET SS

Volume 4
2nd Edition

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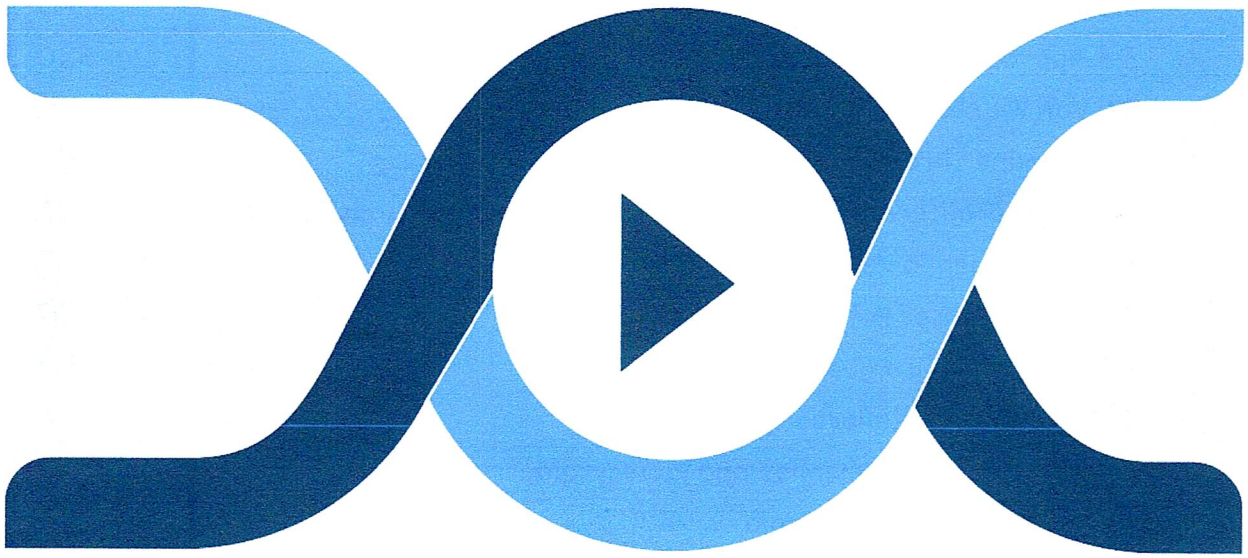
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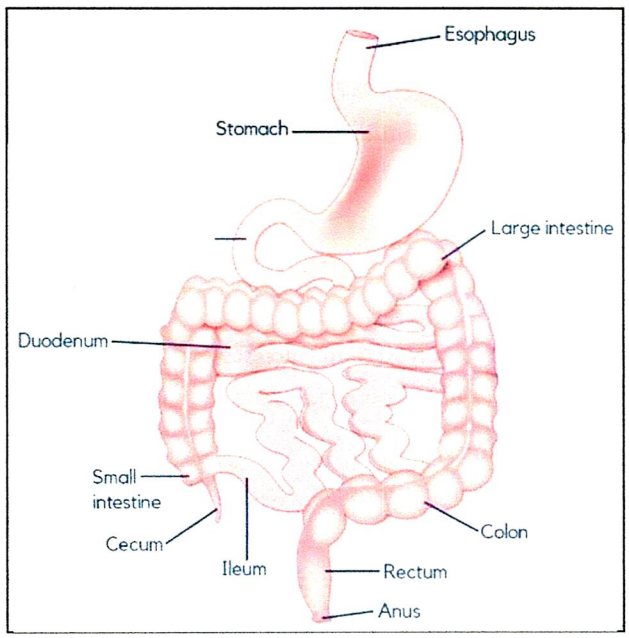
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APPROACH TO GI DISORDERS

Introduction 00:00:20

- In order to understand the GIT Disorders, one should have
- → Anatomical orientation
- → Physiological Orientation
  1. Luminal physiology / GI Motility
  2. Secretion
  3. Absorption
  4. Role of microbiota
  5. Mucosal immunity (Mediated by IgA), Enteric Nervous System, Gut-Brain Axis.
- → Pathological orientation
  1. Impaired digestion and Absorption
  2. Altered Secretion
  3. Altered GUT transit – Slow – Mechanical obstruction, Motility, Fast - tachygastria, gut transit
  4. Immune Dysregulation – Infiltration, GUT dysbiosis
  5. Impaired blood flow
  6. Neoplasia
  7. Disorders without obvious organic cause (DGBI or FGID)
     - Disorders of Gut - Brain Interaction (or) functional Gastro intestinal disorder.



