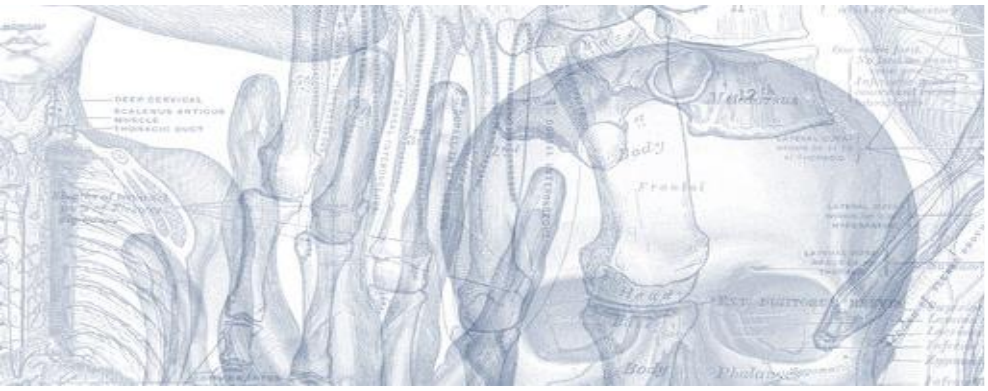
بسم الله الرحمن الرحيم



ANATOMY
TEAM 436

Color Code
- Nerves
- Arteries
- Veins
- Lymph
- Muscles

Anatomy Summary: **GIT FINAL**

Done by: Jawaher Abanumy & Rawan AlWadee

Oral (mouth) Cavity
extends from lips to oropharyngeal isthmus.

Vestibule	Mouth cavity proper	
Between: (teeth & gum) and (lips & cheeks)	Within alveolar arches, teeth, and gums	
Receives opening of parotid duct opposite the upper 2nd molar tooth	**Roof**: Hard & soft palate	**Floor:** Anterior 2/3 of tongue
	Communicates with vestibule behind the 3rd molar tooth	

Palate (roof of mouth)

Hard Palate	Soft Palate	
Formed by 4 bones: 2 Palatine process of maxillae 2 Horizontal plate of palatine bones	Bag of mucous membrane with striated muscles	
	Anterior: Attached to hard palate	Posterior: Free border with conical projection = uvula
• Bound laterally by alveolar arches • Continuous behind with soft palate • Forms floor of nasal cavities	Muscles: 1. Tensor veli palatine 2. Levator veli palatine 3. Palatoglossus 4. Palatopharyngeal 5. Musculus uvulae	
	Sensory: • Maxillary nerve (naso-, greater, lesser palatine) • Glossopharyngeal nerve	Motor: • Pharyngeal plexus • Except tensor veli palatani by mandibular nerve

Tongue (mass of striated muscle covered with mucous membrane)

Anterior 2/3: in mouth	*Posterior 1/3*: in pharynx	*Above:* Styloid process & soft palate	*Below:* Mandible & hyoid bone

Function	1. Swallowing 2. Taste 3. Production of speech		
Muscles	**Intrinsic**: longitudinal, transverse, vertical.		Action: Alter shape of tongue
	Extrinsic: Palato-, Hyo-, Stylo-, Genioglossus		Action: Change position of tongue
Nerve Supply	**Motor**: hypoglossal nerve except palatoglossus by pharyngeal plexus		
	Sensory:	*General*	*Taste (special)*
	Anterior 2/3	Lingual (CNV)	Chorda tympani (CNVII)
	Posterior 1/3	Glossopharyngeal nerve	
	Root + epiglottis	Vagus nerve	

Oesophagus

Begins at **C6**, pierces diaphragm at **T10**, terminates at **T11**
Constrictions: 1. pharyngo-esophageal constriction 2. aorto-bronchial constriction 3. diaphragmatic (stomach) constriction

