«Functional anatomy of the digestive system»

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Theme: The functional anatomy of the digestive system.

Plan

1. The processes of digestion.

2. The basic functions of the compartments of the digestive system.

3. The review of a structure of the digestive system

- the oral region
- the pharynx
- the esophagus
- the stomach
- the small intestine
- the large intestine
-the liver
- the pancreas
- peritoneum

The Digestive System (**systema digestorium)** is a complex of organs whose function consists in mechanical and chemical treatment of the food, absorption of the treated nutrients and excretion of undigested remnants of the food.

The processes of digestion consist of:

1. ingestion, or eating;

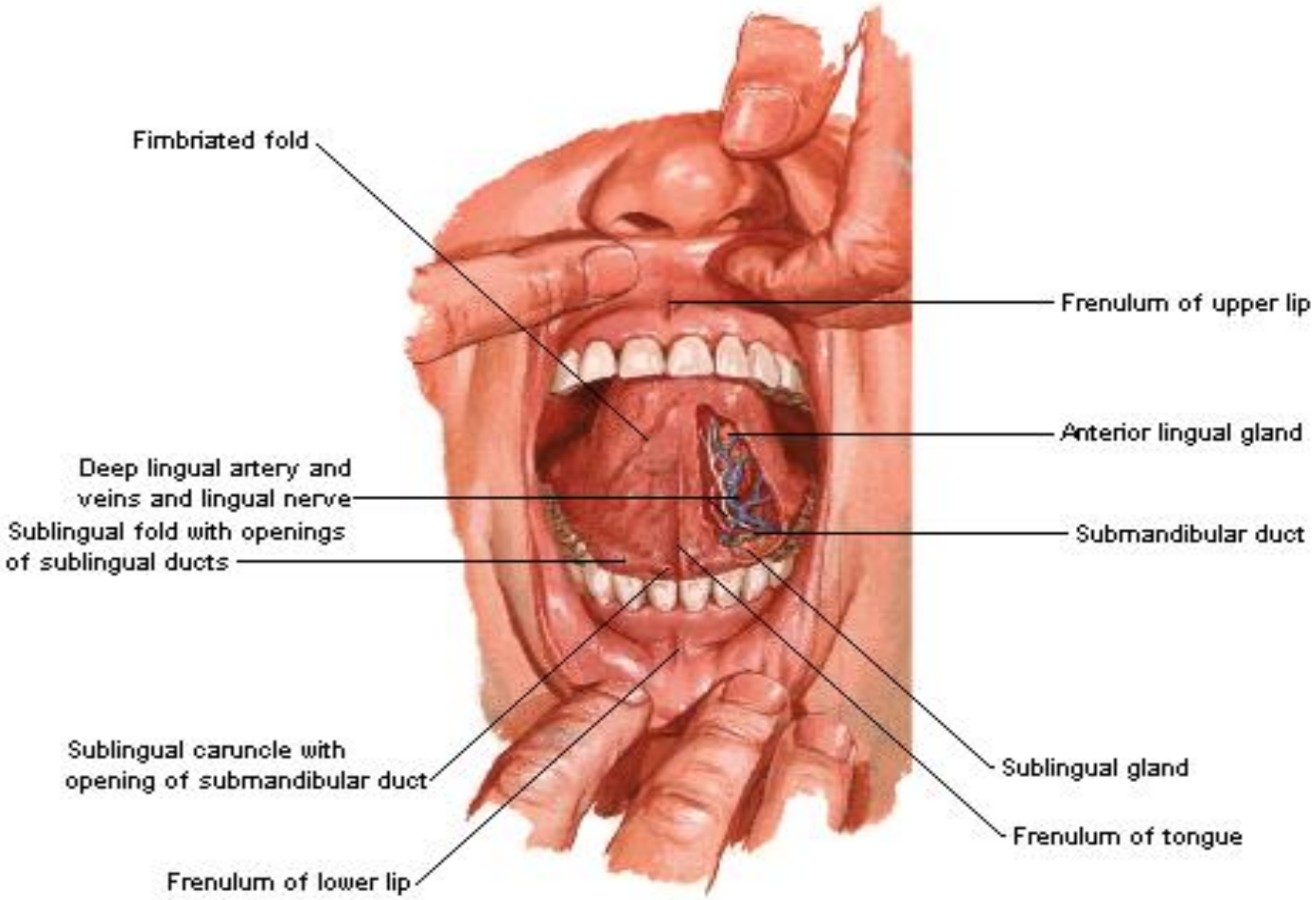
2. peristalsis, or involuntary sequential muscular contractions that move ingested nutriens along the digestive tract;

3. digestion, or the conversion of large nutrient particles into small molecules;

4. absorption, or the passage of usable nutrient molecules from the small intestine into the blood stream and lymphatic system.

5. defecation, or the elimination from the body of undigested and unabsorbed material as a solid waste.

Cavity of the mouth



- The digestive system has following functions:
- In the mouth the gustatory sence, the temperature and the consistence of the food are determined. The teeth chew food and soliva from the solivary glands is added to the food to facilitate the formation of the manageable bolus.
- In the saliva there is the proteino-mucous substance (mucin) and protein (lisocim). Mucin washes the food and breaks up the storch a little. And lisocim renders some hormfull substances. Usually food is in the cavity of the mouth during 15-16 sec. Deglutition or swallowing is voluntarily initiated in the oral cavity. This process pushes the bolus into the pharynx. The pharynx conducts food through the esophagus to the stomach.
- The stomach stores food during few hours, here the food undergoes the first stages of digestion during which the hard components are converted to a semiliquid or pasty mixture. The food mixed with the gastric juice, containing hydrochloric acid, the digestive enzyme – pepsin, the gastric mucous and the hormon – gastrin probably.
- Then the food passes to the small intestine, where the main digestion and absorption take place. In the cavity of the small intestine there are the intestine juice, the bile, and the pancreatic juice. The medium is alkaline.
- large intestine carries undigested substances, absorbs additional water, some medicines and glucose from it, and evacuates the fecal materials. The vermiform appendix has important immunological functions in infants and children, which vary with age.
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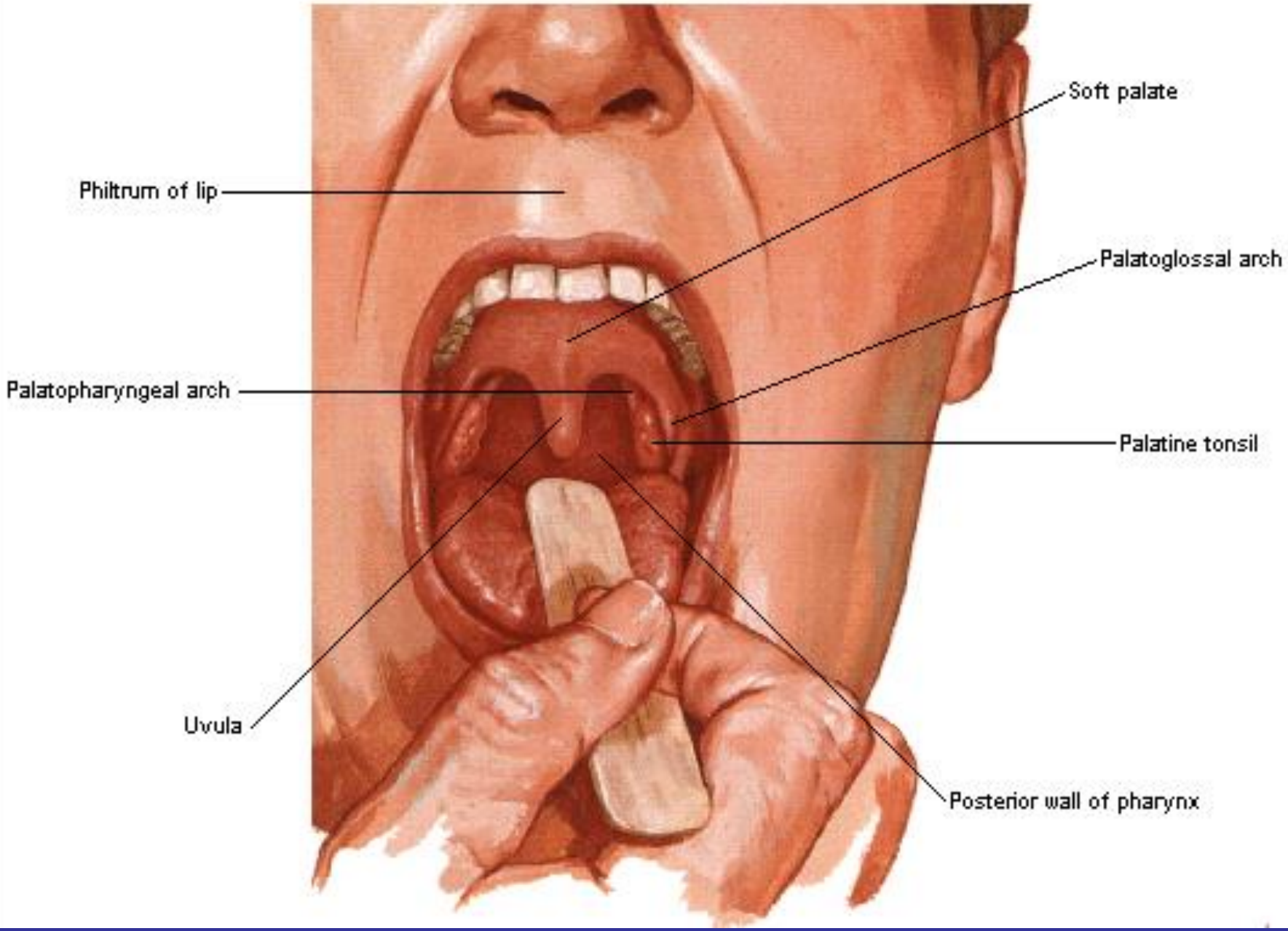
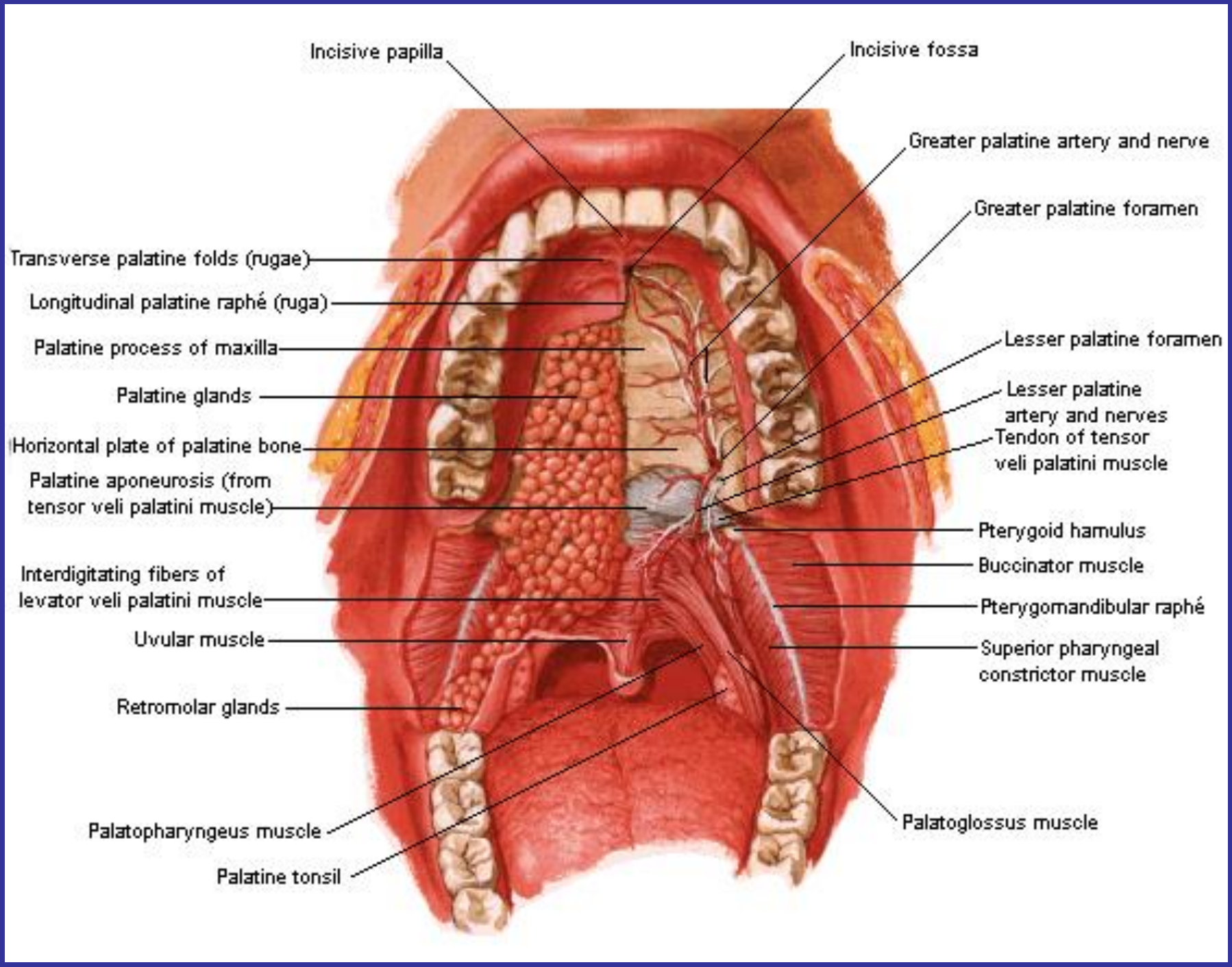
- The liver performs numerous functions. First of them is:
- **1.** The bile secretion. Bile is an important agent in digestion, especially of fats. Liver bile passes via the hepatic ducts into the first part of the small intestine (duodenum), when fat-containing chyme enters the duodenum from the stomach.
- **2.** The protective role by detoxifycing substances which are formed as the products of digestion, drugs and alcohol.
- **3.** The storehouse for various substances such as glycogen, lipids, vitamins and iron.
- **4.** Metaboliring the products of digestion – principally degradation products of proteins and carbohydrates.
- **5.** The synthesis of plasma proteins, fibrinogen and prothrombin.
- **6.** The metabolism of carbohydrates and the regulation of blood glucose.
- **7.** The metabolism of fats and the regulation of blood lipids.
- **8.** The haemopoietic function – especially during fetal life.

These digestive system consists of the mouth, or oral cavity, pharynx, or throat, esophagus, stomach, small intestine and large intestine, which finishes with anus. From mouth to anus this canal is about 9 meters long. The associated structures of the digestive system include the teeth, the lips and the cheeks, the tongue, the salivary glands, the pancreas, the liver, with the gall bladder and the bile duct.

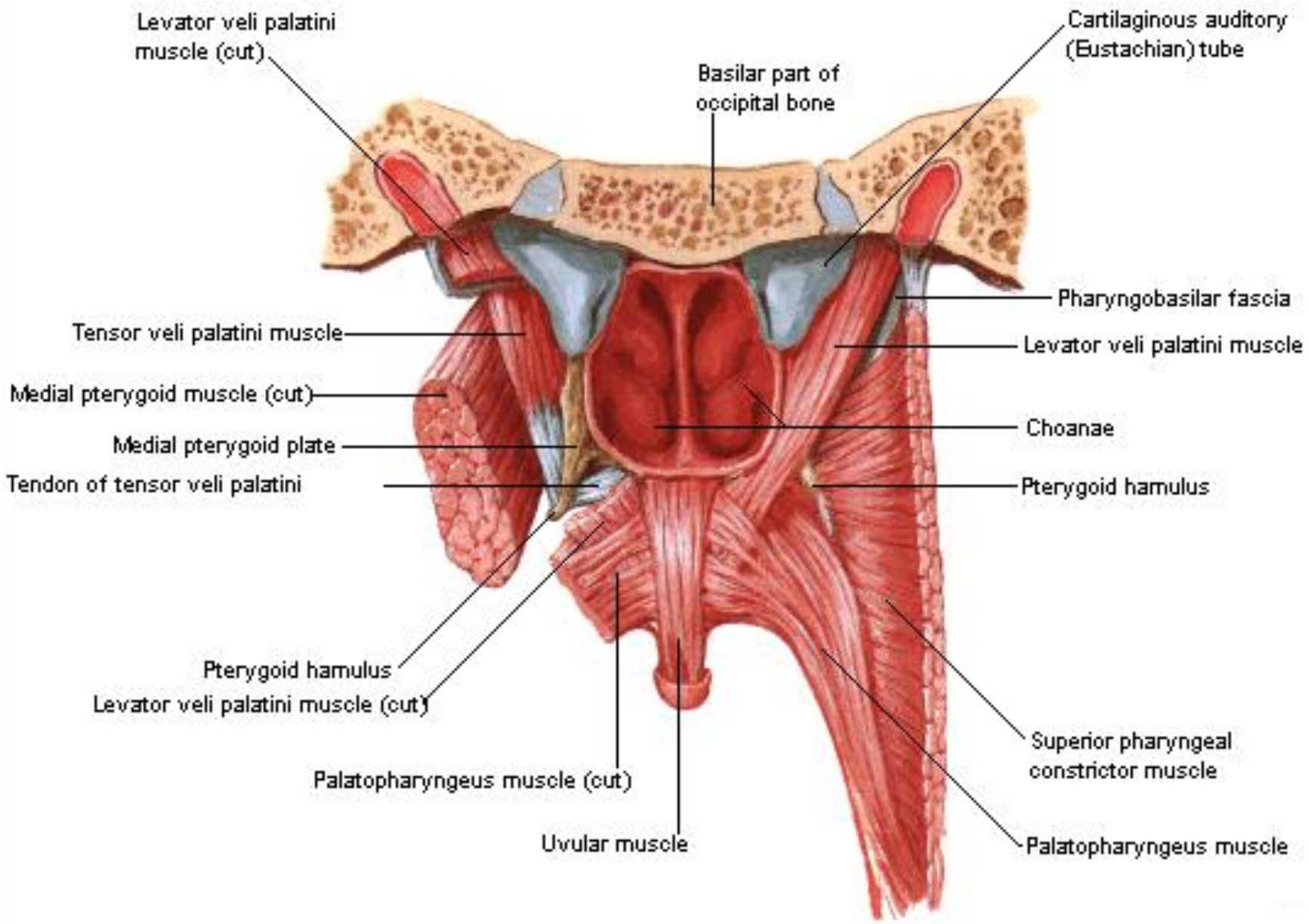
- The pancreas is both exocrine and endocrine gland. As gland which takes part in the digestion. It produces pancreatic juice.
- The endocrine production is the secretion of the hormone insulin and the hormone glucogon for the carbohydrate metabolism.