Susceptibility

- Two important factors for an individual affected by GI Disorders
  I. Genetic II. Environmental

Symptoms 00:11:57

- Dysphagia -
- Mechanical and Motility related (Ex - Achalasia cardia)
- Heart Burns / Atypical Chest Pain - Always rule out Cardiac cause and then Search for GI etiology
- Dyspepsia – Can be presented as
  - Burping
  - Bloating
  - Epigastric pain
  - Early satiety
  - Flatulence
- Nause and vomiting – Can be GIT Cause, Neurological, Systemic
- Abdominal pain - Nine Quadrant Rule can help in localising pathology.
- Loose stools - Can be Osmotic, Secretory, malabsorptive, Inflammatory
- Constipation – It can be

1. Primary (Functional)
   - Normal transit constipation
   - Slow transit constipation
   - Defecatory Disorder,

2. Secondary; - Organic cause (Ex: - Malignancy)
   - GI Bleed – Can be upper or lower GI.
   - Jaundice – Hepatic: - Prehepatic – Eg; Haemolytic anaemia
     Hepatic – E.g.; Cirrhosis
     Post Hepatic – Eg; conjugated intrahepatic cholestasis, Extrahepatic
   - Weight loss

Evaluate and Manage 00:21:03

- Proper History Taking
- Clinical Examination
- Investigation
- Treatment
- Help from Colleagues: Interventional Radiologist, Surgical intervention, Pathologist, Radiologist, Intensivists.

INVESTIGATIONS (General tests)

- Routine blood investigations such as CBP, LFT, RFT, Viral markers etc., along with focused blood test

GI procedures:

- Upper gi endoscopy (egd, ogd, gastroscopy)
- Colonoscopy
- Ercp (endoscopic retrograde cholangio pancreatography)
- Eus (endoscopic ultrasound)
- Enteroscopy – double balloon enteroscopys
- Capsule endoscopy

Evolving Investigations:

- Optical biopsy; Narrow band image (NBI) and chromoendoscopy
- Nuclear medicine
- Liver fibro scan
- Functional testing; Manometry (Oesophageal, Ano rectal, Antro duodenal, large bowel), ENDO FLIP, EGG (Electrogastrography), Wireless motility study.
- Breath Test for conditions like small intestine bacterial overgrowth (SIBO), malabsorption, H. Pylori infection
- Stool test for C. Difficile toxins, PCR, CALPROTECTIN (IBD)
- Genetic Components-Next generation sequencing (NGS) and pharmacogenomics and genetic analysis of Microbiota.

TREATMENT 00:36:55

- Diet modification and Nutrition.
- Medication
- GUT Dysbiosis
- INTERVENTIONS- Endoscopic, Interventional radiologist related procedures, Surgical management.
- Therapies directed to External influence such as Psychotherapy, De-Addiction, Bio feedback.
- Pharmacogenomics for personalised approach
- Lifestyle modification- Adult Vaccinations
- Regular follow up.

DISEASES OF ESOPHAGUS

Symptoms 00:00:16

- Heartburn (Pyrosis)
  - 1st common Esophageal symptom
  - Discomfort / burning sensation arising from epigastrium, behind sternum, radiates towards neck
  - Intermittent symptom
  - Experienced After
    1. Eating
    2. During Exercise
    3. While lying recumbent
- Relief
  - Water
  - Antacid But can interfere with activities
- Association
  - With heartburn
  - GERD
  - EMPIRICAL TX FOR GERD is accepted mx
- Regurgitation is the effortless return of food or fluid into the pharynx without nausea or retching. Patients report a sour or burning fluid in the throat or mouth that may also contain undigested food particles. Bending, belching, or manoeuvres that increase intraabdominal pressure can provoke regurgitation.
- Discriminate among regurgitation, vomiting, and rumination.
- Vomiting is preceded by nausea and accompanied by retching.
- Rumination is a behaviour in which recently swallowed food is regurgitated and then swallowed repetitively for up to an hour.
- Some linkage between rumination and cognitive deficiency
- Chest pain is a common esophageal symptom with characteristics similar to cardiac pain, sometimes making this distinction difficult.
- Esophageal pain is usually experienced as a pressure type sensation in the mid chest, radiating to the mid back, arms, or jaws.
- The similarity to cardiac pain is likely because the two organs share a nerve plexus and the nerve endings in the esophageal wall have poor discriminative ability among stimuli.
- Esophageal distention or even chemo stimulation (e.g., with acid) will often be perceived as chest pain.
- Gastroesophageal reflux is the most common cause of esophageal chest pain.
- Esophageal dysphagia is often described as a feeling of food "sticking" or even lodging in the chest.
- Important distinctions are between uniquely solid food dysphagia as opposed to liquid and solid, episodic versus constant dysphagia, and progressive versus static dysphagia.
- If the dysphagia is for liquids as well as solid food, it suggests a motility disorder such as achalasia.
- Conversely, uniquely solid food dysphagia is suggestive of a stricture, ring, or tumour.
- Approximately 30% of distal esophageal obstructions are perceived as cervical dysphagia.
- In such instances, the absence of concomitant symptoms generally associated with oropharyngeal dysphagia such as aspiration, nasopharyngeal regurgitation, cough, drooling, or obvious neuromuscular compromise should suggest an esophageal Etiology.
- Odynophagia is pain either caused by or exacerbated by swallowing.
- Although typically considered distinct from dysphagia, odynophagia may manifest concurrently with dysphagia.

