OESOPHAGUS-

ANATOMY.....STAGING.....
WORK UP FOR OESOPHAGEAL CANCERS....

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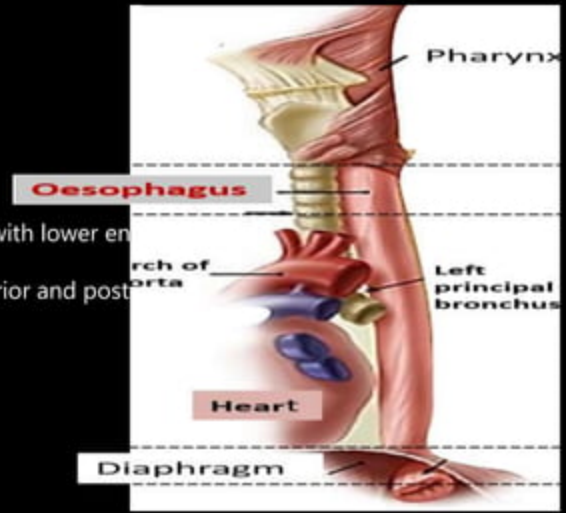
GROSS ANATOMY

- 25cm long
- Narrow muscular tube
- Pharynx to stomach
- Stratified squamous cell epithelium.
- Diameter-2.5 to 3 cm

COURSE-

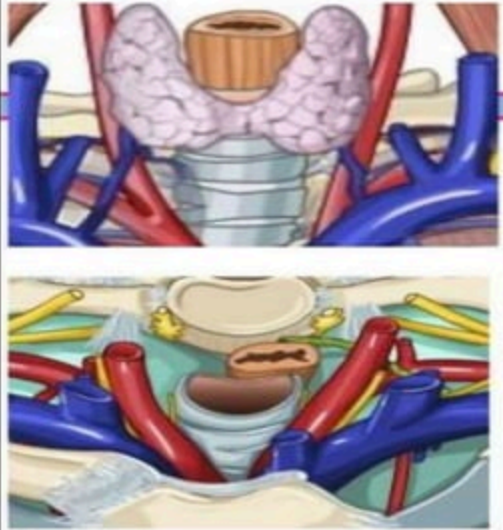
- Lower border of cricoid cartilage at C6 (continuous with lower en
  pharynx)
- Descends in front of vertebral column through superior and post
  mediastinum.
- Pierces diaphragm at T10.
- Ends at the cardiac end of stomach at T11.



ANATOMIC PARTS OF OESOPHAGUS

CERVICAL-
C7 TO T3
Pharyngoesophageal junc to the sternal notch
4 -5 cm
15 to 20 cm from incisors.

Relations-
Ant-trachea
Post-vertebral column
Laterally-carotid sheath and thyroid glands



- THORACIC- T3 TO T10/T11

- UPPER
  sternal notch to azygous vein
  20 to <25 cm.

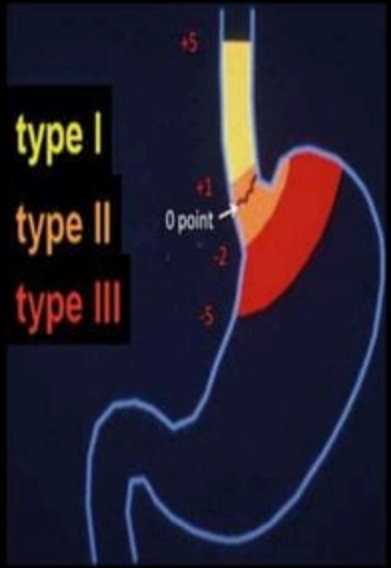
- MIDDLE-
- 25 to <30 cm
- Azygous vein to inferior pulmonary vein

- LOWER-
- 30 to 40 cm
- Inferior pulmonary vein to gastro-esophageal junc

ABDOMINAL OESOPHAGUS IS INCLUDED IN LOWER THORACIC.

Table 1 Siewert classification of EGJ tumors

Siewert	Description	Surgical approach
I	Tumor center located between 5 and 1 cm proximal to the anatomical cardia	Approached as esophageal or EGJ cancer
II	Tumor center located between 1 cm proximal and 2 cm distal to the anatomical cardia	Approached as esophageal or EGJ cancer
III	Tumor center located between 2 and 5 cm distal to the anatomical cardia	Approached as gastric cancer