Soft palate
Philtrum of lip
Palatoglossal arch
Palatopharyngeal arch
Palatine tonsil
Uvula
Posterior wall of pharynx

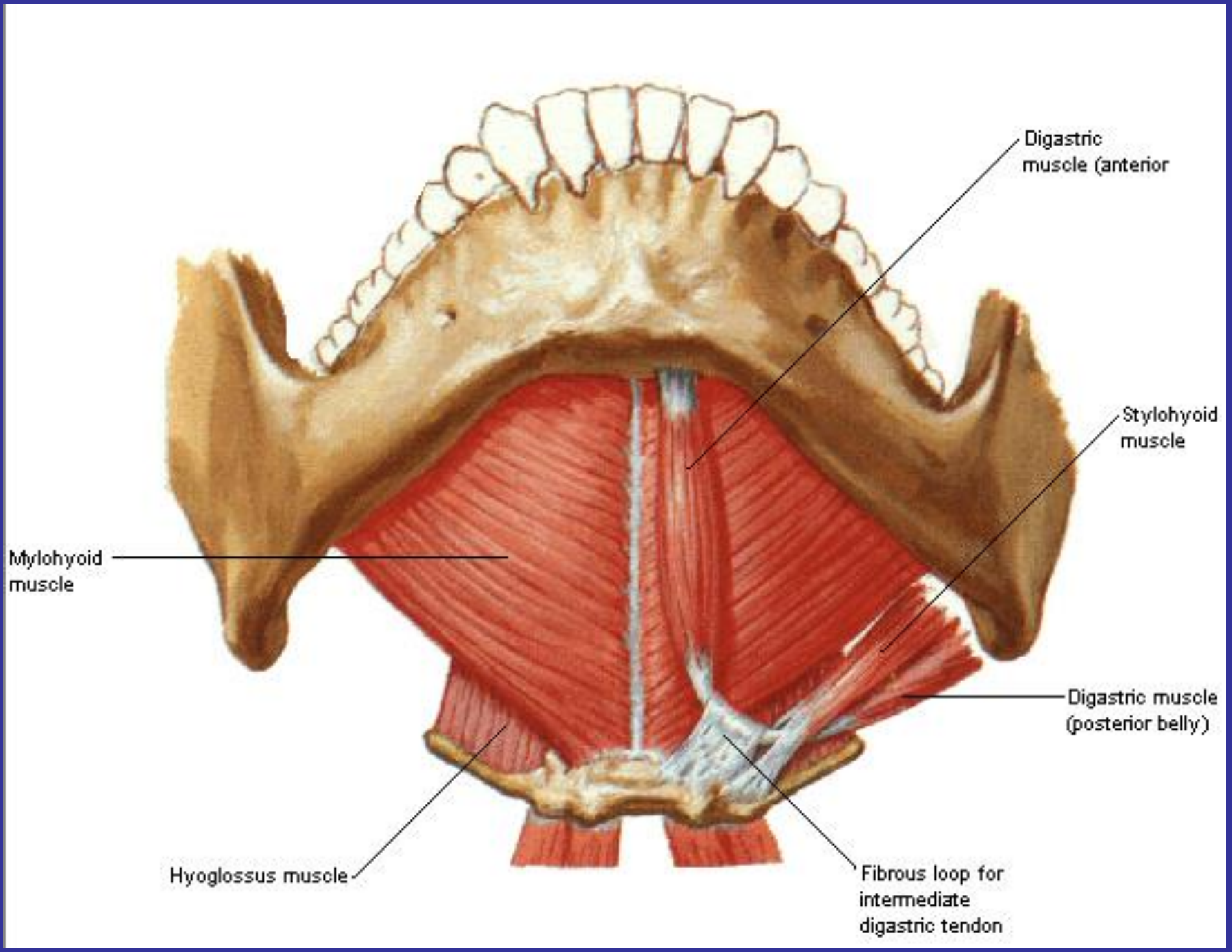
- The review of a structure of the digestive system.
- The oral region includes: the oral cavity
- the palate
- the gingivae (gums)
- the teeth
- the tongue
- the salivary glands.


Incisive papilla
Incisive fossa
Greater palatine artery and nerve
Greater palatine foramen
Transverse palatine folds (rugae)
Longitudinal palatine raphé (ruga)
Palatine process of maxilla
Lesser palatine foramen
Palatine glands
Lesser palatine artery and nerves
Horizontal plate of palatine bone
Tendon of tensor veli palatini muscle
Palatine aponeurosis (from tensor veli palatini muscle)
Pterygoid hamulus
Buccinator muscle
Interdigitating fibers of levator veli palatini muscle
Pterygomandibular raphé
Uvular muscle
Superior pharyngeal constrictor muscle
Retromolar glands
Palatoglossus muscle
Palatopharyngeus muscle
Palatine tonsil

- **<u>THE ORAL CAVITY (cavum oris)</u>**
- The oral cavity (mouth) consists of two parts:
- **The vestibule**
- **The mouth proper**
- The vestibule bounded by: externally – lips and cheeks, Internally – teeth and gums.


Levator veli palatini muscle (cut)
Basilar part of occipital bone
Cartilaginous auditory (Eustachian) tube
Pharyngobasilar fascia
Tensor veli palatini muscle
Levator veli palatini muscle
Medial pterygoid muscle (cut)
Choanae
Medial pterygoid plate
Tendon of tensor veli palatini
Pterygoid hamulus
Pterygoid hamulus
Levator veli palatini muscle (cut)
Superior pharyngeal constrictor muscle
Palatopharyngeus muscle (cut)
Uvular muscle
Palatopharyngeus muscle

- **The mouth proper (cavum oris proprium).**
- It is bounded:
- Superiorly – by **the palate;**
- Inferiorly – by **the diaphragm of the oris.**
- Laterally and anteriorly – by **the teeth and gingivae.**
- Posteriorly **–** it communicates with **the oropharinx.**


Digastric muscle (anterior
Stylohyoid muscle
Mylohyoid muscle
Digastric muscle (posterior belly)
Hyoglossus muscle
Fibrous loop for intermediate digastric tendon

2.THE TEETH.

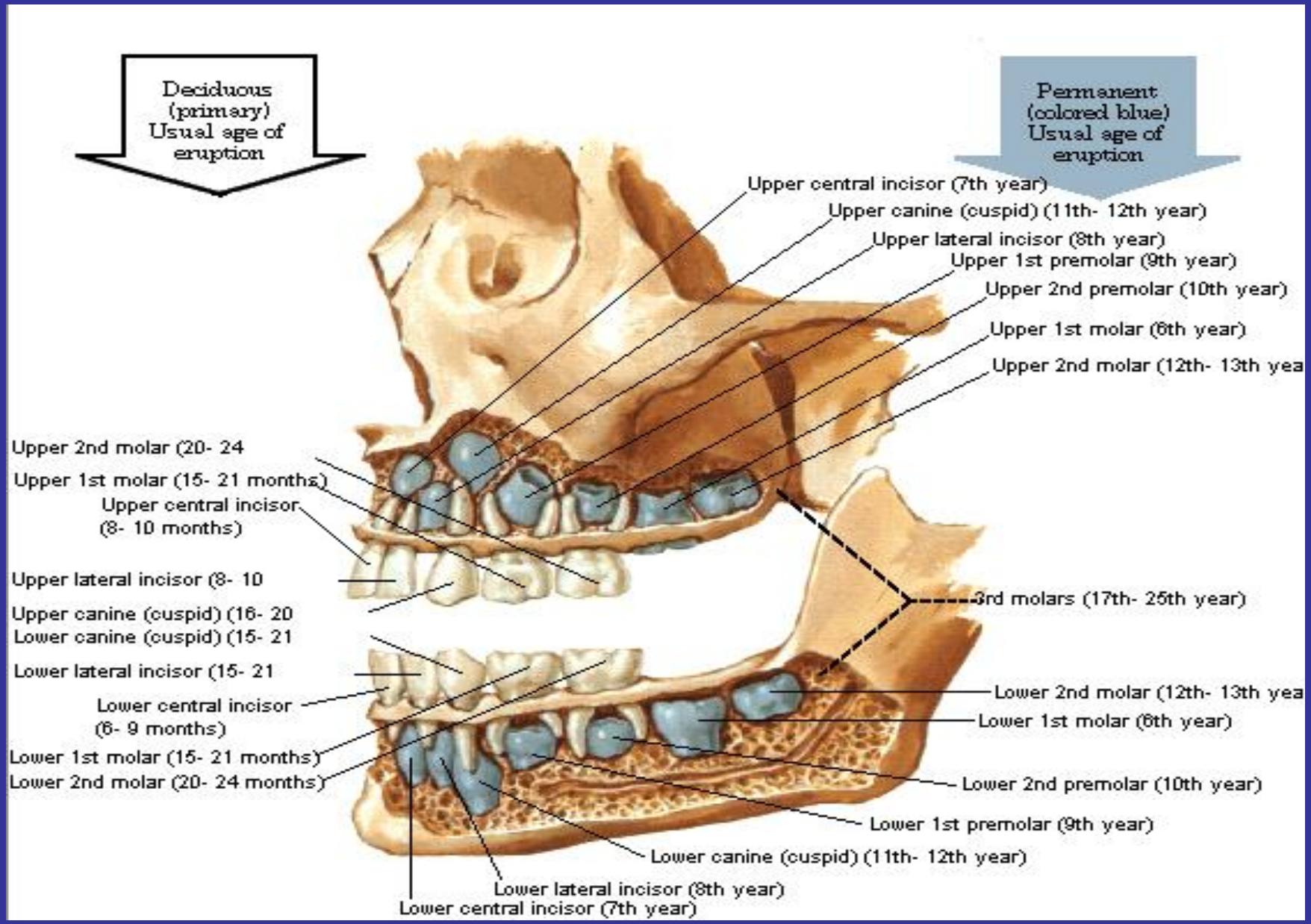
Teeth are vital anatomical formation situated in the dental alveoli of the jaws. They are grouped according to their structural characteristics, location and function. Teeth are divided into **incisors (dentes incisivi), canines (dentes canini), premolars (dentes premolares), and molars (dentes molares).** Incisors are used mainly for seizing and biting food; canines are used for tearing; molars and premolars are for grinding food.

Twenty **deciduous teeth –** (primary or “milk” teeth) began to develop in the jaws before birth. The first tooth usually erupts (or “cutting teeth”) at 6 to 8 months after birth and the last by 20 to 24 months of age. Compared to permanent teeth, milk teeth have wider and shorter roots. The half of each jaw has 2 milk incisors, 1 canine and 2 molars (common number 20 teeth). These The half of each jaw has 2 incisors, 1 canine, 2 premolars and 3 molars (common number 32).

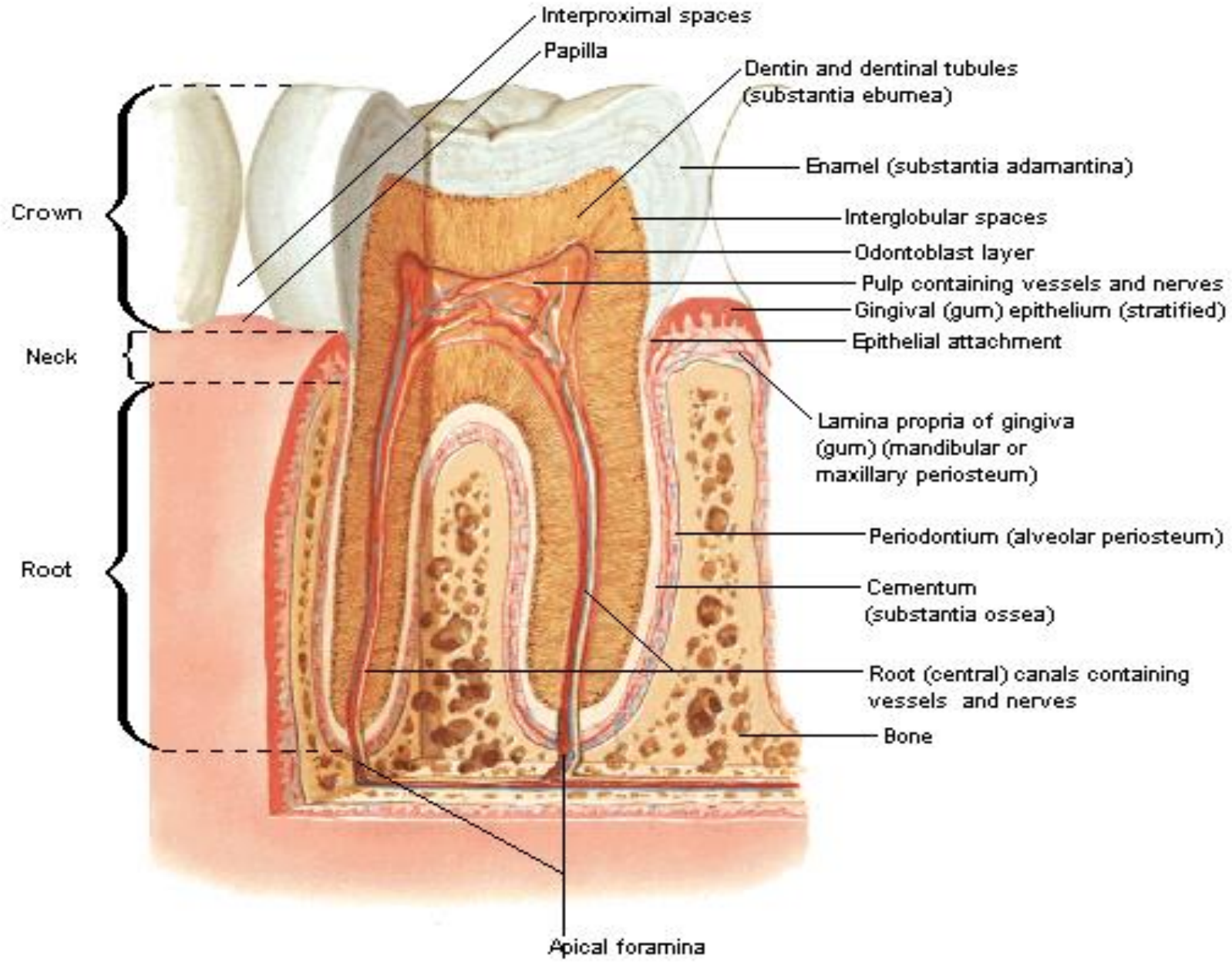
Parts and Types of Teeth.

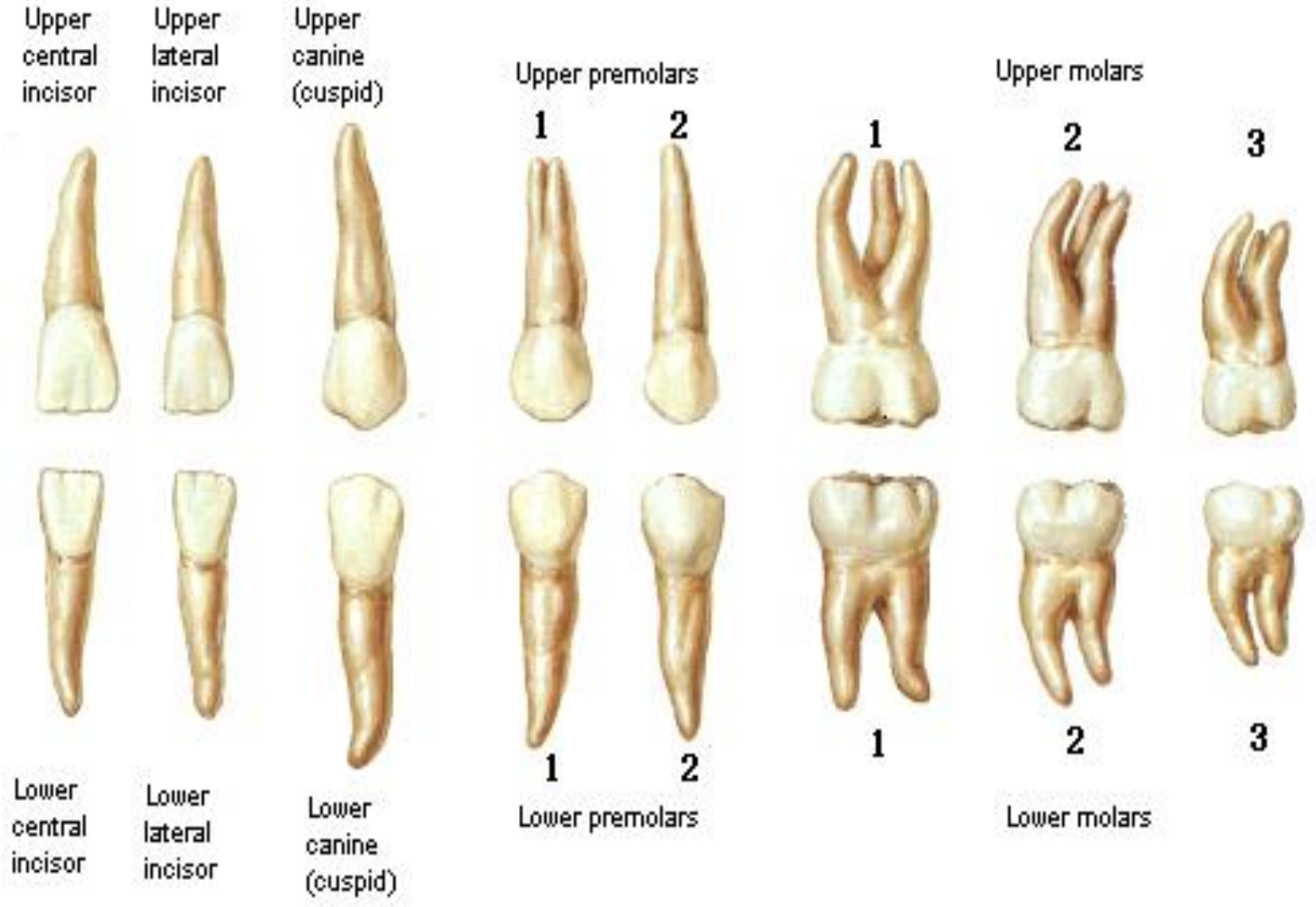
- A crown.
- A neck.
- A root.