- Odynophagia is more common with pill or infectious esophagitis than with reflux esophagitis and should prompt a search for these entities.
- When odynophagia does occur in GERD, it is likely related to an esophageal ulcer or extensive erosions.
- Globus sensation, also known as globus pharynges, is the perception of a lump or fullness in the throat that is felt irrespective of swallowing.
- Although such patients are frequently referred for an evaluation of dysphagia, globus sensation is often relieved by the act of swallowing.
- As implied by its alternative name, "globus hystericus," globus sensation often occurs in the setting of anxiety or obsessive- compulsive disorders.
- Clinical experience teaches that it is often attributable to GERD.
- Water brash is excessive salivation resulting from a vagal reflex triggered by acidification of the esophageal mucosa. This is not a common symptom.
- Afflicted individuals will describe the unpleasant sensation of the mouth rapidly filling with salty thin fluid, often in the setting of concomitant heartburn.

Diagnostic Studies 00:06:25

- Endoscopy
  - EGD: Esophagogastroduodenoscopy
  - Most useful for proximal GI Tract evaluation
  - Endoscopy also Have instrumentation channel through which biopsy forceps; injection catheters; balloon dilators or haemostatic devices can be used
- The key advantages of endoscopy over barium radiography are:
  - Increased sensitivity for the detection of mucosal lesions,
  - Vastly increased sensitivity for the detection of abnormalities mainly identifiable by colour such as Barrett's metaplasia or vascular lesions,
  - The ability to obtain biopsy specimens for histologic examination of suspected abnormalities, and
  - The ability to dilate strictures during the examination.
- The main disadvantages of endoscopy are low sensitivity for detection of diffuse, non-focal esophageal strictures, cost, and the utilization of sedatives or anaesthetics

Radiography

- Contrast radiography
  - Esophagus
  - Stomach
  - Duodenum

  ] Reflux of contrast media
- Also, for
  - Hiatal hernia
  - Mucosal Granularity
  - Erosions
  - Ulcerations
  - Strictures
  - Compared to endoscopy
  - Sensitivity is 22 to 95% for dx of reflux esophagitis
  - W/ ↑ er grades of esophagitis (show ↑ detection rates)
- The sensitivity of barium radiography for detecting esophageal strictures is greater than that of endoscopy, especially when the study is done in conjunction with a 13-mm barium tablet.
- Barium studies also provide an assessment of esophageal function and morphology that may be undetected on endoscopy.

- Tracheoesophageal fistula, altered postsurgical anatomy, and extrinsic esophageal compression are conditions were radiographic imaging complements endoscopic assessment
- Hypopharyngeal pathology and disorders of the cri- copharyngeus muscle are better appreciated on radiographic examination than with endoscopy, particularly with rapid sequence or video fluoroscopic recording.

Endoscopic ultrasound

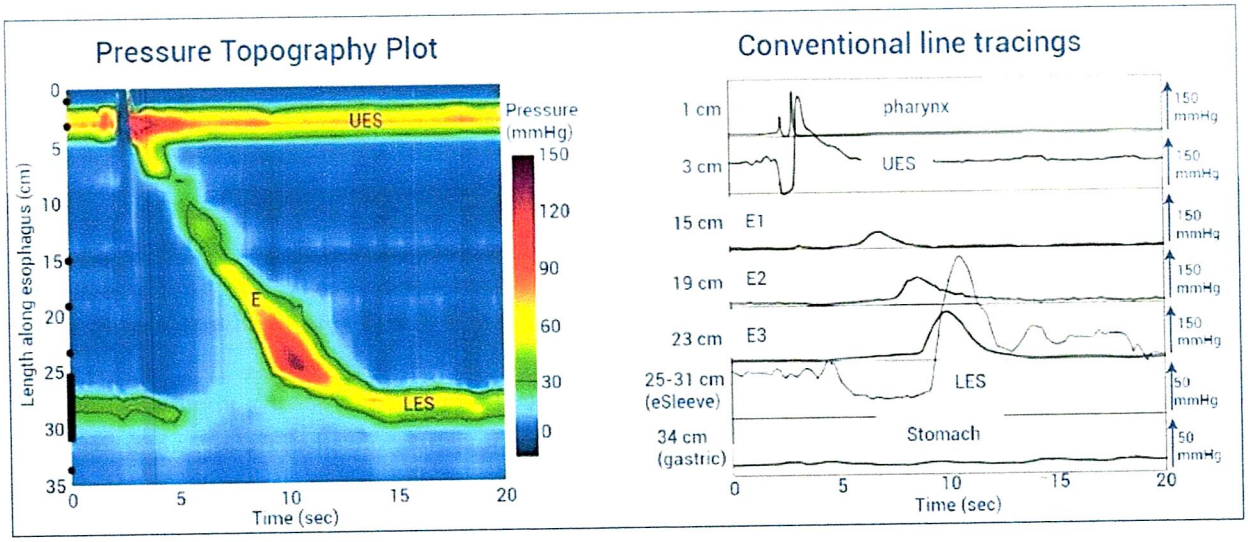
- Combine
  - Endoscope
  - Ultrasound transducer
- To create: Transmural image of tissue surrounding the endoscope tip.
- Key advantage:
  - Much ↑er resolution attributable to the proximity of ultrasound to the area examined
- Imaging types:
  - Radial imaging (360°, cross sectional)
- Curved linear image
  - Guides fine needle aspiration of structures such as Tumours or lymph nodes