Divided into		**Cervical**	**Thoracic** Passes through superior and posterior mediastinum (at the left) then at the midline due to the aortic arch at sternal angle **T4**	**Abdominal** At the opening of the diaphragm it is accompanied by: 2 vagi, branches of left gastric vessel, lymphatics
Relations	Anterior	1. Trachea 2. Recurrent laryngeal nerves (right and left)	1. Trachea 2. Left recurrent laryngeal nerve 3. Left principal bronchus 4. Pericardium 5. Left atrium	1. Left lobe of liver
	Posterior	1. Vertebral column	1. Bodies of thoracic vertebra 2. Thoracic duct 3. Azygos vein 4. Right posterior intercostal arteries 5. Descending thoracic aorta	1. Left crus of diaphragm
	Lateral	1. Lobes of thyroid gland	Right: 1. Mediastinal pleura 2. Terminal azygos vein Left: 1. Mediastinal pleura 2. Left subclavian artery 3. Aortic arch 4. Thoracic duct	
Arterial supply		Inferior thyroid artery	Thoracic aorta	Left gastric artery
Venous drainage		Inferior thyroid veins	Azygos vein	Left gastric vein → portal vein
Lymphatics		Deep cervical nodes	Superior and inferior mediastinal nodes	Celiac nodes
Nerve Supply		Sympathetic trunk + vagus nerve (parasympathetic): left vagus anterior to esophagus and right vagus posterior to esophagus.		

Stomach

Orifices	**Cardiac orifice** Site of gastroesophageal sphincter (physiological: smooth muscle) Level: T10 / left seventh costal cartilage Function: prevent esophageal regurgitation	**Pyloric orifice**
Borders	**Greater curvature** (left border) Upper part: attached to spleen by gastrosplenic ligament Lower part: attached to transverse colon by greater omentum	**Lesser curvature** (right border) Has incisura angularis Attached to liver by lesser omentum (gastrohepatic ligament)
Surfaces	**Anterior relations** 1. Anterior abdominal wall 2. Left costal margin 3. Left pleura and lung 4. Diaphragm 5. Left lobe of liver	**Posterior relations** 1. Left crus of diaphragm 2. Left suprarenal gland 3. Part of left kidney 4. Spleen 5. Splenic artery 6. Pancreas 7. Transverse mesocolon 8. Lesser sac } These structures make up the **stomach bed**

Parts	**Fundus** Site: Left 5th intercostal space	**Body** From fundus to incisura angularis	**Pylorus** Site: transpyloric plane (L1) antrum, canal, sphincter

Arteries	*Veins*	*Lymphatics*	*Nerves*
1. Left gastric artery (celiac) → lesser curvature 2. Right gastric artery (hepatic from celiac) → lesser curvature 3. Short gastric arteries (splenic) → gastrosplenic ligament 4. Left gastroepiploic artery (splenic) → gastrosplenic ligament 5. Right gastroepiploic artery (gastroduodenal from hepatic) → great curvature	All drain into portal vein: • Right and left gastric veins drain directly into the portal vein • Short gastric veins and left gastroepiploic vein → splenic vein → portal vein • Right gastroepiploic vein → superior mesenteric vein → portal vein.	They first drain into: • Left and right gastric nodes • Left and right gastroepiplotic nodes • Short gastric nodes Ultimately it is all collected at the celiac nodes	• Sympathetic: celiac plexus • Parasympathetic: right and left vagi • Anterior (left) vagal trunk: gives hepatic branch → pylorus • Posterior (right) vagal trunk: → celiac and superior mesenteric plexuses.

Small Intestine

	Duodenum	Jejunum	Ileum
Shape	C-shaped	Coiled tube	
Peritoneal covering	Retroperitoneal	With mesentery	
Length	10 inch	2/5 of small intestine	3/5 of small intestine (longer)
Beginning	Pyloro-duodenal junction	Duodeno-jejunal flexure	
End	Duodeno-jejunal flexure	Ilieo-caecal junction	
Embryological origin	Foregut & midgut	Midgut	
Arterial Supply	Celiac & superior mesenteric arteries	Superior mesenteric artery	
Venous Drainage	Superior mesenteric → portal vein	Superior mesenteric vein	
Lymphatic Drainage	Celiac & superior mesenteric lymph nodes	Superior mesenteric lymph node	

Duodenum

Part		Superior – 1st	Descending – 2nd	Inferior – 3rd	Ascending – 4th
Length		2 in.	3 in.	4 in.	1 in.
Level		L1 – transpyloric plane	L1 → L3	L3 – subcotal plane	L3 → L2
Relations	Anterior	1. Liver	1. Liver 2. Transverse colon 3. Small intestine (J & L)	1. Small intestine 2. Superior mesenteric vessels	1. Small intestine
	Posterior	1. Bile duct 2. Gastroduodenal artery 3. Portal vein	1. Right kidney	1. Right psoas major 2. Inferior vena cava 3. Abdominal aorta 4. Inferior mesenteric vessels	1. Left psoas major
	Medial		1. Pancreas		
	Lateral		1. Right colic flexure		