Зубы


Deciduous (primary) Usual age of eruption
Permanent (colored blue) Usual age of eruption
Upper central incisor (7th year)
Upper canine (cuspid) (11th- 12th year)
Upper lateral incisor (8th year)
Upper 1st premolar (9th year)
Upper 2nd premolar (10th year)
Upper 1st molar (6th year)
Upper 2nd molar (12th- 13th yea
Upper 2nd molar (20- 24
Upper 1st molar (15- 21 months)
Upper central incisor (8- 10 months)
Upper lateral incisor (8- 10
Upper canine (cuspid) (16- 20
Lower canine (cuspid) (15- 21
Lower lateral incisor (15- 21
Lower central incisor (6- 9 months)
Lower 1st molar (15- 21 months)
Lower 2nd molar (20- 24 months)
3rd molars (17th- 25th year)
Lower 2nd molar (12th- 13th yea
Lower 1st molar (6th year)
Lower 2nd premolar (10th year)
Lower 1st premolar (9th year)
Lower canine (cuspid) (11th- 12th year)
Lower lateral incisor (8th year)
Lower central incisor (7th year)

- **2. THE NECK.**
- The neck is the part of the tooth between the crown and the root.
- **3.THE ROOT.**
- The root is fixed in the alveolus (tooth socket) by a fibrous periodontal ligaments. The number of roots varies – the incisors and canines have a single root each, the maxillary molars have three roots; the mandibular molars two.

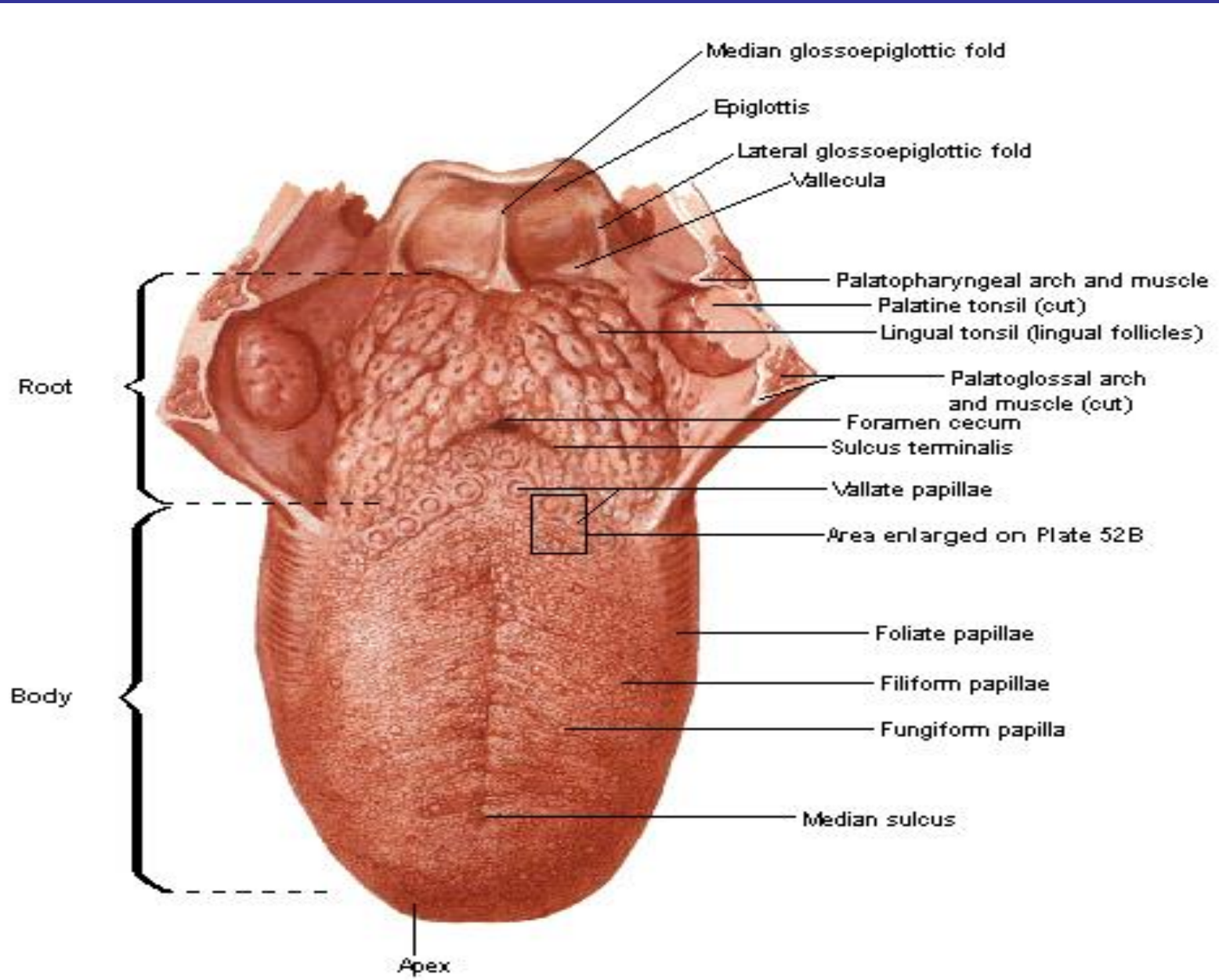

Interproximal spaces
Papilla
Dentin and dentinal tubules (substantia ebumea)
Enamel (substantia adamantina)
Crown
Interglobular spaces
Odontoblast layer
Pulp containing vessels and nerves
Gingival (gum) epithelium (stratified)
Neck
Epithelial attachment
Lamina propria of gingiva (gum) (mandibular or maxillary periosteum)
Periodontium (alveolar periosteum)
Root
Cementum (substantia ossea)
Root (central) canals containing vessels and nerves
Bone
Apical foramina

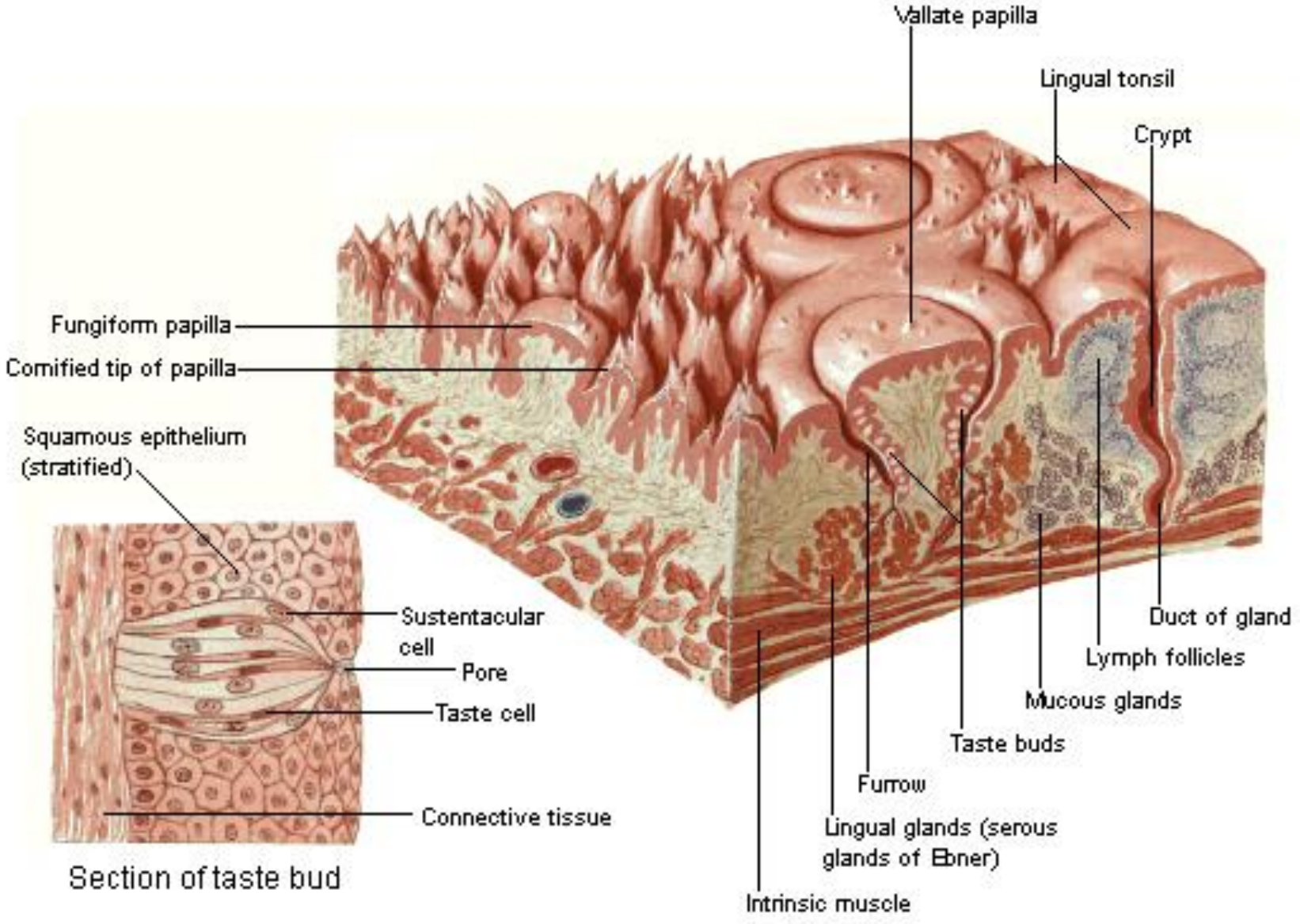

Upper central incisor
Upper lateral incisor
Upper canine (cuspid)
Upper premolars
1
2
Upper molars
1
2
3
Lower central incisor
Lower lateral incisor
Lower canine (cuspid)
1
2
Lower premolars
1
2
3
Lower molars

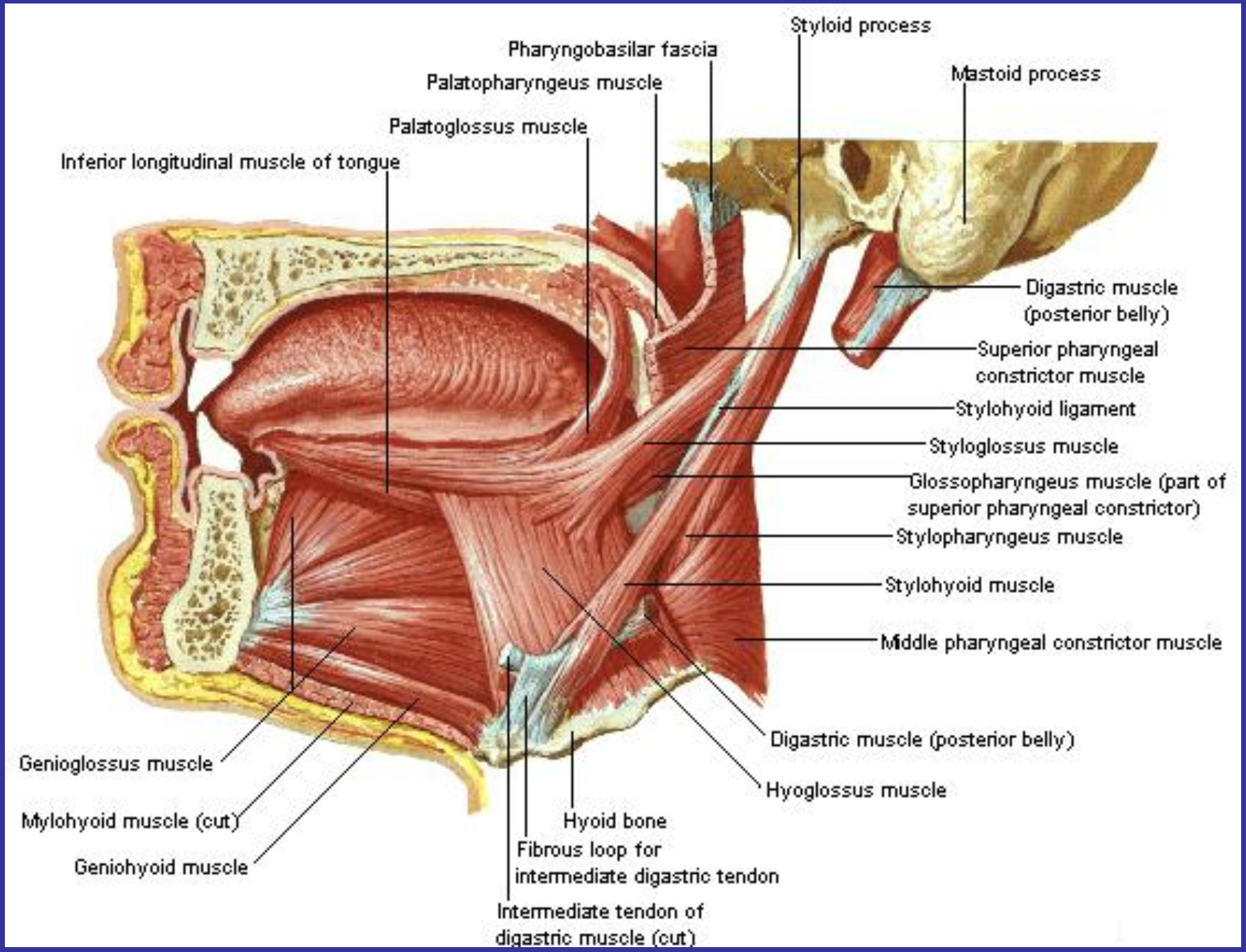
THE TONGUE (latin – lingua, greek - glossa).

- . The tongue is situated partly in the mouth and partly in the oropharynx. It consists of three parts:
  - **a tip,**
  - **a body,**
  - **a root.**
- The mucous membrane on the oral back part of the tongue is rough, owing to the presence of numerous papillae. They are:
- **The filiform papillae** – numerous, rough, and threadlike. They are arranged in rows parallel to the sulcus terminalis and contain afferent nerve endings that are sensitive to touch, temperature, pain.
- **The fungiform papillae –** small and mushroom-shaped. They usually appear as pink or red spots. Contain teste receptors located in the taste buds – sweet, solt.
- **The vallate (curcumvallate) papillae –** are the largest papillae (1 to 2 mm in diameter). They lie just anterior to the sulcus terminalis and appear similar to short, flat-topped cylinders sunken into the mucosa. A deep, circular trench (trough), the walls of which are studded with taste buds, surrounds the vallate papillae. Contain taste receptors of the bitter taste.
- **The foliate papillae –** are small lateral folds of the lingual mucosa: they are poorly developed in humans. Contain taste receptors located in the taste buds – sour taste.
- **The conic papillae (conicae).**
- **The lentiforme papillae.**

Язык


Median glossoepiglottic fold
Epiglottis
Lateral glossoepiglottic fold
Vallecula
Palatopharyngeal arch and muscle
Palatine tonsil (cut)
Lingual tonsil (lingual follicles)
Palatoglossal arch and muscle (cut)
Foramen cecum
Sulcus terminalis
Vallate papillae
Area enlarged on Plate 52B
Foliate papillae
Filiform papillae
Fungiform papilla
Median sulcus
Root
Body
Apex

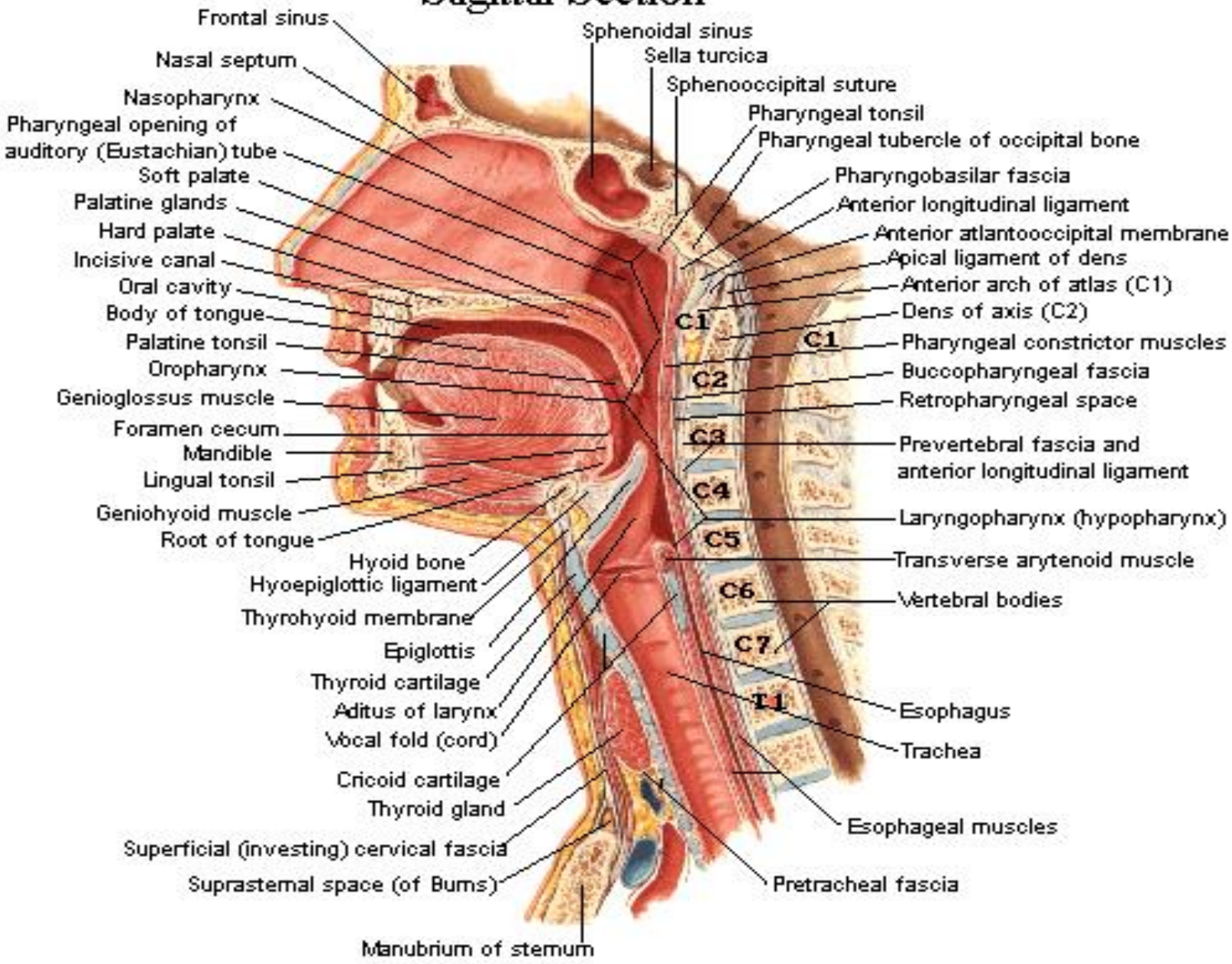

Vallate papilla
Lingual tonsil
Crypt
Fungiform papilla
Cornified tip of papilla
Squamous epithelium (stratified)
Sustentacular cell
Pore
Taste cell
Connective tissue
Section of taste bud
Duct of gland
Lymph follicles
Mucous glands
Taste buds
Furrow
Lingual glands (serous glands of Ebner)
Intrinsic muscle