Major application

- Esophageal cancer
- Barrett's Esophagus
- Submucosal lesions

Esophageal manometry

- Esophageal manometry, or motility testing, entails positioning a pressure sensing catheter within the Esophagus and then observing the contractility following test swallows.
- The upper and lower esophageal sphincters (LESS) appear as zones of high pressure that relax on swallowing, while the intersphincteric Esophagus exhibits peristaltic contractions.
- Used to diagnose motility disorders (achalasia, diffuse esophageal spasm [DES]) and to assess peristaltic integrity prior to the surgery for reflux disease.
- Technologic advances have enhanced esophageal manometry as high-resolution esophageal pressure topography.
- Manometry can also be combined with intraluminal impedance monitoring.
- Impedance recordings use a series of paired electrodes added to the manometry catheter.
- Esophageal luminal contents in contact with the electrodes decrease (liquid) or increase (air) the impedance signal, allowing detection of anterograde or retrograde esophageal bolus transit.



Reflux testing

- GERD is often diagnosed in the absence of endoscopic esophagitis, which would otherwise define the disease. This occurs in the settings of partially treated disease, an abnormally sensitive esophageal mucosa, or without obvious explanation.
- In such instances, reflux testing can demonstrate excessive esophageal exposure to refluxed gastric juice, the physiologic abnormality of GERD. This can be done by ambulatory 24- to 96-h esophageal pH recording using either a wireless pH- sensitive transmitter that is affixed to the esophageal mucosa or a trans nasally positioned wire electrode with the tip stationed in the distal Esophagus. Either way, the outcome is expressed as the percentage of the day that the pH was <4 (indicative of recent acid reflux), with values exceeding 5% indicative of GERD.
- Reflux testing is useful in the evaluation of patients presenting with atypical symptoms or an inexplicably poor response to therapy. Intraluminal impedance monitoring can be added to pH monitoring to detect reflux events irrespective of whether or not they are acidic, potentially increasing the sensitivity of the study.

Hiatal Hernia

00:17:32

- Herniation of Viscera (Most common in stomach) into mediastinum through Esophageal hiatus of diaphragm

4 Types

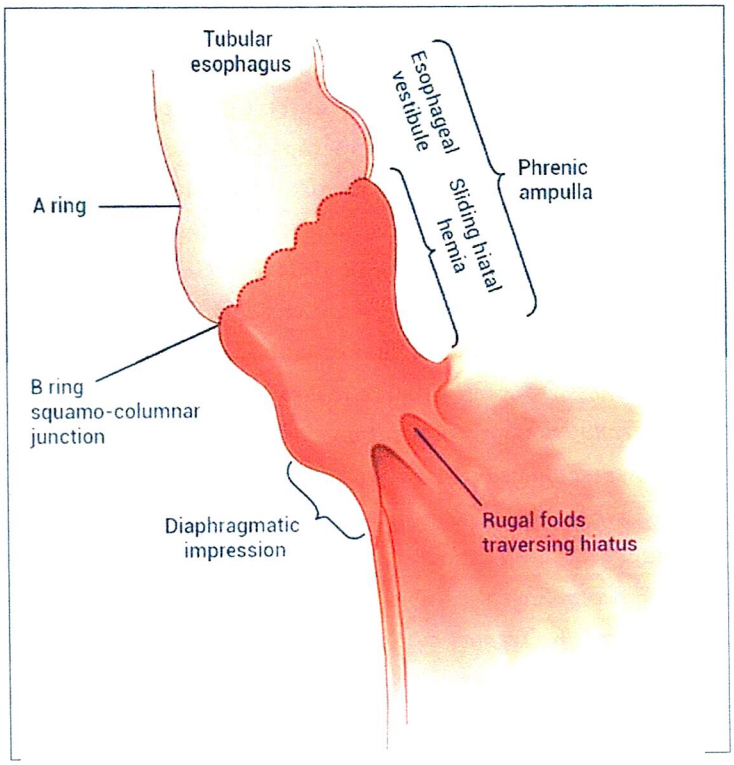
- **Type – I** : Sliding hernia = 95% of total
- gastroesophageal junction & gastric cardia translocate cephalad as a result of weakening of phreno-esophageal ligament attaching the gastro-esophageal junction to diaphragm
- Site: At hiatus & dilatation of the diaphragmatic hiatus
- Incidence ↑sees w/ age
  ↑sees w/age
  - ↑ Intra-abdominal pressure
  - Swallowing and respiration
- Significance- Propensity of Individuals to have GERD
- Types II, III, IV: - Subtypes of paraesophageal hernia
  - Herniation includes visceral structure other than gastric cardia
- II& III → Gastric fundus also herniates
- II → GE Junction remains fixed
- III → Combined sliding & Paraesophageal hernia
- IV: viscera other than the stomach herniate in to mediastinum [m/c colon]
- II & III →Stomach inverts
  → Larger case may lead to an
  → " Upside down" stomach
  → GASTRIC volvulus
  → Strangulation of stomach
  So, therapy mainly surgical