Large Intestine

Parts		Cecum	Appendix	Ascending colon	Transverse colon	Descending colon	Sigmoid colon	Rectum		Anal canal
Location		Abdomen					Pelvis			Perineum
Peritoneal covering		✓	✓	Retro	✓	Retro	✓	Upper 2/3 Retro	Lower 1/3 X	X
Relations	Anterior	1. Anterior abdominal wall 2. Coils of small intestine 3. Greater omentum		1. Anterior abdominal wall 2. Coils of small intestine 3. Greater omentum	1. Anterior abdominal wall 2. Greater omentum	1. Anterior abdominal wall 2. Coils of small intestine 3. Greater omentum		MALE 1. Seminal vesicles 2. Posterior surface of urinary bladder 3. Prostate gland	FEMALE 1. Posterior wall of vagina	
	Posterior	1. Psoas major 2. Iliacus		1. Iliacus 2. Quadratus lumborum 3. Right kidney	1. 2nd part of duodenum 2. Pancreas 3. Superior mesenteric vessels	1. Iliacus 2. Quadratus lumborum 3. Left kidney		1. Sacrum 2. Sacral plexus 3. Coccyx		
	Superior				1. Liver 2. Gallbladder 3. Stomach					
	Inferior				1. Coils of small intestine					
Notes			Base of appendix is marked by **Mc'Burneys point** Position: retrocecal (most common)					Begins as continuation of sigmoid colon at **S3**		
Characteristics		Characteristics of Colon (not found in rectum & anal canal): 1. Taeniae coli 2. Sacculations (haustra) 3. Epiploic appendices								
Arterial Supply		**Foregut** = esopahgus → proximal duodenum = celiac **Midgut** = distal duodenum (after opening of pancreatic and bile duct) → right 2/3 of transverse colon = superior mesenteric **Hindgut** = left 1/3 of transverse colon → anal canal = inferior mesenteric								
Venous Drainage		Tributaries → portal vein → liver → portal circulation								
Lymphatic Drainage		Preaortic lymph nodes (superior and inferior mesenteric)								
Embryonic origin		**Midgut** (endoderm) → autonomic			**Hindgut** (endoderm) → autonomic				**Ectoderm** (lower 1/3 anal canal)	
Nerve Supply		Sympathetic + vagus			Sympathetic + pelvic				SOMATIC: inferior rectal	

Omentum

Peritoneum	*Parietal*	lines wall of abdominal and pelvic cavities	Supplied by **lower** 6 thoracic and first lumbar and the phrenic nerve
	Visceral	covers the existing organs	Supplied by autonomic nerves
	Divided into greater and lesser sac (interconnected by epiploic foramen) Folds: **1.** Omenta **2.** Mesentery **3.** Ligaments		
Ligament	2-layered folds of peritoneum that attach solid viscera to the abdominal wall and diaphragm.		
Mesentery	• 2-layered fold of peritoneum that suspends the small intestines from the posterior abdominal wall • Root of mesentery: directed obliquely from duodenojejunal flexure at the level of left **L2** → ileocecal junction in right iliac fossa at level of **sacroiliac joint**		
Omentum	2-layered fold of peritoneum connecting stomach to another viscus (note the greater omentun folds on itself and makes 4 layers)		

	Greater Omentum	**Lesser Omentum**
Connection	Greater curvature of stomach → transverse colon	Lesser curvature of stomach → liver
Borders	**Left** border: continuous with gastrosplenic ligament **Right** border: extends as far as commencement of duodenum	**Right** border is free and is the anterior boundary of epiploic foramen
Contents	1. Anastomosis between right and left gastroepiploic vessels	Close to right free margin: 1. Hepatic artery 2. Common bile duct 3. Portal vein 4. Lymphatics 5. Hepatic plexus of nerves At attachment to stomach: 1. Right and left gastric vessels