Styloid process
Pharyngobasilar fascia
Palatopharyngeus muscle
Mastoid process
Palatoglossus muscle
Inferior longitudinal muscle of tongue
Digastric muscle (posterior belly)
Superior pharyngeal constrictor muscle
Stylohyoid ligament
Styloglossus muscle
Glossopharyngeus muscle (part of superior pharyngeal constrictor)
Stylopharyngeus muscle
Stylohyoid muscle
Middle pharyngeal constrictor muscle
Digastric muscle (posterior belly)
Hyoglossus muscle
Genioglossus muscle
Mylohyoid muscle (cut)
Geniohyoid muscle
Hyoid bone
Fibrous loop for intermediate digastric tendon
Intermediate tendon of digastric muscle (cut)

- **MUSCLES OF THE TONGUE**
- The tongue is divided into halves by a median fibrous **lingual septum** that lies deep to the median groove. In each half of the tongue, there are **four extrinsic and four intrinsic muscles.**
- **EXTRINSIC MUSCLES , OR SKELETAL MUSCLES OF THE TONGUE**
- The group contents of four muscles:
- **The Genioglossus Muscle,**
- **The Hyoglossus Muscle.**
- **The Styloglossus Muscle,**
- **The Palatoglossus Muscle.**
- **INTRINSIC, OR OWN MUSCLES**
- **The superior longitudinal m.**
- **The inferior longitudinal m.**
- **The transverse m.**
- **The vertical m.**
- They originate outside the tongue and attaches to it. These muscles mainly move the tongue, but they can alter its shape as well.

- **5. THE PALATE.**
- The palate consists of two regions:
- the anterior two-thirds or bony part – **the hard palate;**
- the mobile posterior one-third or fibromuscular part – **the soft palate.**
-
- Within the structure of the soft palate there are several paired striated muscles:
- The **tensor veli palatini muscle.**
- The **levator veli palatine muscle.**
- The **uvulaae muscle.**
- The **palatoglossus muscle.**
- The **palatopharyngeus muscle.**

Sagittal Section



- **The parotid gland (glandula parotidea)**
- The excretory duct of the parotid gland (**parotid,** or Stensen´s **duct)** comes out for beneath its anterior edge, passes to the front 1-2 cm below the zygomatic arch, along the outer surface of the masseter muscle. It rounds the anterior edge of this muscle, perforates the buccinators muscle and opens into the vestibule of mouth at the level of the second upper molar.
- **The submandibular gland (glandula submandibularis).**
- The **submandibular (**Wharton´s) duct opens on the sublingual papilla, next to the lingual frenulum.
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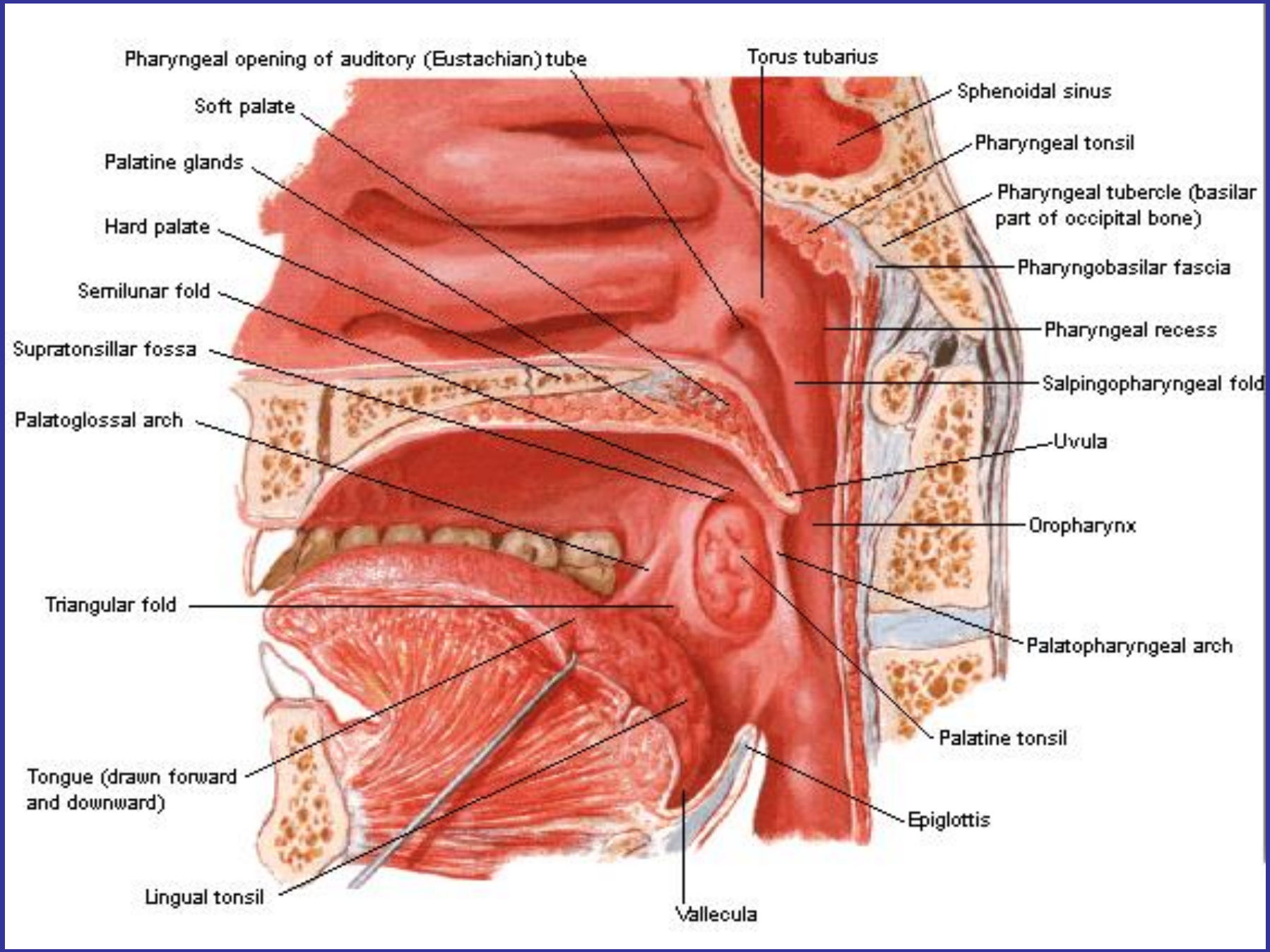
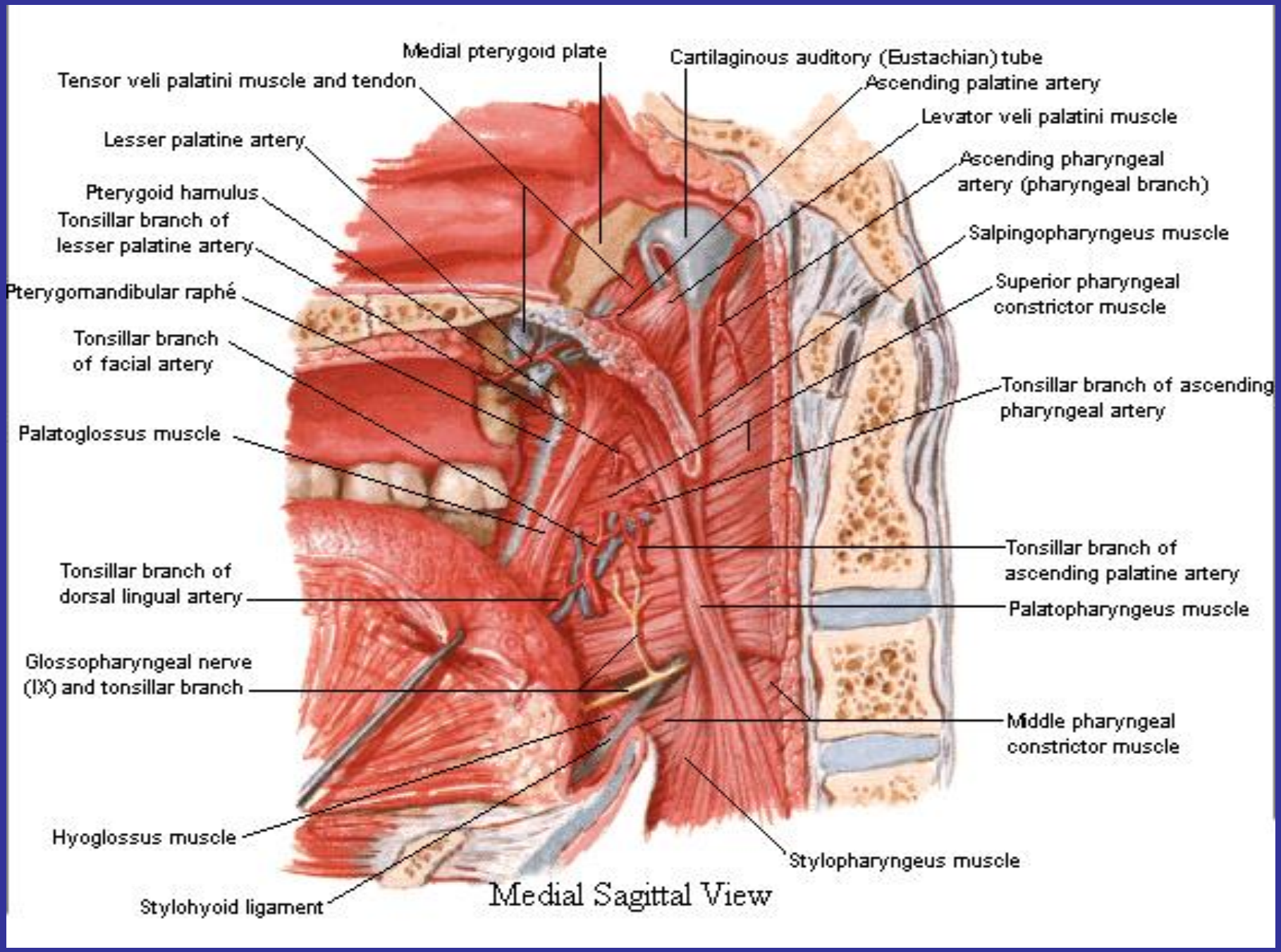
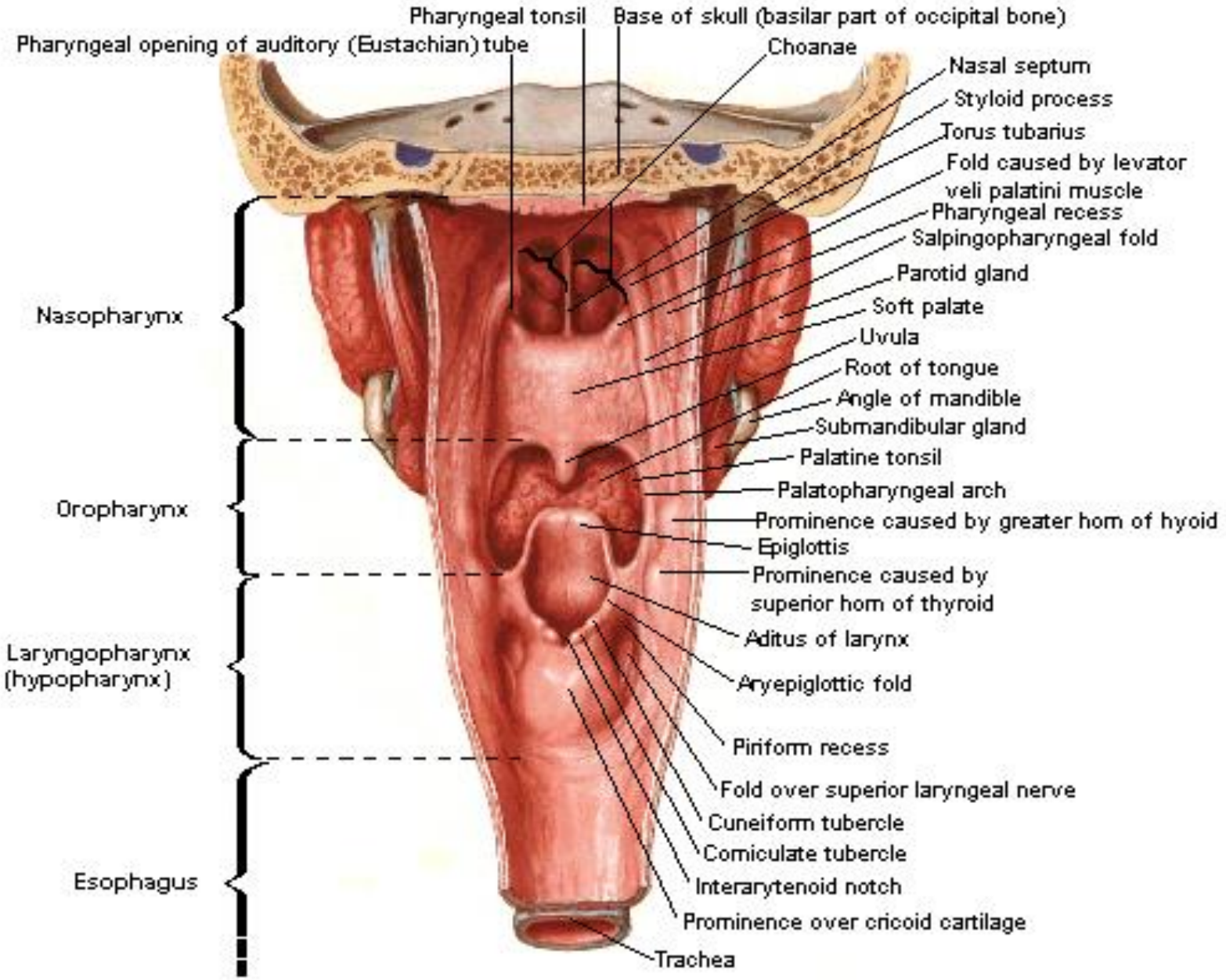
- **The sublingual gland (glandula sublingualis)**
- The **major sublingual duct** (main excretory duct) opens on the sublingual papilla.

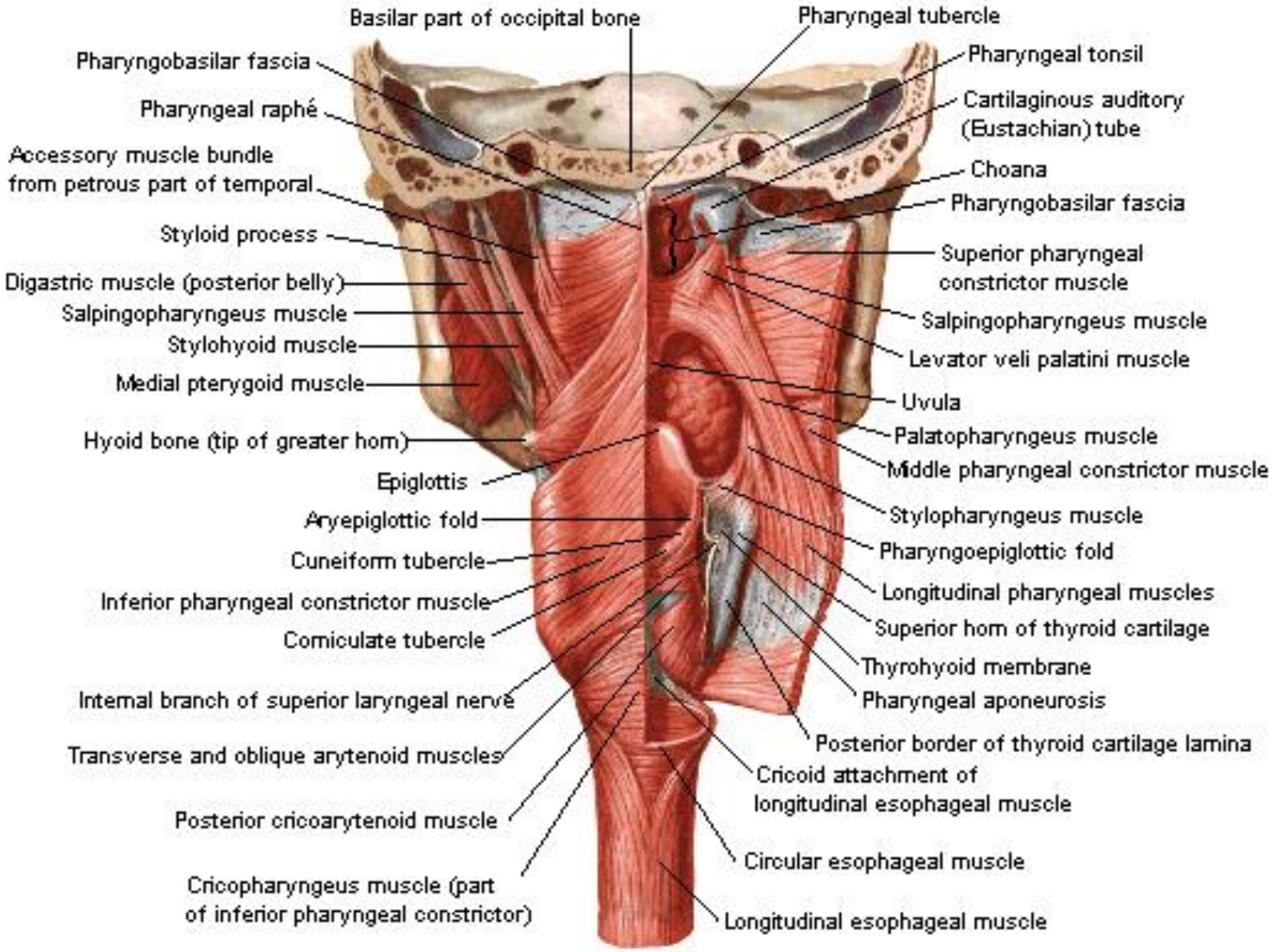

Pharyngeal opening of auditory (Eustachian) tube
Torus tubarius
Soft palate
Sphenoidal sinus
Palatine glands
Pharyngeal tonsil
Hard palate
Pharyngeal tubercle (basilar part of occipital bone)
Semilunar fold
Pharyngobasilar fascia
Supratonsillar fossa
Pharyngeal recess
Palatoglossal arch
Salpingopharyngeal fold
Uvula
Oropharynx
Triangular fold
Palatopharyngeal arch
Palatine tonsil
Tongue (drawn forward and downward)
Epiglottis
Lingual tonsil
Vallecula