Rings and webs

00:21:00

- A lower esophageal mucosal ring, also called a B ring, is a thin membranous narrowing at the squamocolumnar mucosal junction
- Its origin is unknown, but B rings are demonstrable in about 10-15% of the general population and are usually asymptomatic. When the lumen diameter is <13 mm, distal rings are usually associated with episodic solid food dysphagia and are called Schatzki rings.

- Older than 40 years, consistent with an acquired rather than congenital origin. Schatzki ring is one of the most common causes of intermittent food impaction, also known as "steakhouse syndrome" because meat is a typical instigator. Symptomatic rings are readily treated by dilation.
- Web-like constrictions higher in the Esophagus can be of congenital or inflammatory origin. Asymptomatic cervical esophageal webs are demonstrated in about 10% of people and typically originate along the anterior aspect of the Esophagus
- When circumferential, they can cause intermittent dysphagia to solids similar to Schatzki rings and are similarly treated with dilation.
- The combination of symptomatic proximal esophageal webs and iron-deficiency Anaemia in middle-aged women constitutes Plummer- Vinson syndrome.



Diverticula

00:24:11

- Esophageal diverticula are categorized by location with the most common being epiphrenic, hypopharyngeal (Zenker's), and midesophageal.
- Epiphrenic and Zenker's diverticula are false diverticula involving herniation of the mucosa and submucosa through the muscular layer of the Esophagus.
- These lesions result from increased intraluminal pressure associated with distal obstruction
- In the case of Zenker's, the obstruction is a stenotic cricopharyngeal muscle (upper esophageal sphincter), and the hypopharyngeal herniation most commonly occurs in an area of natural weakness proximal to the cricopharyngeal known as Killian's triangle
- Small Zenker's diverticula are usually asymptomatic, but when they enlarge sufficiently to retain food and saliva they can be associated with dysphagia, halitosis, and aspiration.
- Treatment is by surgical diverticulectomy and cricopharyngeal myotomy or a marsupialization procedure in which an endoscopic stapling device is used to divide the cricopharyngeal."
- Midesophageal diverticula may be caused by traction from adjacent inflammation (classically tuberculosis) in which case they are true diverticula involving all layers of the esophageal wall, or by pulsion associated with esophageal motor disorders.
- Midesophageal and epiphrenic diverticula are usually asymptomatic until they enlarge sufficiently to retain food and cause dysphagia and regurgitation.
- Symptoms attributable to the diverticula tend to correlate more with the. underlying esophageal disorder than the size of the diverticula.
- Large diverticula can be removed surgically, usually in conjunction with a myotomy if the underlying motility disorder is identified.
- Diffuse intramural esophageal pseudo diverticulosis is a rare entity that results from dilatation of the excretory ducts of submucosal esophageal glands. Esophageal candidiasis and proximal esophageal strictures are commonly found in association with this disorder.



Tumors 00:28:26

- It is about 10 times less common than colorectal cancer but kills about one-quarter as many patients.
- These statistics emphasize both the rarity and lethality of esophageal cancer.
- shift of dominant esophageal cancer type from squamous cell to adenocarcinoma, strongly linked to reflux disease and Barrett's metaplasia. Other distinctions between cell types are the predilection for adenocarcinoma to affect the distal Esophagus in white males and squamous cell to affect the more proximal Esophagus in black males with the added risk factors of smoking, alcohol consumption, caustic injury, and human papilloma virus infection
- The typical presentation of esophageal cancer is of progressive solid food dysphagia and weight loss.
- Associated symptoms may include odynophagia, iron deficiency, and, with midesophageal tumors, hoarseness from left recurrent laryngeal nerve injury.
- Generally, these are indications of locally invasive or even metastatic disease manifest by tracheoesophageal fistulas and vocal cord paralysis.
- Even when detected as a small lesion, esophageal cancer has poor survival because of the abundant esophageal lymphatics leading to regional lymph node metastases.
- Benign esophageal tumors are uncommon and usually discovered incidentally.
- In decreasing frequency of occurrence, cell types include leiomyoma, fibrovascular polyps, squamous papilloma, granular cell tumors, lipomas, neurofibromas, & inflammatory fibroid polyps.
- These generally become symptomatic only when they are associated with dysphagia and merit removal only under the same circumstances.