	Omental bursa (lesser sac)		**Epiploic Foramen**			
Description	Part of the peritoneal cavity behind the stomach		Communication between greater and lesser sac			
Boundaries	*Anterior wall:* 1. Caudate lobe of liver 2. Lesser omentum 3. Back of stomach 4. Anterior 2 layers of greater omentum	*Posterior wall:* 1. Posterior 2 layers of greater omentum 2. Transverse colon 3. Transvers mesocolon (ascending layer) 4. Pancreas (upper surface) 5. Left suprarenal gland 6. Left kidney (upper end)	*In front*: Free border of lesser omentum and its contents: hepatic artery, common bile duct, portal vein	*Behind*: Peritoneum covering inferior vena cava	*Above*: Peritoneum of caudate process of the liver	*Bellow*: Peritoneum covering commencement of duodenum and hepatic artery

Stem Cells

	Potency	**Source**
Classification	1- Totipotent (embryonic & extraembryonic)	1- Embryonic stem cells: IVF & SCNT → inner cell mass
	2- Pluripotent (3 germ layers)	
	3- Multipotent	2- Adult stem cells: placenta, umbilical cord, specific tissue
	4- Oligopotent	
	5- Unipotent	3- iPS: Induced pluripotent stemcells: somatic cells reprogrammed to pluripotent state. Need Yamanaka factors **OCT4**, **SOX2**, KLF4 and Myc
	6- Nullpotent	
Goal	promote cell replacement in organs that are damaged and do not have the ability for self repair (treat diseases)	

Stem Cells

Type	**Embryonic**	**Adult**
Source	• IVF, aborted and cloned embryos	• Bone marrow, placental cord, mesenchymal stem cells
Potency	• Pluripotent	• Multipotent
Advantage	• Large number can be harvested	• No immune reaction • No ethical concern
Disadvantage	• Immune reaction • Ethical concern	• Limited numbers • Hard to isolate

Salivary Glands

	Parotid Gland	Submandibular	Sublingual
Type	Largest, Serous	Mixed (serous & mucous)	Smallest, predominantly mucous
Location	Wedged between: *Anteriorly:* Mandibular ramus & masseter *Posteriorly*: Mastoid process & sternomastoid	Deep to the body of the mandible on the mylohyoid muscle.	Below mucous membrane of floor close to midline
Duct	Opens into vestibule on small papilla opposite upper 2nd molar (maxillary tooth)	Emerges from deep part and is crossed laterally by lingual nerve. Can be palpated through floor alongside tongue.	8 – 20 in number and open into the summit of the sublingual fold and some may open into submandibular duct
Arterial Supply	External carotid artery and its branches (maxillary and superficial temporal)		Facial artery
Venous Drainage	Retromandibular vein		Facial vein
Lymphatic Drainage	Parotid and deep cervical lymph nodes		Submandibular lymph nodes
Nerve supply – Parasympathetic	inferior salivary nucleus → glossopharyngeal nerve → tympanic nerve → tympanic plexus → lesser petrosal nerve → otic ganglion → auriculotemporal nerve		Superior salivary nucleus → facial nerve → submandibular ganglion → chorda tympani & lingual nerve
Nerve supply – Sympathetic	Plexus around external carotid		
Notes	**Shape**: triangular apex (behind angle of mandible) and base (upward below zygomatic arch, external auditory meatus, and TMJ **Capsule**: deep cervical fascia of neck	Made of **2 parts**: large superficial and small deep	
Structures within	1. Facial nerve: gives 2 branches before entering and 5 terminal inside (most *superficial/lateral*) 2. Retromandibular vein (middle) 3. External carotid artery (most *deep/medial*)		

Pancreas

HEAD:	NECK:	BODY:	TAIL:
• Related to the 2nd and 3rd portions of the duodenum on the right • Includes uncinate process (part extending to the left behind the superior mesenteric vessels)	• Lies in front of origin of superior mesenteric artery and the confluence of the portal vein.	• The splenic vein is embedded in its posterior surface	• Lies in the **splenicorenal** ligament • Anteriorly, related to splenic flexure of colon
L1			T12