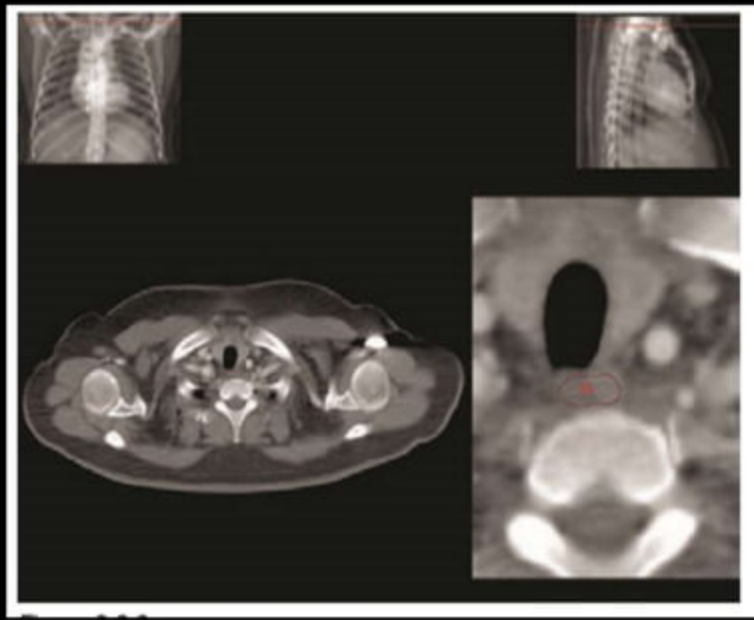
MODIFICATION IN AJCC 8TH EDITION-

- **INVOLVES EGJ-**
- EPICENTER </= 2 cm DISTAL TO THE EGJ----------OESOPHAGEAL CANCER
- EPICENTER >2 cm DISTAL TO THE EGJ----------STOMACH CANCERS

- CARDIA CANCERS THAT **DO NOT INVOLVE EGJ-**--------STOMACH CANCERS

LOCATION in CT:

- Midline (can be laterally displaced)
- Behind the flat portion of trachea
- In front of vertebral body.

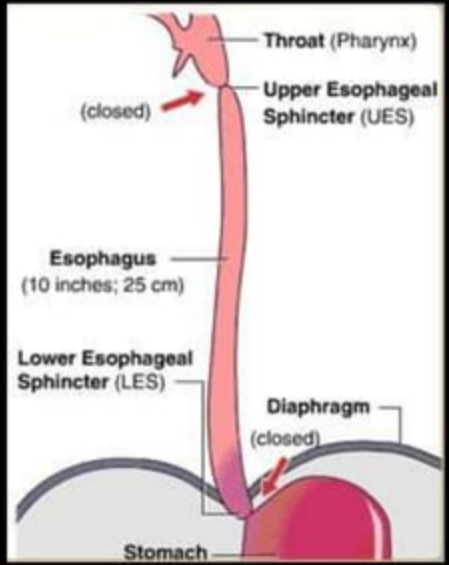


FUNCTIONAL DIVISIONS -

- **UPPER OESOPHAGEAL SPHINCTER-**
  - 3 cm long segment of increased pressure at upper end of oesophagus
  - Normally remains closed...opens with swallowing
  - Prevents swallowing of air with inspiration.
  - C5-C6 level
  - Cricopharyngeus muscle

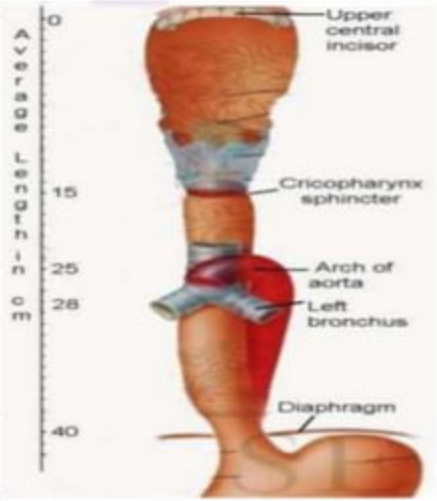
- **OESOPHAGEAL BODY**

- **LOWER OESOPHAGEAL SPHINCTER-**
  - 3-5 cm long zone of increased pressure
  - Relaxes with swallowing
  - Prevents gastrooesophageal reflex



CONSTRICTIONS

Site	Vertebral Level	Distance from central incisor
Cricopharynx	C 6	15 cm
Aortic arch	T 4	25 cm
Lt main bronchus	T 5	28 cm
Oesophageal hiatus	T 10	40 cm