Medial pterygoid plate
Cartilaginous auditory (Eustachian) tube
Tensor veli palatini muscle and tendon
Ascending palatine artery
Levator veli palatini muscle
Lesser palatine artery
Ascending pharyngeal artery (pharyngeal branch)
Pterygoid hamulus
Tonsillar branch of lesser palatine artery
Salpingopharyngeus muscle
Pterygomandibular raphé
Superior pharyngeal constrictor muscle
Tonsillar branch of facial artery
Tonsillar branch of ascending pharyngeal artery
Palatoglossus muscle
Tonsillar branch of ascending palatine artery
Tonsillar branch of dorsal lingual artery
Palatopharyngeus muscle
Glossopharyngeal nerve (IX) and tonsillar branch
Middle pharyngeal constrictor muscle
Hyoglossus muscle
Stylopharyngeus muscle
Stylohyoid ligament
Medial Sagittal View

THE PHARYNX

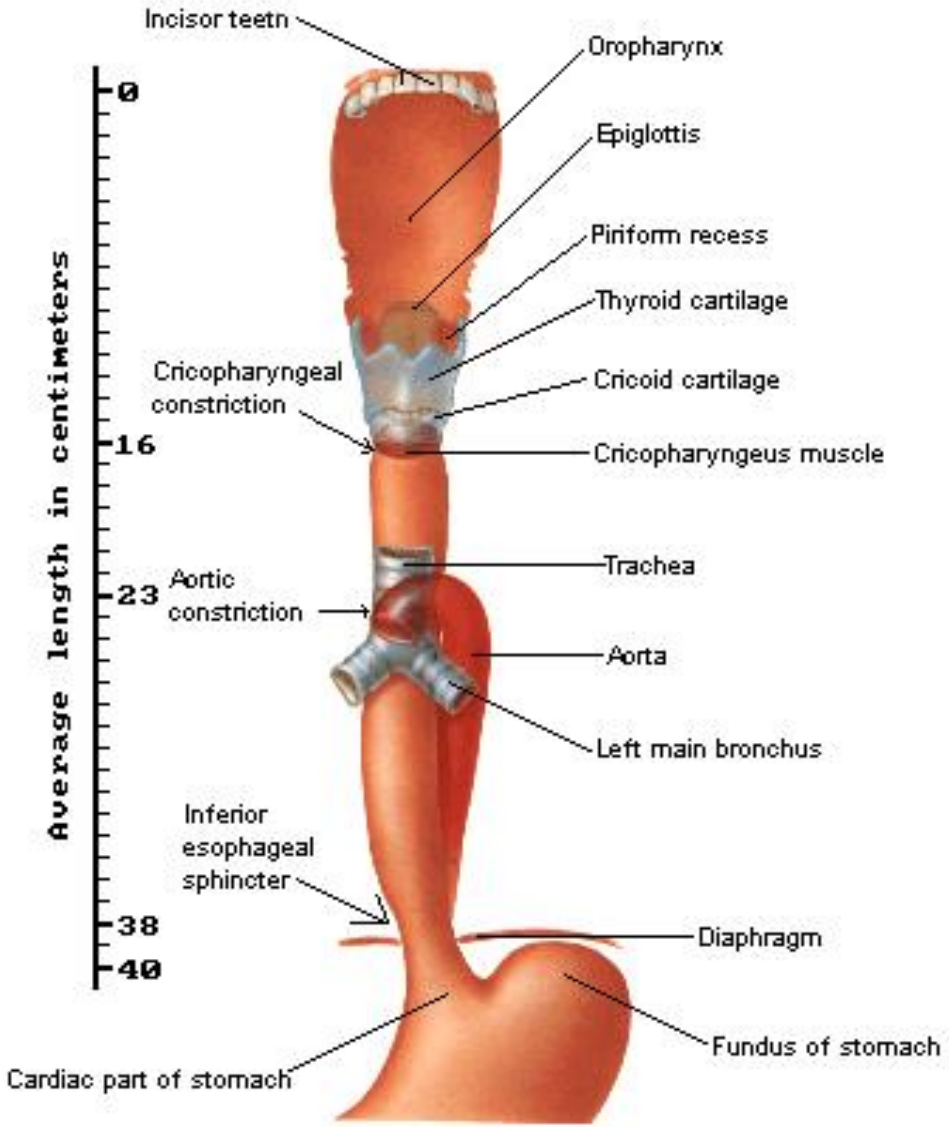
- **The pharynx** is an unpaired organ, which situated in the region of the head and neck. It is part of both the digestive and the respiratory system. It is shaped like an infundibular tube, which is fixed on the base of the skull. Its located at the level of C4 vertebra.
- The pharynx is divided into the **nasopharynx,** the **oropharynx, laryngopharynx.**
- The wall of the pharynx consists of the mucosa, submucosa, the musculare and adventitia.

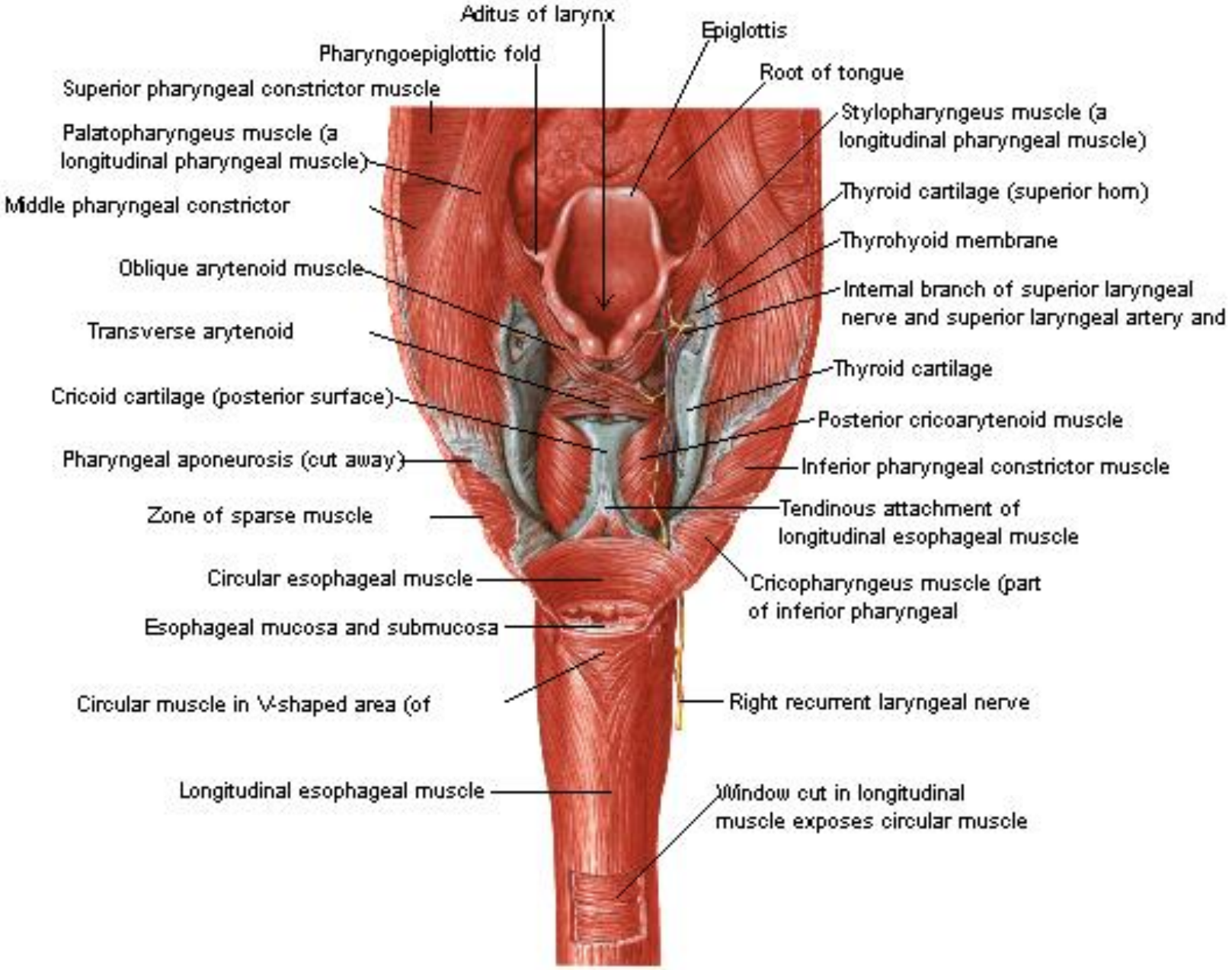

Pharyngeal tonsil
Base of skull (basilar part of occipital bone)
Pharyngeal opening of auditory (Eustachian) tube
Choanae
Nasal septum
Styloid process
Torus tubarius
Fold caused by levator veli palatini muscle
Pharyngeal recess
Salpingopharyngeal fold
Parotid gland
Soft palate
Uvula
Root of tongue
Angle of mandible
Submandibular gland
Palatine tonsil
Palatopharyngeal arch
Prominence caused by greater horn of hyoid
Epiglottis
Prominence caused by superior horn of thyroid
Aditus of larynx
Aryepiglottic fold
Piriform recess
Fold over superior laryngeal nerve
Cuneiform tubercle
Corniculate tubercle
Interarytenoid notch
Prominence over cricoid cartilage
Trachea
Nasopharynx
Oropharynx
Laryngopharynx (hypopharynx)
Esophagus


Basilar part of occipital bone
Pharyngeal tubercle
Pharyngobasilar fascia
Pharyngeal tonsil
Pharyngeal raphé
Cartilaginous auditory (Eustachian) tube
Accessory muscle bundle from petrous part of temporal
Choana
Pharyngobasilar fascia
Styloid process
Superior pharyngeal constrictor muscle
Digastric muscle (posterior belly)
Salpingopharyngeus muscle
Salpingopharyngeus muscle
Stylohyoid muscle
Levator veli palatini muscle
Medial pterygoid muscle
Uvula
Hyoid bone (tip of greater horn)
Palatopharyngeus muscle
Middle pharyngeal constrictor muscle
Epiglottis
Stylopharyngeus muscle
Aryepiglottic fold
Pharyngoepiglottic fold
Cuneiform tubercle
Longitudinal pharyngeal muscles
Inferior pharyngeal constrictor muscle
Superior horn of thyroid cartilage
Corniculate tubercle
Thyrohyoid membrane
Internal branch of superior laryngeal nerve
Pharyngeal aponeurosis
Posterior border of thyroid cartilage lamina
Transverse and oblique arytenoid muscles
Cricoid attachment of longitudinal esophageal muscle
Posterior cricoarytenoid muscle
Circular esophageal muscle
Cricopharyngeus muscle (part of inferior pharyngeal constrictor)
Longitudinal esophageal muscle

THE OESOPHAGUS

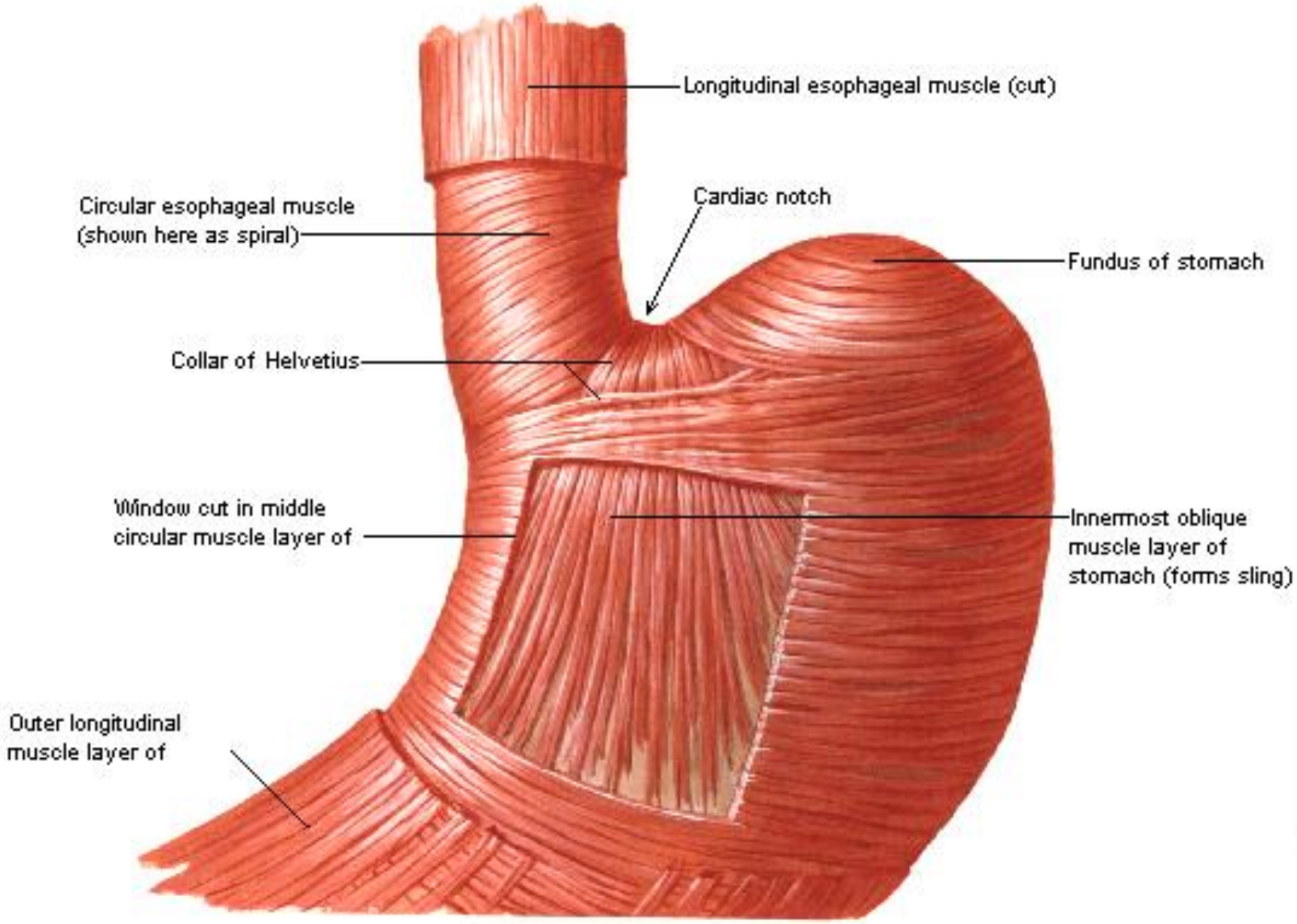
- **The oesophagus (esophagus)** is a hollow tubular organ connecting the pharynx and the stomach, which serves to conduct food masses. The esophagus begins at the level of C5-C7 vertebrae and enters the stomach at the level of T9-T12 vertebrae. It has the cervical, the thoracic and the abdominal part. The wall of the oesophagus is made up of four layers: the mucosa, submucosa, muscular layer and adventitia.