Congenital anomalies 00:31:16

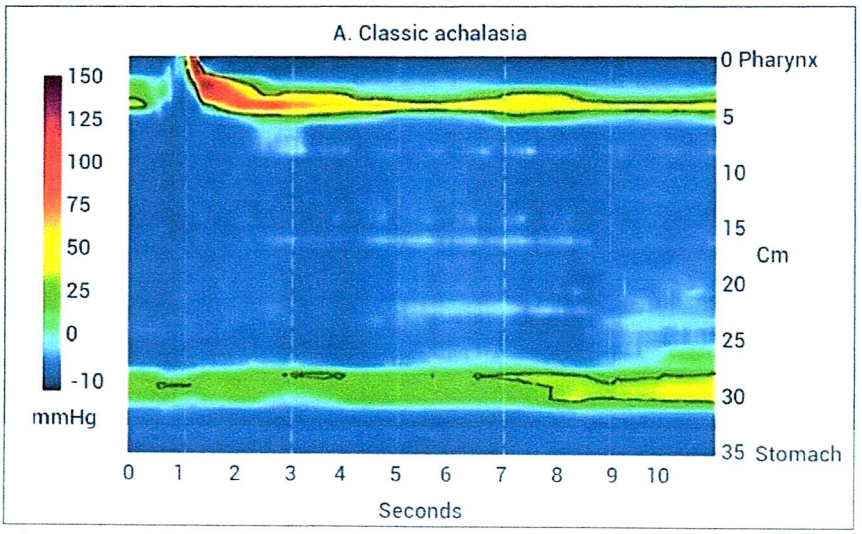
- Most common esophageal atresia →1 in 5000 live births
- Developmental failure of fusion between proximal and distal esophagus
- Associated with tracheoesophageal fistula
- Usually, distal segment is excluded
- H type configuration: esophageal fusion with tracheoesophageal fistula
- Oesophageal atresia -Usually recognised and corrected surgically within 1st few days of life
- Complications of later life = dysphagia (from anastomotic stricture) = Absent peristalsis & reflux
- Less common anomalies
- Esophageal stenosis
- Webs
- Duplications
- Dysphagia may be due to congenital anomalies which cause extrinsic compression of esophagus
- Dysphagia lusoria -Esophagus is compressed by aberrant right subclavian Artery→arises from descending aorta → Passes behind esophagus (or) Vascular rings may surrounded & constrict esophagus
- Heterotopic gastric mucosa, also known as an esophageal inlet patch, is a focus of gastric type epithelium in the proximal cervical Esophagus; the estimated prevalence is 4-5%.
- The inlet patch is thought to result from incomplete replacement of embryonic columnar epithelium with squamous epithelium.
- The majority of inlet patches are asymptomatic, but acid production can occur as most contain fundic type gastric epithelium with parietal cells.
- Heterotopic gastric mucosa [esophageal inlet paten]
  - Focus of gastric type epithelium
  - In proximal cervical esophagus
  - Prevalance :4-5%
  - May result from incomplete replacement of embryonic columnar epithelium with squamous epithelium asymptomatic
  - Shows increase acid production as most contain fundic type gastric epithelium with parietal cells

Oesophageal motility disorders 00:34:28

- =Achalasia
- =DES
- GERD
- =May be 2° to broader disease process
- →E.g., pseudo achalasia
  - Chaga's disease
  - Scleroderma