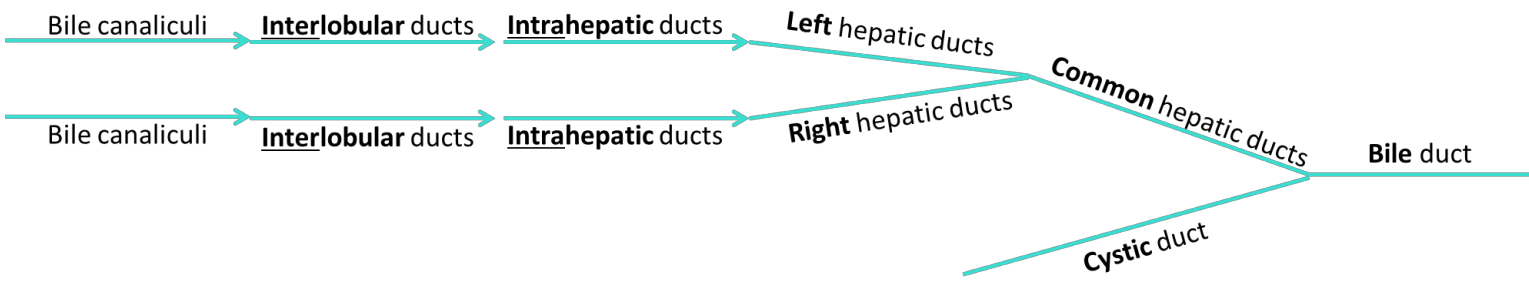
Relations	Anteriorly: • Stomach separated by lesser sac • Transverse colon & transverse mesocolon	Posteriorly: • Bile duct, portal & splenic veins, inferior vena cava, aorta & origin of superior mesenteric artery • Left psoas muscle, left adrenal gland, left renal vessels & upper 1/3rd of left kidney • Hilum of the spleen.
Duct	Main Duct (of Wirsung)	**drains** tail, bod, neck, inferior portion of head, uncinate process Joins common bile duct & together they open into a small hepatopancreatic ampulla (Major duodenal papilla)
	Accessory Duct (of Santorini)	**drains** superior portion of the head It empties separately into 2nd portion of duodenum at (minor duodenal papilla)
Arterial supply	Head and neck: superior pancreatico-duodenal artery (celiac) and inferior pancreatico-duodenal artery (superior mesenteric) Body and tail: splenic artery (celiac)	
Venous drainage	Head and neck: superior and inferior pancreatico-duodenal veins Body and tail: splenic vein → portal vein	
Lymphatic drainage	Pyloric, hepatic and splenic nodes → celiac and superior mesenteric nodes	
Nerve Supply	Sympathetic: thoracic splanchnic nerves (inhibitory)	
	Parasympathetic: vagus nerve (excitatory)	

Biliary system

Liver (produces bile) | **Bile ducts** (transports bile) | **Gallbladder** (stores bile)

Liver

Position	left and right hypochondrium and epigastrium (deep to **ribs 7-11 on the right side**)	
Peritoneal Reflection	completely covered by peritoneum except the **bare areas** (posterior surface of right lobe) *Boundaries of Bare area:* Anteriorly and posteriorly : superior and inferior layer of coronary ligament Laterally: right and left triangular ligaments.	
Relations	Anterior • Diaphragm, • right & left pleura and lower margins of both lungs, right and left costal margins, • xiphoid process, and • anterior abdominal wall in the subcostal angle	Posterior • Diaphragm, • right kidney, • hepatic flexure of the colon, • duodenum, • gallbladder, • inferior vena cava, • esophagus and • fundus of the stomach
Surfaces	Convex diaphragmatic (antero-superior) : Covered with visceral peritoneum, **except** posteriorly in the bare area of the liver (direct contact with diaphragm)	Concave visceral (postero-inferior) covered with peritoneum **except** at the fossa for the (1) gallbladder, (2) the porta hepatis and (3) IVC groove.
Fissures	The **right fissure** is the continuous groove formed: • *Anteriorly:* by the fossa for the gallbladder • *Posteriorly:* by the groove for the inferior vena cava	The **left fissure** is the continuous groove formed: • *Anteriorly:* by the fissure for the round ligament (lig. teres). • *Posteriorly:* by the fissure for the ligamentum venosum.
Ligaments	**1- Falciform ligament :** • It connects the liver with the diaphragm and anterior abdominal wall & umblicus.. • Its sickle-shaped free margin contains the ligamentum teres , the remains of the umbilical vein.	**2- Ligamentum venosum:** • It is the fibrous remnant of the fetal ductus venosus
Lobes	The liver is divided into a large right lobe and a small left lobe by the attachment of the falciform ligament. The right lobe is further divided into a quadrate lobe and a caudate lobe (functionally they are part of the left lobe)	
Porta Hepatis (hilum of liver)	• A transverse fissure found on the posteroinferior surface and lies between the caudate and quadrate lobes. • The upper part of the lesser omentum is attached to its margin.	***Structures passing through the porta hepatis include***: • hepatic ducts, • hepatic artery, • portal vein, • sympathetic and parasympathetic nerve fibers and • few hepatic lymph nodes.
Portal-Systemic (Portacaval) Anastomoses	• Anastomosis between the veins of portal circulation and those of systemic circulation. • Portal hypertion = venous dilatation/varices. • Sites: 1- Esophagus (lower part). 2- Upper Anal canal.	
Arterial Supply	30 % hepatic artery (oxygenated blood) & 70 % portal vein (venous blood rich in the products of digestion)	
Venous Drainage	hepatic veins (**The attachment of these veins to the IVC helps hold the liver in position)**	
Lymphatic drainage	celiac nodes and few pass the posterior mediastinal lymph nodes. *(The liver produces a large amount of lymph about one third to one half of all body lymph)*	
Nerve Supply	Sympathetic from the celiac plexus.	
	Parasympathetic nerves The anterior vagal trunk gives rise to a large hepatic branch.	