Incisor teeth
Oropharynx
Epiglottis
Piriform recess
Thyroid cartilage
Cricoid cartilage
Cricopharyngeus muscle
Trachea
Aorta
Left main bronchus
Diaphragm
Fundus of stomach
Cardiac part of stomach
Inferior esophageal sphincter
Aortic constriction
Cricopharyngeal constriction
Average length in centimeters
0
16
23
38
40

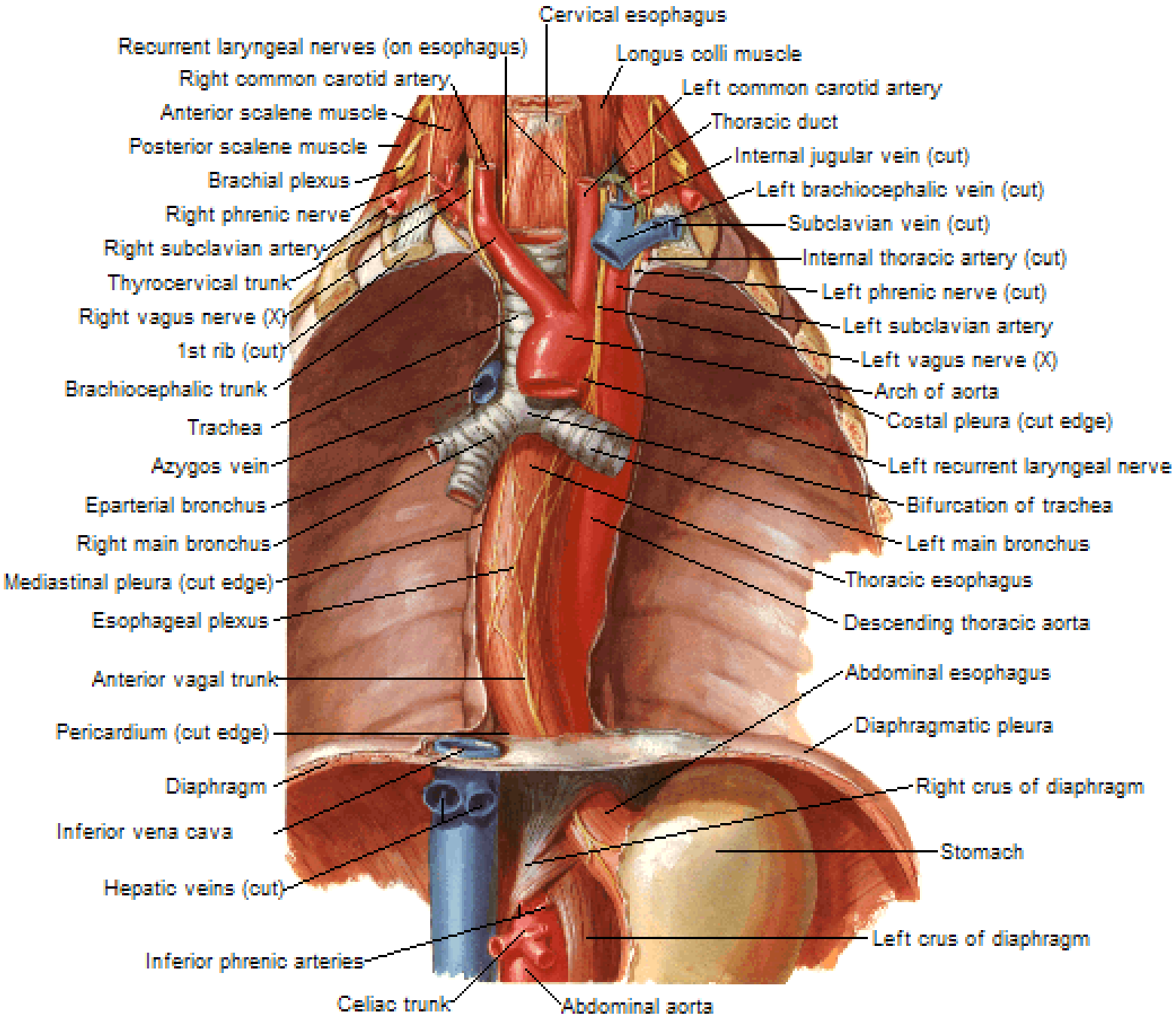

Aditus of larynx
Epiglottis
Pharyngoepiglottic fold
Root of tongue
Superior pharyngeal constrictor muscle
Stylopharyngeus muscle (a longitudinal pharyngeal muscle)
Palatopharyngeus muscle (a longitudinal pharyngeal muscle)
Thyroid cartilage (superior horn)
Middle pharyngeal constrictor
Thyrohyoid membrane
Oblique arytenoid muscle
Internal branch of superior laryngeal nerve and superior laryngeal artery and
Transverse arytenoid
Thyroid cartilage
Cricoid cartilage (posterior surface)
Posterior cricoarytenoid muscle
Pharyngeal aponeurosis (cut away)
Inferior pharyngeal constrictor muscle
Zone of sparse muscle
Tendinous attachment of longitudinal esophageal muscle
Circular esophageal muscle
Cricopharyngeus muscle (part of inferior pharyngeal
Esophageal mucosa and submucosa
Circular muscle in V-shaped area (of
Right recurrent laryngeal nerve
Longitudinal esophageal muscle
Window cut in longitudinal muscle exposes circular muscle

THE STOMACH

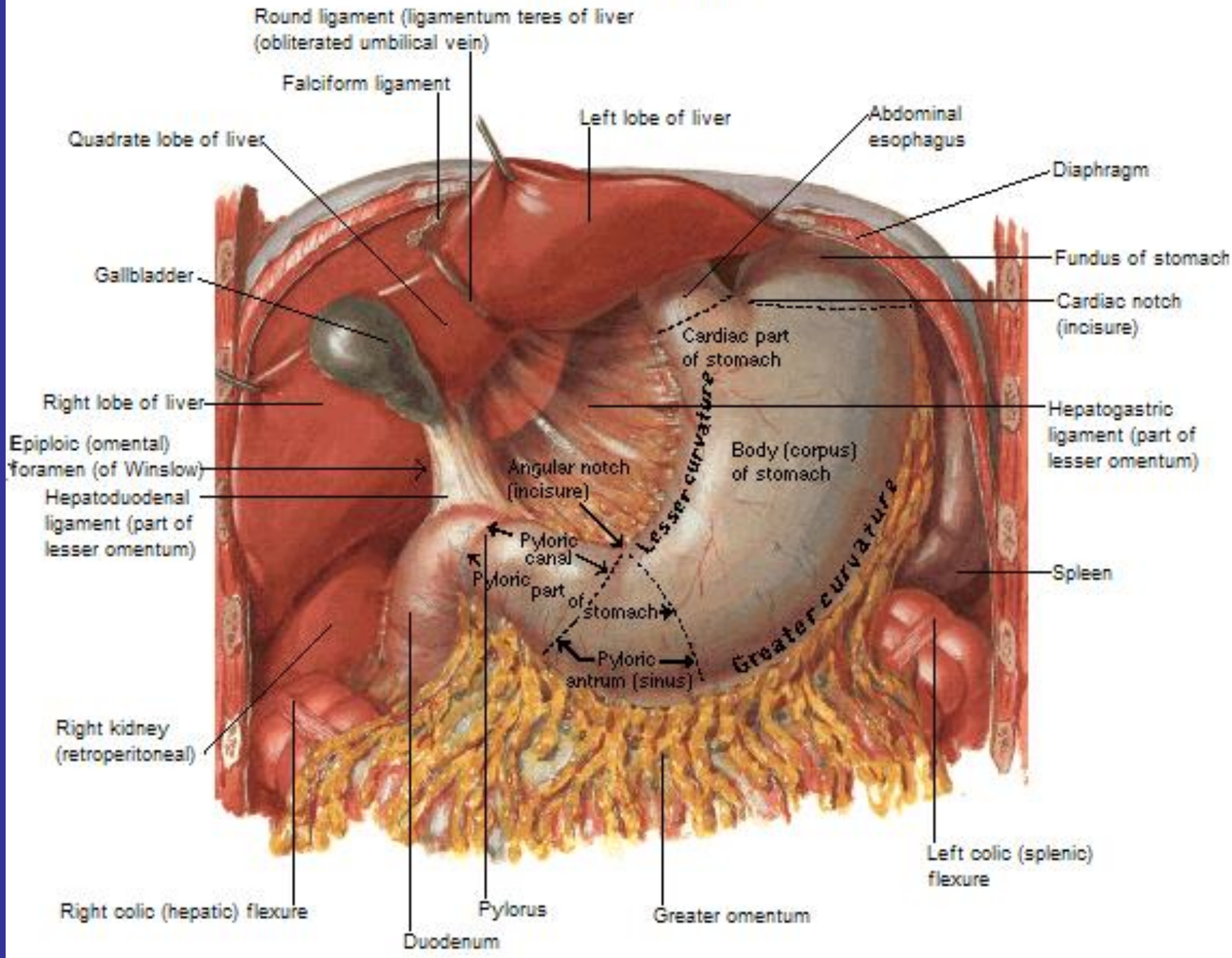
The stomach has an **anterior wall,** which face forward and upward, and a **posterior wall,** which faces backward and downward. It also has cardiac orifice, cardiac part, from left side –fundus, which on the bottom, body. The narrowing right part of the stomach, the pyloric part (pylorus), it subdivided into two parts. It has a wide part – the pyloric cavity, and a narrow part – the pyloric canal.


Longitudinal esophageal muscle (cut)
Circular esophageal muscle
(shown here as spiral)
Cardiac notch
Fundus of stomach
Collar of Helvetius
Window cut in middle
circular muscle layer of
Innermost oblique
muscle layer of
stomach (forms sling)
Outer longitudinal
muscle layer of

Esophagus in Situ



Stomach in Situ

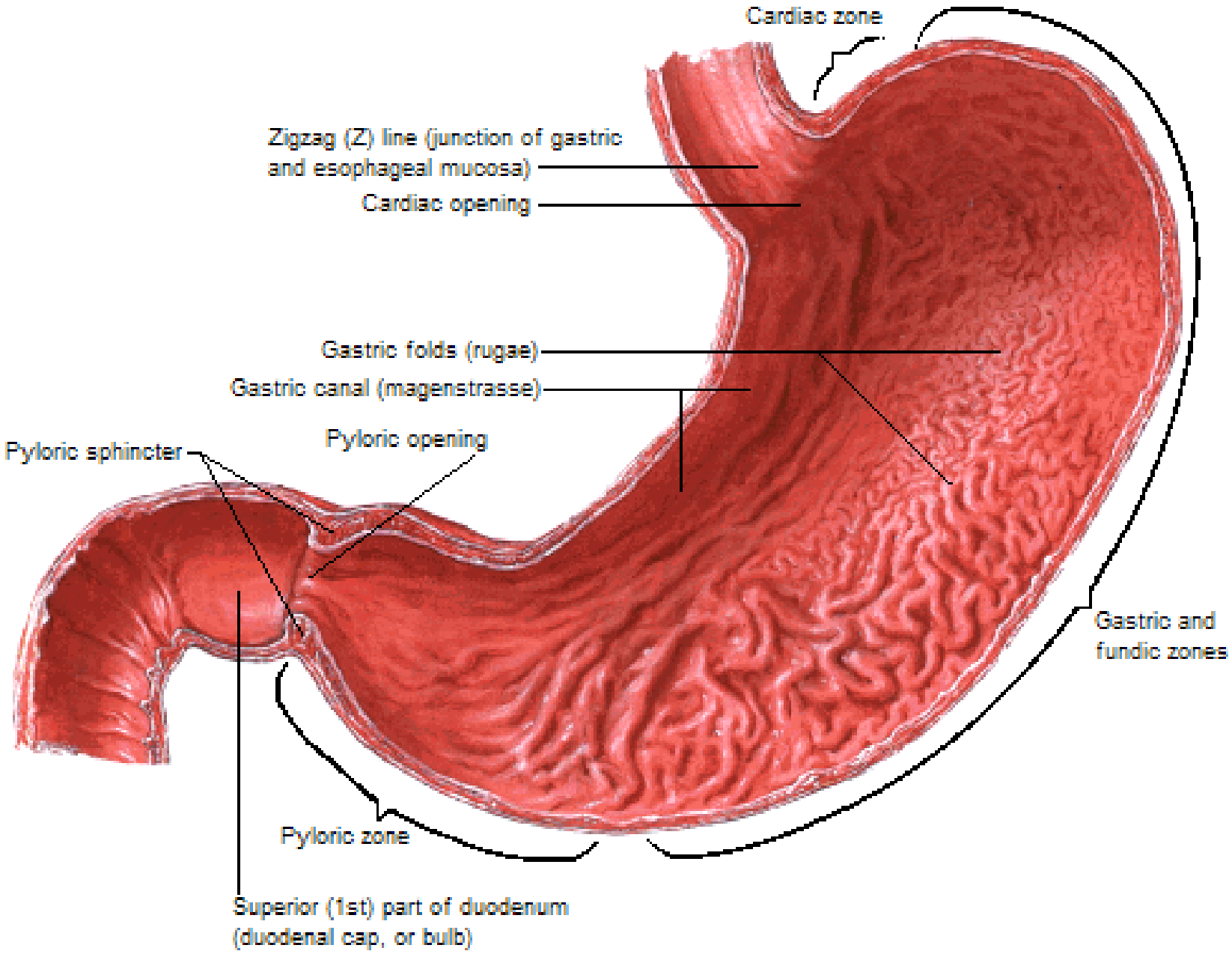


Stomach

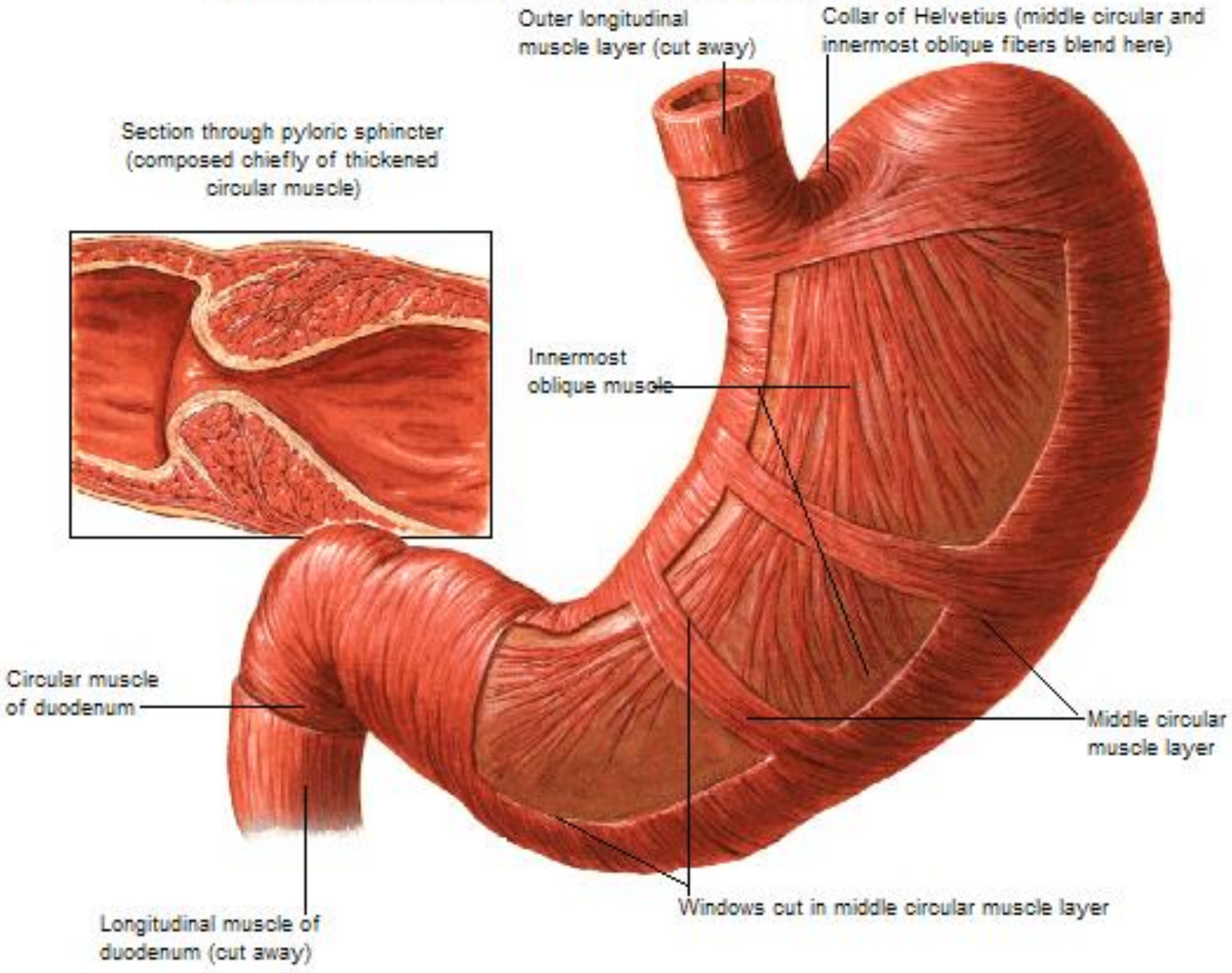
Variations in Position and Contour

Variations of stomach in relation to body habitus

Mucosa of Stomach



Musculature of Stomach [Continued]



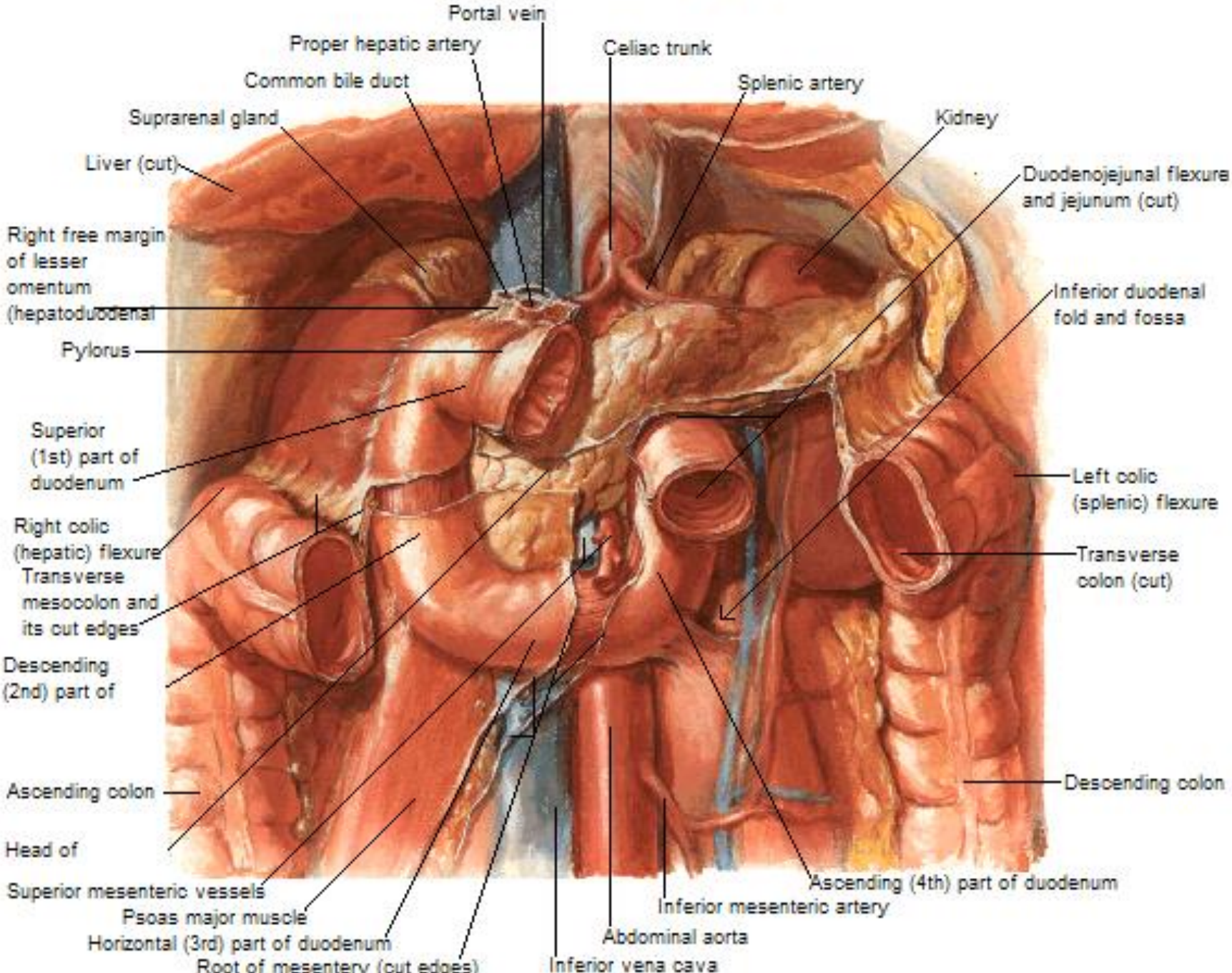
THE SMALL INTESTINE

The small intestine (intestinum tenue) is a part of the alimentary tract located between the stomach and the large intestine. Together with the large intestine it forms the longest part of the digestive system. The small intestine is divided into the **duodenum, jejunum and ileum.**