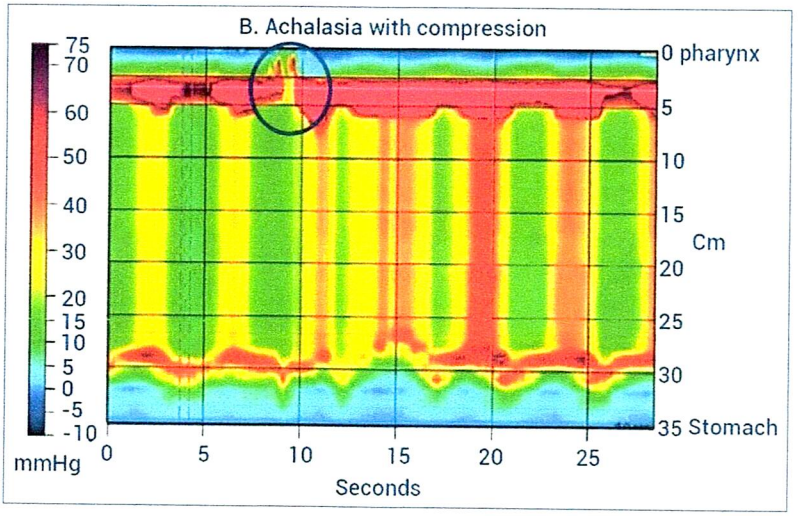
Achalasia 00:35:16

- Rare disease caused by loss of ganglion cells within the esophageal myenteric plexus with a population incidence estimated to be 1-3 per 100,000 & usually presenting between age 25 & 60
- With long-standing disease, aganglionosis is noted
- The disease involves both excitatory (cholinergic) and inhibitory (nitric oxide) ganglionic neurons.
- Functionally, inhibitory neurons mediate deglutitive LES relaxation and the sequential propagation of peristalsis. Their absence leads to impaired deglutitive LES relaxation and absent peristalsis.
- Increasing evidence suggests that the ultimate cause of ganglion cell degeneration in achalasia is an autoimmune process attributable to a latent infection with human herpes simplex virus 1 combined with genetic susceptibility.
- Long-standing achalasia is characterized by progressive dilatation and sigmoid deformity of the Esophagus with hypertrophy of the LES.
- Dysphagia, regurgitation, chest pain, and weight loss
- Most patients report solid and liquid food dysphagia.
- Regurgitation occurs when food, fluid, and secretions are retained in the dilated Esophagus
- Patients with advanced achalasia are at risk for bronchitis, pneumonia, or lung abscess from chronic regurgitation and aspiration.
- Chest pain is frequent early in the course of achalasia, thought to result from esophageal spasm
- Patients describe a squeezing, pressure-like retrosternal pain, sometimes radiating to the neck, arms, jaw, and back.
- Paradoxically, some patients complain of heartburn that may be a chest pain equivalent.
- Treatment of achalasia is less effective in relieving chest pain than it is in relieving dysphagia or regurgitation.
- Chagas' disease is endemic in areas of central Brazil, Venezuela, and northern Argentina and spread by the bite of the reduviid (kissing) bug that transmits the protozoan, Trypanosoma cruzi.
- The chronic phase of the disease develops years after infection & results from destruction of autonomic ganglion cells throughout the body, including the heart, gut, urinary tract, and respiratory tract.
- Tumor infiltration, most commonly seen with carcinoma in the gastric fundus or distal esophagus, can mimic idiopathic achalasia.
- The resultant "pseudo achalasia" accounts for up to 5% of suspected cases and is more likely with advanced age, abrupt onset of symptoms (<1 year), and weight loss.
- Hence, endoscopy is a necessary part of the evaluation of achalasia.
- When the clinical suspicion for pseudo achalasia is high and endoscopy nondiagnostic, computed tomography (CT) scanning or EUS may be of value.
- Rarely, pseudo achalasia can result from a para- neoplastic syndrome with circulating antineuronal antibodies.
- Achalasia is diagnosed by barium swallow x-ray and/or esophageal manometry; endoscopy has a relatively minor role other than to exclude pseudo achalasia.
- The barium swallow x-ray appearance is of a dilated esophagus with poor emptying, an air-fluid level, and tapering at the LES giving it a beak-like appearance
- In long-standing achalasia, the esophagus may assume a sigmoid Configuration
- The diagnostic criteria for achalasia with esophageal manometry are impaired LES relaxation & absent peristalsis.

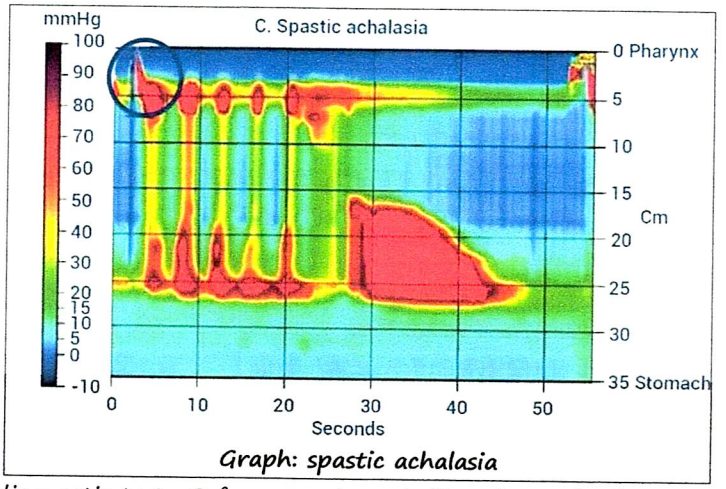


A) Classic achalasia

- Diagnosis: high resolution manometry
- Gives 3 subtypes -based on pressurization pattern of non-**peristaltic** oesophagus



B) Achalasia with compression chart



Graph: spastic achalasia

- Most sensitive diagnostic test -Before oesophageal dilatation & food retention
- LES can be reduced by

Pharmacologic therapy | Pneumatic balloon dilation | Surgical myotomy

- Pharmacologic therapies are relatively ineffective but are often used as temporizing therapies.