Bile Ducts

Bile canaliculi	Interlobular ducts	Intrahepatic ducts	Right and left hepatic ducts	Common hepatic duct	Cystic duct	Common bile duct (bile duct)
	Situated in portal canals of the liver and receive bile canaliculi		Formed at the porta hepatis Right drain right lobe Left drain left, caudate and quadrate lobes	Union of right and left hepatic duct Descends within the free margin of the lesser omentum	Joins common hepatic to form common bile duct	Lies on free margin of lesser omentum → behind 1st part of duodenum → groove on posterior surface of head of pancreas → comes into contact with main pancreatic duct Ends by piercing medial wall of 2nd part of duodenum with main pancreatic duct into hepatopancreatic ampulla (ampulla of vater) surrounded by sphincter of oddi. Note: may open separately

Gallbladder

Shape	Pear shaped Peritoneum completely surrounds the fundus and binds the body of the neck to the visceral surface of the liver		
Parts	**Fundus** Projects below inferior margin of liver At the level of **tip of ninth costal cartilage** comes in contact with the anterior abdominal wall	**Body** In contact with visceral surface of liver	**Neck** Continuous with cystic duct joins common hepatic duct to form bile duct
Relations	Anteriorly Anterior abdominal wall Inferior surface of the liver	Posteriorly Transverse colon First and second part of duodenum	
Function	• Stores and concentrates bile • Selectively absorbs bile salts • Keeps the bile acid • Excretes cholesterol • Secretes mucus		
Arterial Supply	Cystic artery (right hepatic artery)		
Venous Drainage	Cystic vein → portal vein		
Lymphatic Drainage	Cystic lymph node → hepatic nodes → celiac nodes		
Nerve supply	Sympathetic and parasympathetic vagal fibers form celiac plexus		

Spleen

Position	• Largest single mass of lymphoid tissue • Located in the **left hypochondrium,** deep to 9, 10 & 11 ribs • Its Long axis lies along **10th rib** and lower pole extends forward as far as the midaxillary line. • It is separated from the ribs by the diaphragm and the costodiaphragmatic recess. • Spleen is completely surrounded by peritoneum **EXCEPT** at the hilum			
Surfaces and borders	Surfaces: 1. **Diaphragmatic surface**: convexly curved to fit diaphragm and bodies of the adjacent ribs 2. **Visceral surface:** related to viscera.		Borders: 1. **Superior** and **anterior** borders are sharp and notched. 2. **Posterior (medial)** and **inferior** borders are rounded	
Relations	Anteriorly: • Stomach, • tail of pancreas, • left colic flexure & • left kidney.	Posteriorly: • Diaphragm • left lung & • 9, 10 & 11 ribs.	Inferiorly: • Left colic flexure	Medially: • Left kidney
Arterial supply	Splenic artery (Largest branch of the celiac artery) → Passes within the lienorenal ligament & enter the spleen at the hilus			
Venous drainage	Splenic vein (behind the neck of pancreas it joins the superior mesenteric vein to form the **portal vein**) Tributaries: 1) Short gastric vein 2) left gastroepiploic vein 3) Pancreatic veins 4) Inferior mesenteric vein			
Lymphatic drainage	Efferents from the hilar nodes pass along the course of splenic artery, and drain into the celiac lymph nodes			
Nerve Supply	Celiac plexus (innervation is purely **sympathetic** and vasomotor in function)			