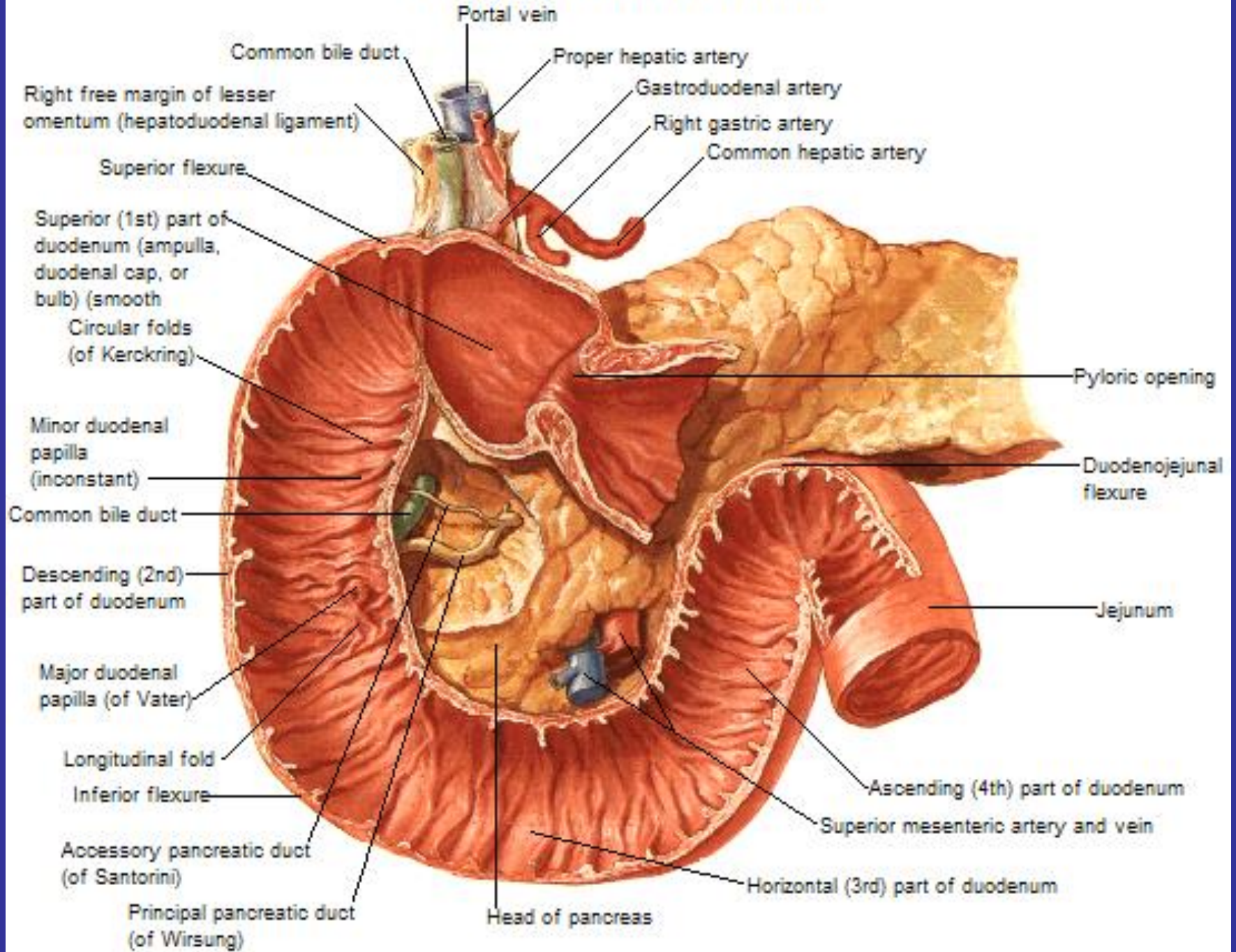
THE DUODENUM

The duodenum is the beginning part of the small intestine. It is situated on the posterior wall of the abdominal cavity. The duodenum is a continuation of the pylorus. It has the shape of a horseshoe, which rounds the head of the pancreas. The duodenum consists of the superior, descending, horizontal and ascending part.