- Nitrates or calcium channel blockers are administered before eating, advising caution because of their effects on blood pressure.
- Botulinum toxin, injected into the LES under endoscopic guidance, inhibits acetylcholine release from nerve endings and improves dysphagia in about 66% of cases for at least 6 months.
- Sildenafil and alternative phosphodiesterase inhibitors effectively decrease LES pressure, but practicalities limit their clinical use in achalasia.
- The only durable therapies for achalasia are pneumatic dilation and Heller myotomy.
- Pneumatic dilation, with a reported efficacy ranging from 32 to 98%, is an endoscopic technique using a noncompliant, cylindrical balloon dilator positioned across the LES and inflated to a diameter of 3-4cm.
- The major complication is perforation with a reported incidence of 0.5-5%.
- Most common surgical procedure
- Heller laparoscopic myotomy
- Performed in conjunction with ant reflux procedure [partial fundoplication]
- Good to excellent results →62-100%
- European RCT demonstrated equivalent response rate ~ 90% for both Pneumatic dilation and Laparoscopic heller myotomy
- Advanced cases my show decrease response
- ↓ Response→Refractory cases
  ↓
- Treatment =gastric pull up (Or)
  Interposition of a segment of transverse colon
  - gastrostomy feeding
- Endoscopic approach to LES
  → Introduced
  → K/a per oral esophageal myotomy [POEM]

POEM 00:46:27

- Submucosal tunnel created within esophagus wall
- Through this the circular muscles of LES & distal esophagus
  ↓
  Transacted with electrocautery
- Short term studies→favourable efficacy
- Potential advantages →over conventional approach
  →Increase rapid recovery
  →Avoids surgical disruptions of diaphragmatic hiatus
  →Poorly treated cases→dilatation predispose to
  Stasis esophagitis
  Gives likely explanation for association between achalasia & esophageal SCC
  ↓
  Tumors = develop after years of achalasia
  = Asstd. With extreme dilatation with increase 17x compared to controls

Diffuse oesophagus spasm 00:47:50

- Manifested by episodes of dysphagia + chest pain
- Due to Abnormal esophageal contractions with normal deglutitive LES relaxation
- Pathophysiology & natural history = ill defined
- Radiography -3° contractions

or

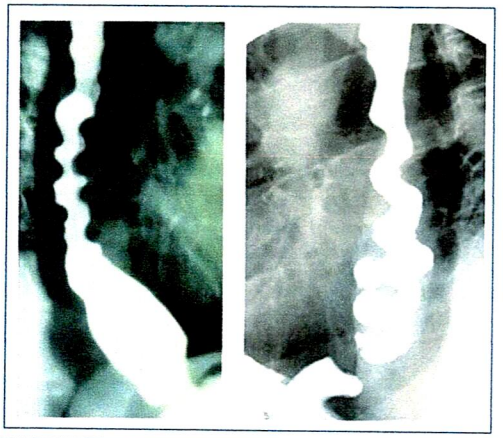
Corkscrew esophagus indicative of achalasia

Manometry

- Uncoordinated /spastic activity in distal Esophagus
- Spontaneous & repetitive contractions

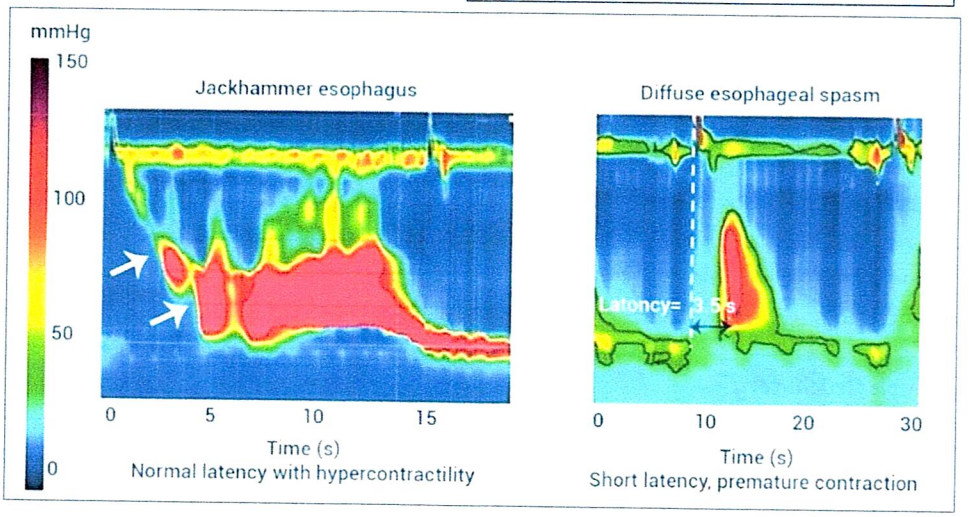
  or
- High amplitude & Prolonged contractions
- Current consensus→ Contractions in distal Esophagus + short latency with respect to pharyngeal contraction

  ↓
- Indicates impairment of inhibitory myenteric plexus neurons
- DES as per this definition
- → much less common than achalasia
- DES suggested by →distal latency <4.5 seconds



Esophageal chest pain

- Closely mimic angina pectoris
- Features s/o oesophageal pain
  - →Non exertional
  - →Prolonged
  - →Interrupt sleep
  - →Meal related
  - →Relieved by antacids



Treatment

- Drugs
  - Nitrates
  - Calcium channel blockers
  - Hydralazine
  - Botulinum toxin
  - Anxiolytics

  ⌐ Small uncontrolled trials present
- Surgical therapy→long myotomy

  →esophagectomy

  →should be considered only with severe weight loss or unbearable pain[rare]

GERD 00:52:11

- 10-15% adults
- Spectrum