Structures/ Organs		Arterial Supply	Venous Drainage	Lymphatic Drainage
Salivary glands	Parotid	External carotid and it branches (maxillary and superficial temporal)	Retromandibular vein	Parotid and deep cervical lymph nodes
	Sub-mandibular	Facial and lingual arteries		Submandibular and deep cervical lymph nodes
	Sublingual	Facial artery	Facial vein	Submandibular lymph nodes
Esophagus	Cervical	Inferior thyroid artery	Inferior thyroid veins	Deep cervical nodes
	Thoracic	Thoracic artery	Azygos vein	Superior and inferior mediastinal nodes
	Abdominal	Left gastric artery	Left gastric vein	Celiac nodes
Stomach		Left and right gastric artery Short gastric arteries Left and right gastroepiploic artery	Right and left gastric veins Short gastric vein Right and left gastroepiploic vein	Left and right gastric nodes Left and right gastroepiplotic nodes Short gastric nodes → Celiac nodes
Pancreas	Head and neck	superior and inferior pancreatico-duodenal artery	superior and inferior pancreatico-duodenal vein	Pyloric, hepatic and splenic nodes → celiac and superior mesenteric nodes
	Body and tail	Splenic artery	Splenic vein	
Gall bladder		Cystic artery	Cystic vein	Cystic lymph node
Spleen		Splenic artery	Splenic vein	Celiac lymph node
Liver		Hepatic artery and portal vein	Hepatic vein	Celiac (mainly) and posterior mediastinal lymph node
Small intestine	Duodenum	Celiac & superior mesenteric arteries	Superior mesenteric vein	Celiac & superior mesenteric lymph nodes
	Jejunum and ileum	Superior mesenteric artery	Superior mesenteric vein	Superior mesenteric lymph node

Embryological origin:

Foregut (from esophagus to 2nd part of duodenum)→ celiac

Midgut (from 2nd part of duodenum to right 2/3 of transverse colon) → superior mesenteric

Hindgut (from left 1/3 transvers colon to anal canal) → inferior mesenteric

Structures/ Organs		Nerve Supply	
		Sympathetic	Parasympathetic
Salivary glands	Parotid	Plexus around external carotid artery	inferior salivary nucleus → glossopharyngeal nerve → tympanic nerve → tympanic plexus → lesser petrosal nerve → otic ganglion → auriculotemporal nerve.
	Sublingual		Superior salivary nucleus → facial nerve → submandibular ganglion → chorda tympani & lingual nerve
Esophagus		Sympathetic trunk	Vagus nerve
Stomach		Celiac plexus	Anterior vagal trunk (left vagus) and posterior vagal trunk (right vagus)
Pancreas		Thoracic splanchnic nerve	Vagus nerve
Spleen		Celiac plexus	None (spleen is purely sympathetic)
Liver		Celiac plexus	Anterior vagal trunk
Gall bladder		Vagal fibers form celiac plexus	
Embryological Origin	Midgut		Vagus
	Hindgut		Pelvic splanchnic
	Ectoderm	**Somatic**: inferior rectal	
Peritoneum	Parietal	**Somatic**: lower 6 thoracic and first lumbar and the phrenic nerve	
	Visceral	Autonomic nerves supplying viscera	

Level	Surface Anatomy
5th Intercostal Space	Stomach fundus
Tip of **9th** costal cartilage	Gallbladder Fundus comes in contact with anterior abdominal wall
Ribs **7 - 11**	Liver position
Ribs **9, 10, 11**	Spleen position
C6	Beginning of esophagus
T10	(7th Costal Cartilage) - Esophagus pierces diaphragm - Cardiac orifice
T11	Termination of esophagus
T12	Pancreas (tail)
L1	Transpyloric plane - Stomach pylorus - Pancreas (head, neck, body) Duodenum 1st part (superior)
L1 → L3	Duodenum 2nd part (descending)
L3	Subcostal plane - Duodenum 3rd part (horizontal)
L3 → L2	Duodenum 4th part (ascending)
L2	Mesentery (duodenojejunal flexure)
S3	Rectum beginning