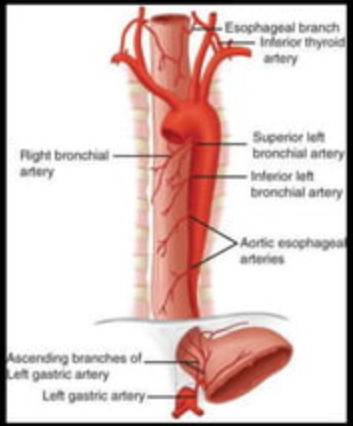


ARTERIAL SUPPLY-

CERVICAL –INFERIOR THYROID ARTERIES

THORACIC – OESOPHAGEAL BRANCHES OF THORACIC AORTA

ABDOMINAL- LEFT GASTRIC ARTERY

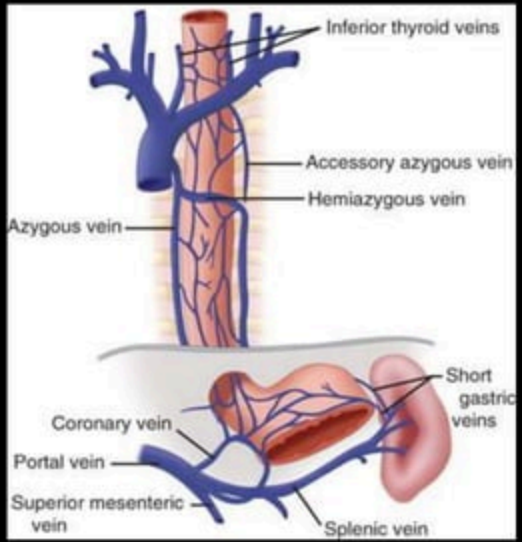


VENOUS SUPPLY-

CERVICAL – BRACHIOCEPHALIC VEINS

THORACIC – AZYGOUS VEINS

ABDOMINAL- LEFT GASTRIC VEIN



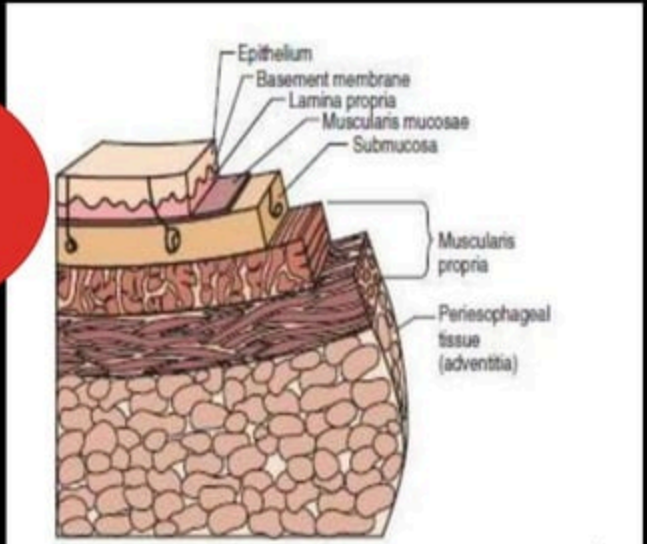
HISTOLOGY-

MUCOSA-
- Epithelium
- Lamina propria
- Muscularis mucosae

SUBMUCOSA-
- Inner
- Middle
- Outer

MUSCULARIS PROPRIA-
- Inner circular
- Outer longitudinal

BASEMENT MEMBRANE separates epithelium from rest of the oesophageal wall



NO SEROSA-FACILITATES EXTRAOESOPHAGEAL SPREAD OF DISEASE.

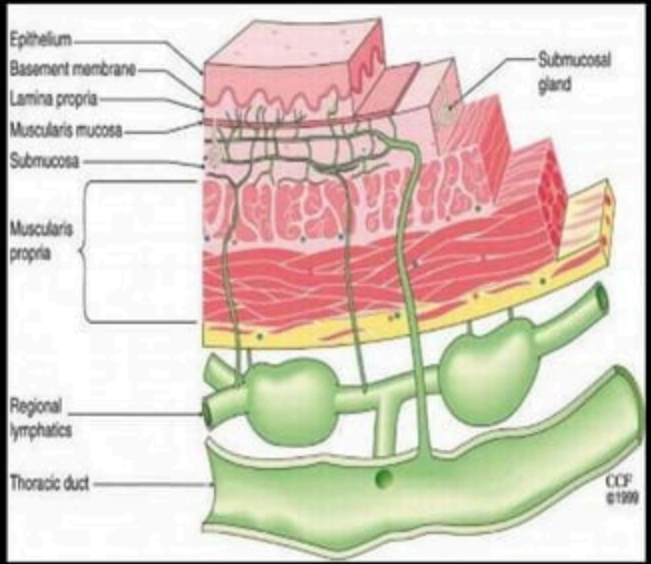
Adventitia (perioesophageal connective tissue) lies directly on the muscularis propria.

LYMPHATIC DRAINAGE-

PRIMARILY:
Submucosa
Longitudinal nature
Anatomic location of the tumor and the regional node to which it spreads may not be same.

INTRAMURAL:
Muscularis propria to regional lymph nodes to paraoesophageal nodes.

Channels are in lamina propria-facilitating spread even in superficial cancers.



EPIDEMIOLOGY:

- 6% of all GI cancers
- Male : female- 4:1
- Squamous cell –middle oesophagus
- Adenocarcinoma-lower oesophagus, white males

Risk factors-

- Smoking
- Alcohol } STRONG ASSOCIATION
- Dietary- vitamin c deficiency, smoked fish, hot beverages
- Plummer vinson syndrome
- Acalasia cardia
- Zenkers diverticulum
- Tylosis
- Caustic injury
- Oncogene-p53
- ADENOCARCINOMA-barrets oesophagus , high fat and low fiber diet, obesity

SYMPTOMS-

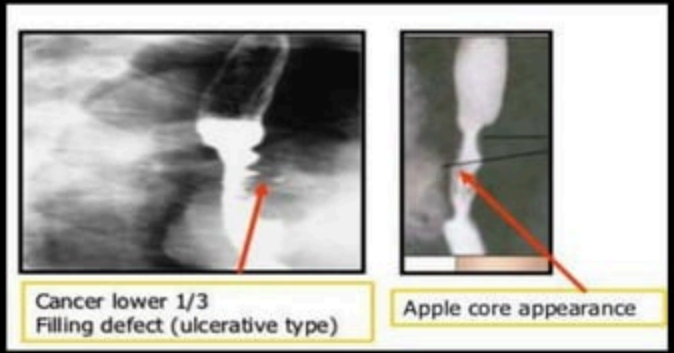
- Dysphagia- >90% of patients
- Odynophagia- 50%
- Weight loss- 40-70% (>5% of total body weight)
- Less frequent symptoms-vague chest pain,hoarseness, glossopharyngeal neuralgia.
- Advanced lesions-
- Hematemesis,hemoptysis, melena
- Dyspnea, persistent cough
- Dysphonia,hemidiaphragm paralysis.
- Superior vena cava syndrome and horner syndrome.

DIAGNOSTIC WORK UP-

- HISTORY AND PHYSICAL EXAMINATION-
- COMPLETE BLOOD COUNT
- BIOCHEMISTRY PROFILE- LFT and KFT.

BARIUM SWALLOW

Rat tail appearance.



• PANENDOSCOPY-

- Oral cavity, pharynx, larynx, tracheobronchial tree along with oesophagoscopy-
- Esp in squamous cell carcinomas
- d/t high incidence of second tumors in head and neck and upper airway cancers.
- UGIE SHOWING-

Fungating growth

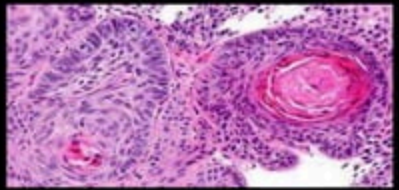
Early, superficial cancer

Circumferential ulceration esophageal cancer

Malignant stricture of esophagus

• BIOPSY

• Squamous cell and adenocarcinoma - 95% of the cancers.

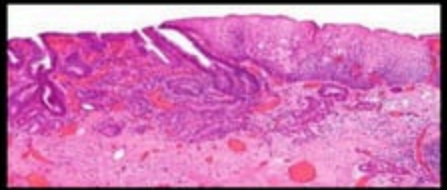


Keratin whorls

Variants-

Pseudosarcoma

Verrucous



glandular appearance.

variants-

adenocystic

mucoepidermoid

- CT SCAN-

- Nutritional assessment and consideration for feeding jejunostomy

STAGING

	PRIMARY TUMOR (T)
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	High-grade dysplasia *
T1	Tumor invades lamina propria, muscularis mucosae, or submucosa
T1a	Tumor invades lamina propria or muscularis mucosae
T1b	Tumor invades submucosa
T2	Tumor invades muscularis propria
T3	Tumor invades adventitia
T4	Tumor invades adjacent structures
T4a	Resectable tumor invading pleura, pericardium, or diaphragm
T4b	Unresectable tumor invading other adjacent structures, such as aorta, vertebral body, trachea, etc.
	*High-grade dysplasia includes all non-invasive neoplastic epithelium that was formerly called carcinoma *in situ*, a diagnosis that is no longer used for columnar mucosae anywhere in the gastrointestinal tract.
	REGIONAL LYMPH NODES (N)
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Regional lymph node metastases involving 1 to 2 nodes
N2	Regional lymph node metastases involving 3 to 6 nodes
N3	Regional lymph node metastases involving 7 or more nodes
	DISTANT METASTASIS (M)
M0	No distant metastasis (no pathologic M0; use clinical M to complete stage group)
M1	Distant metastasis


Thank You