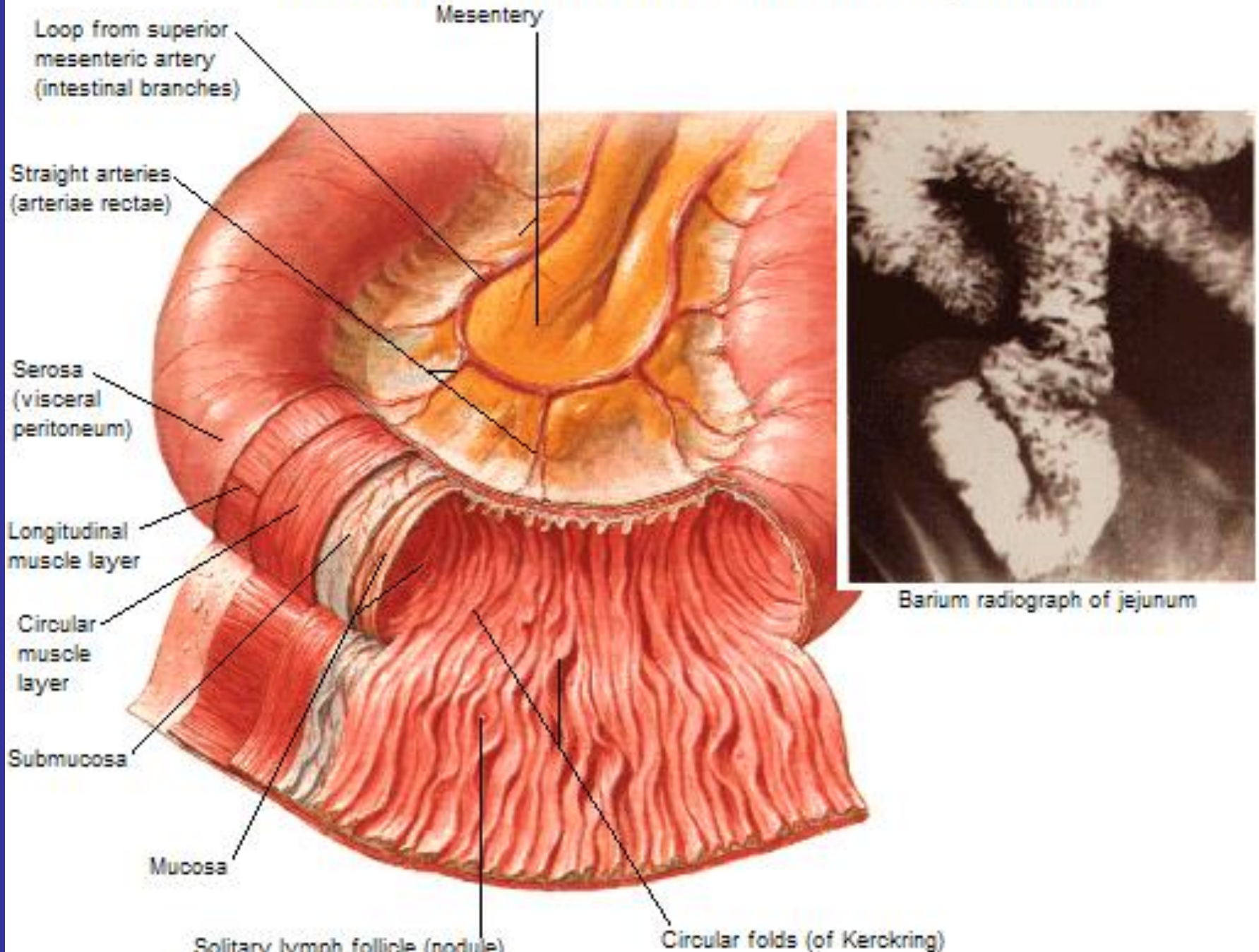
Duodenum in Situ



Mucosa of Duodenum

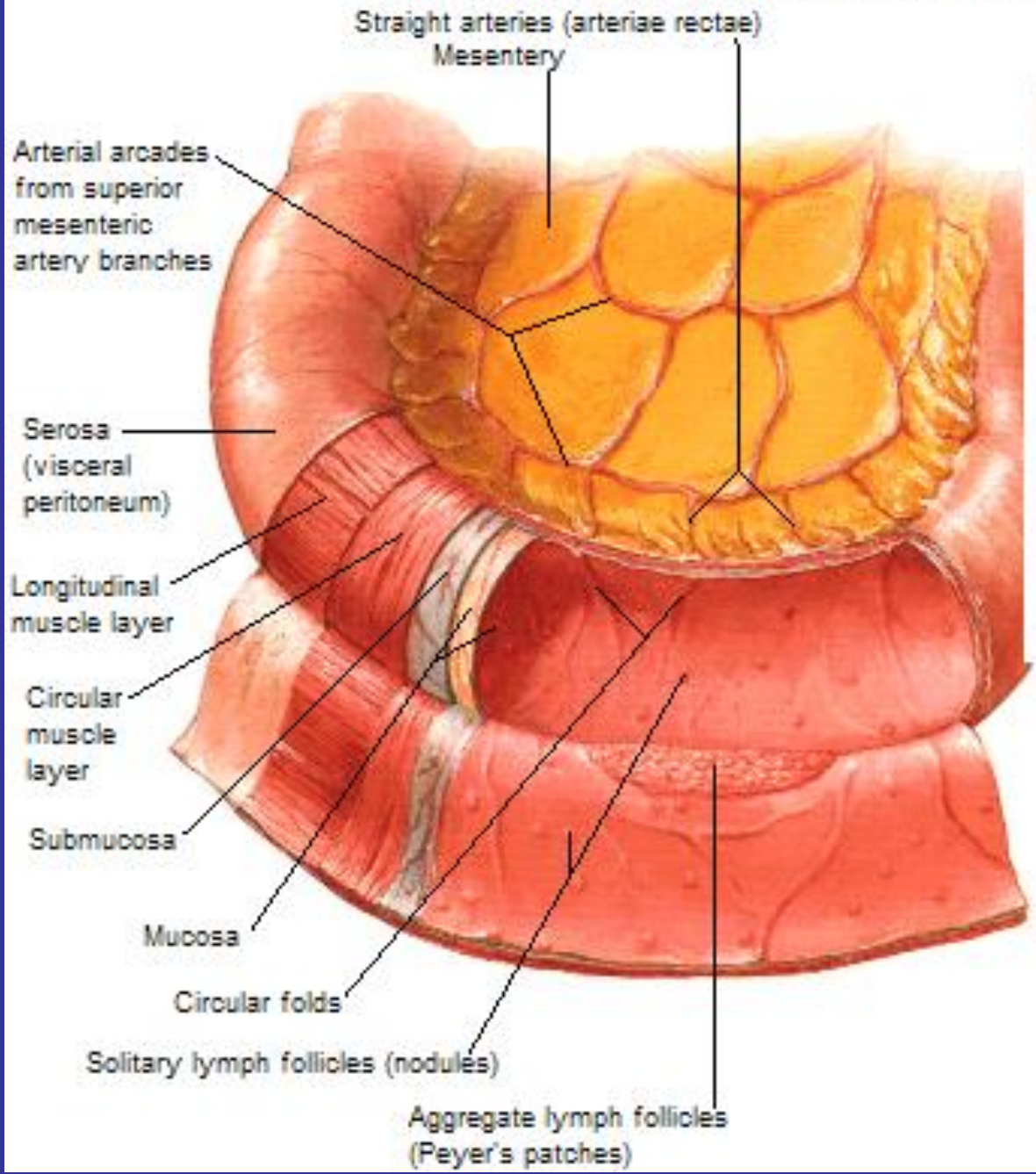


Mucosa and Musculature of Jejunum



Barium radiograph of jejunum

Mucosa and Musculature of Ileum

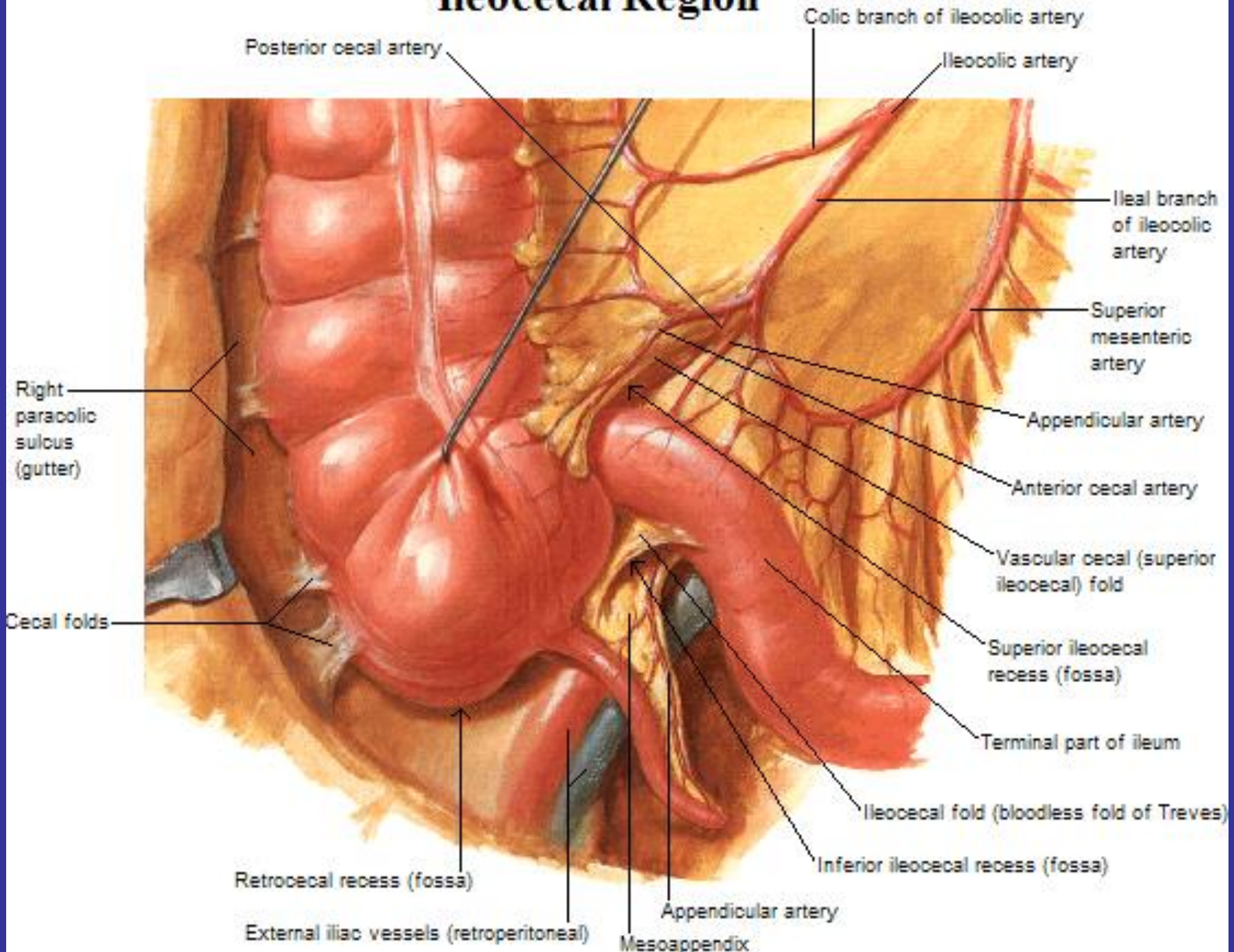


Barium radiograph of ileum

THE LARGE INTESTINE

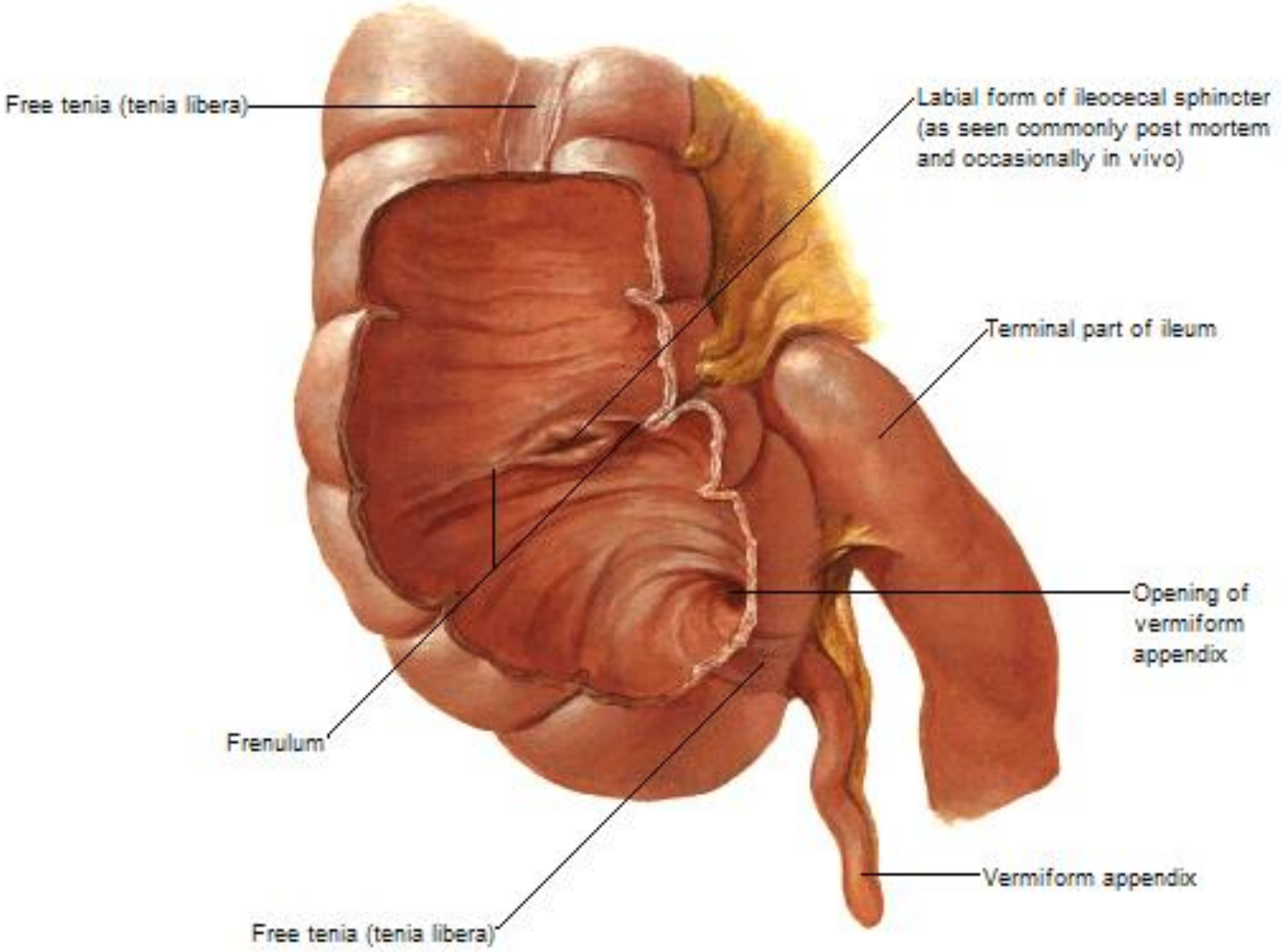
The large intestine (intestinum crassum) continues from the small intestine. It is divided on the 6 parts: caecum with the vermiform processus, ascending, transverse, descending, sigmoid colon and rectum.

Ileocecal Region

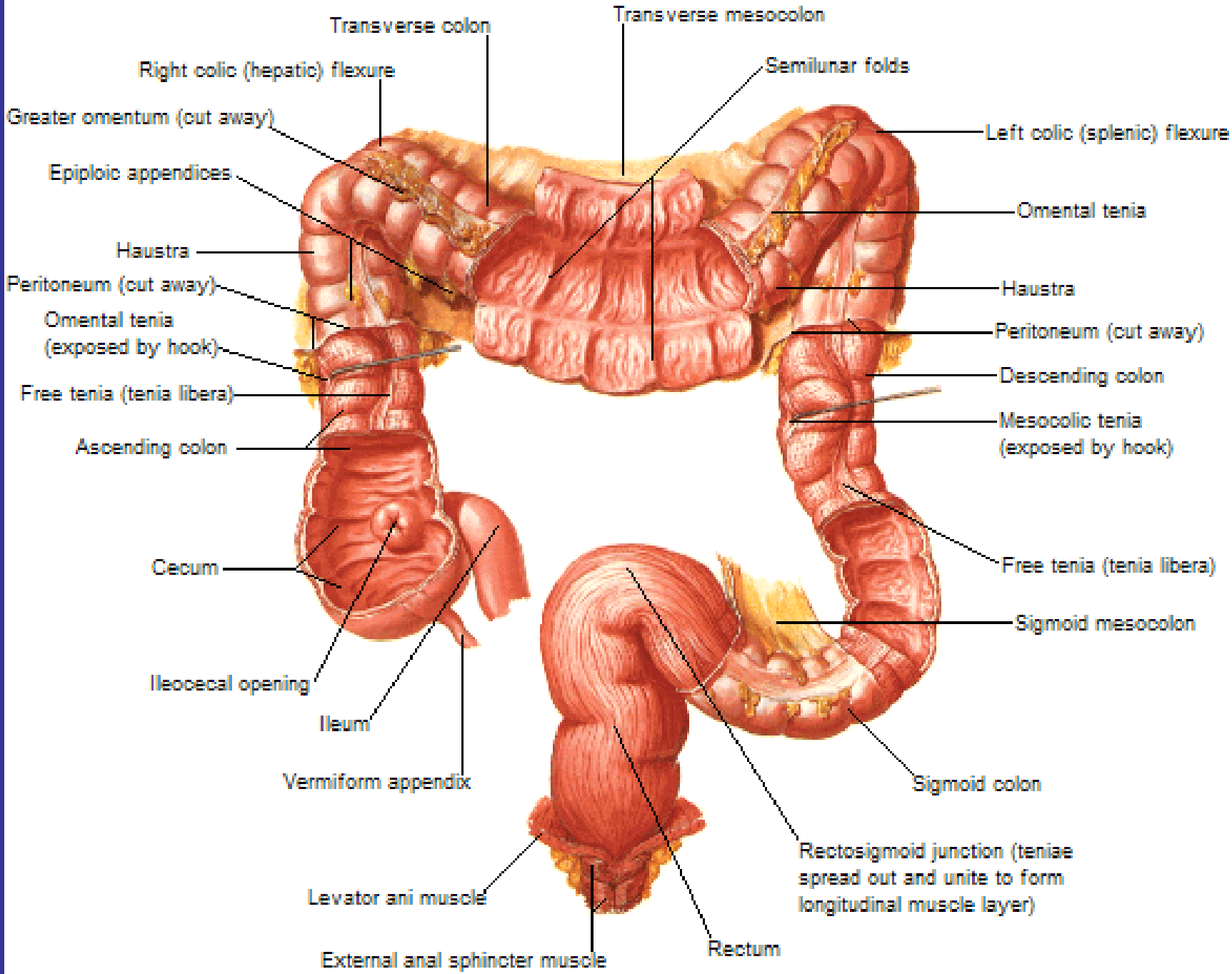


Ileocecal Region

Labial Form of Ileocecal Sphincter



Mucosa and Musculature of Large Intestine

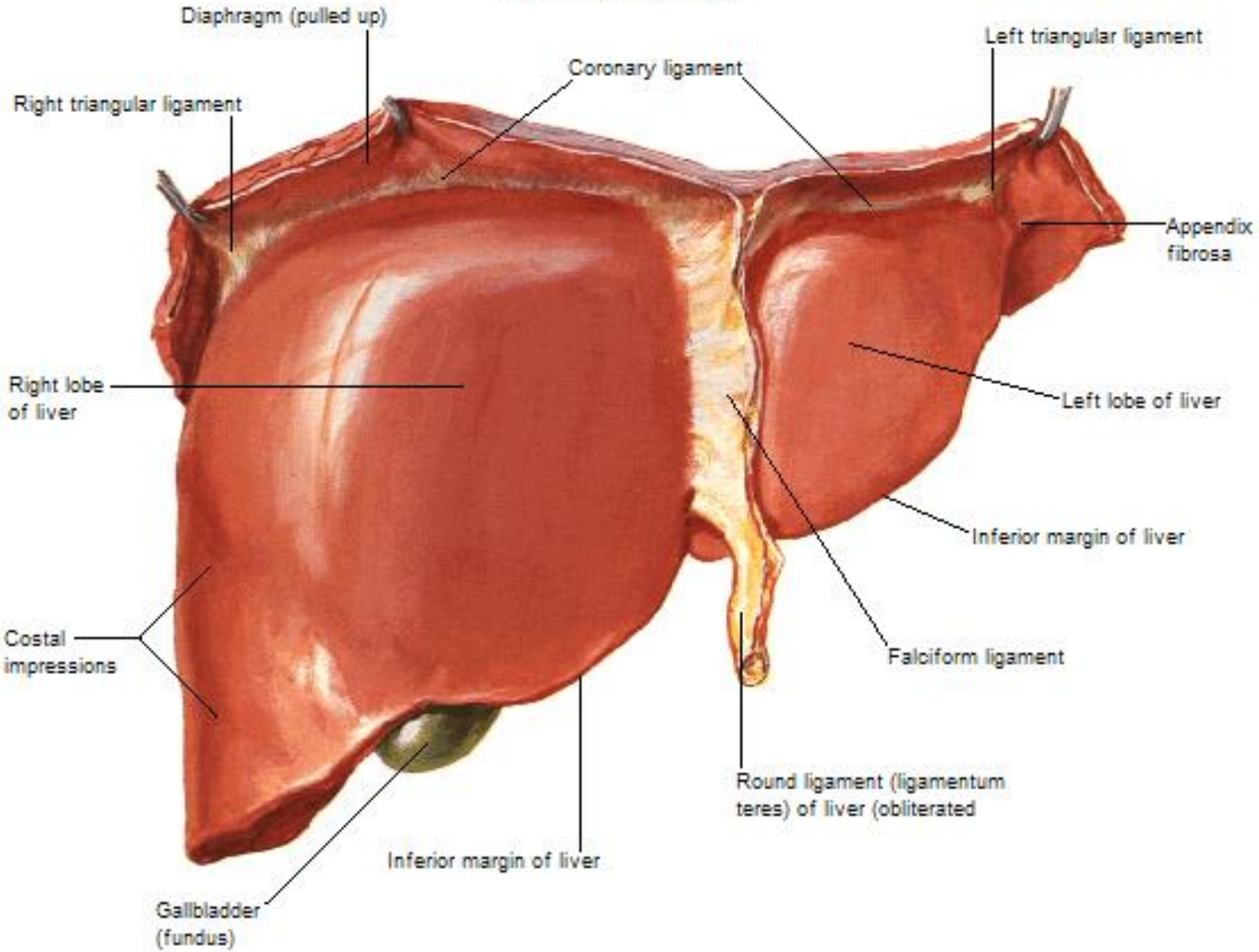


THE LIVER

The liver (hepar) the largest gland of the body. The liver has visceral and diaphragmatic surfaces. The diaphragmatic surface faces upword and to the front. The visceral surface is flat and is directed downwards and to the back. On the visceral surface of the right liver lobe, there are two small areas called the **quadrate and caudate lobe.**

Surfaces and Bed of Liver

Anterior View

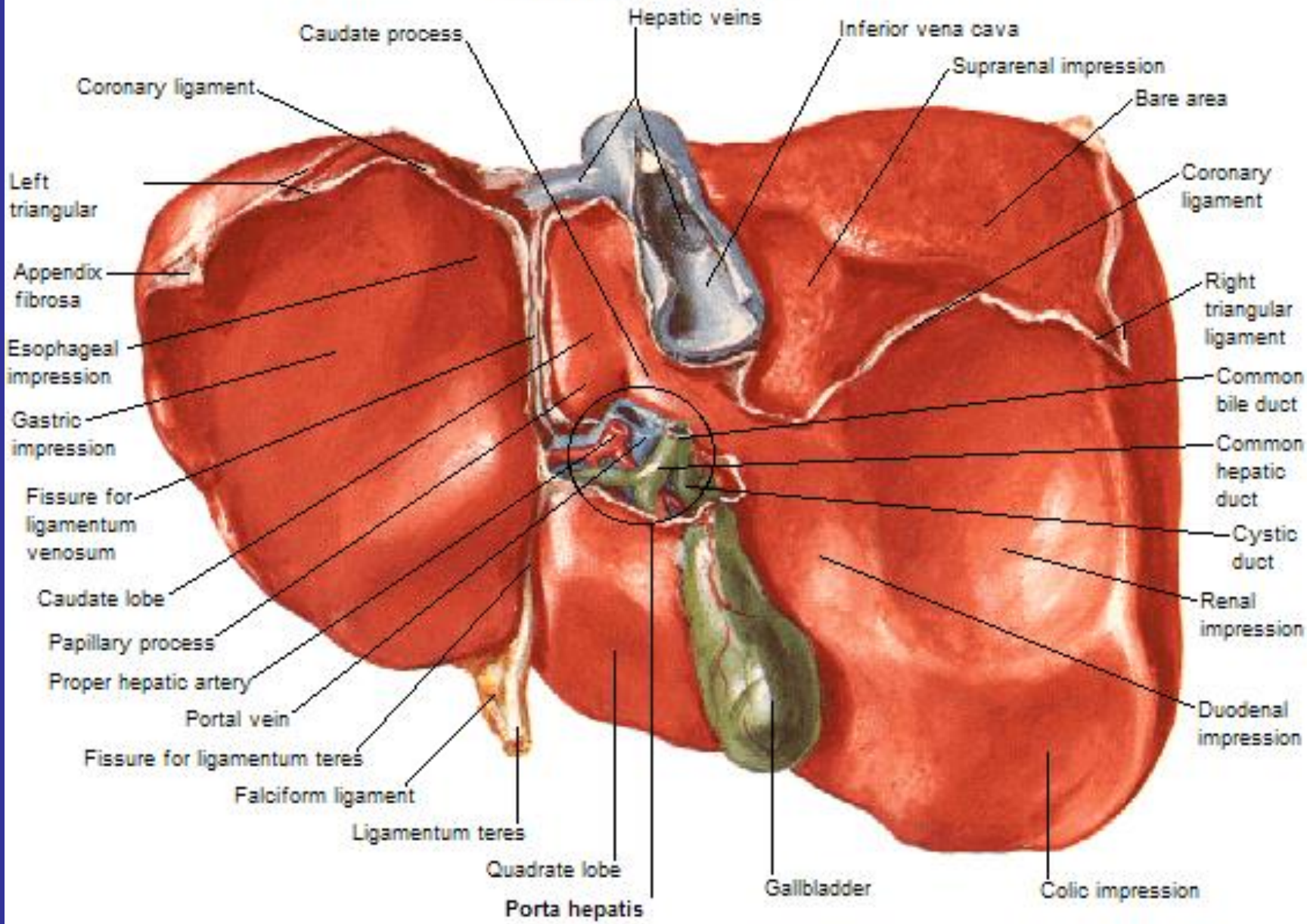


THE GALLBLADDER

The gallbladder (vesica fellea) is a pear-shaped organ, in which bile is accumulated and concentrated. It has a fundus, a body and a neck.

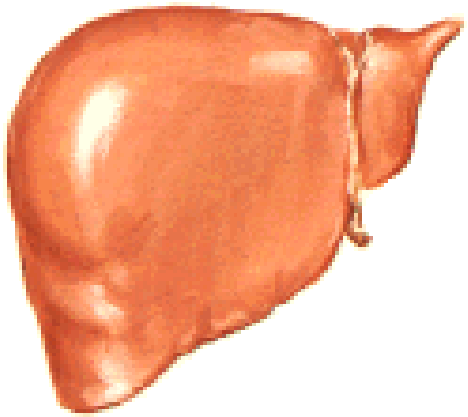
Surfaces and Bed of Liver

Visceral Surface

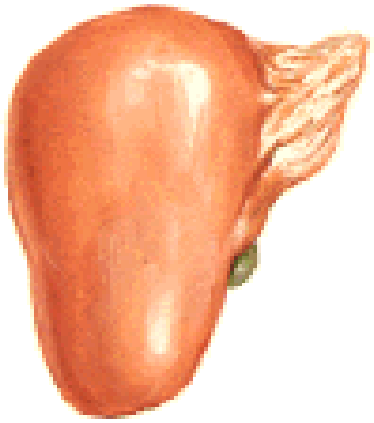


Variations in Form of Liver

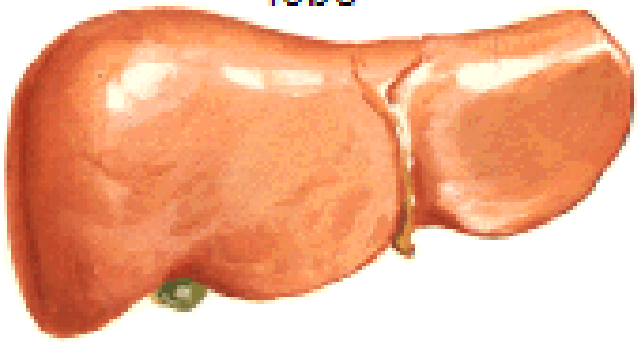
Very small left lobe, deep costal impressions

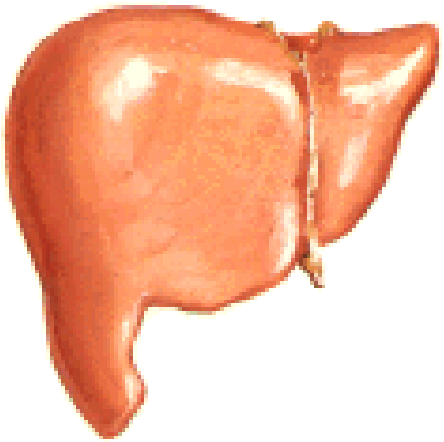


Complete atrophy of left lobe (left portal vein compression)

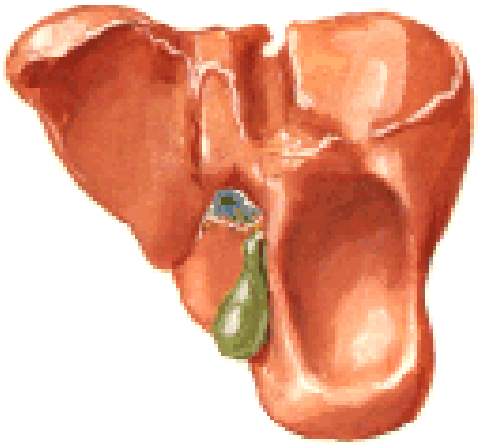


Transverse, "saddlelike" liver, relatively large left lobe

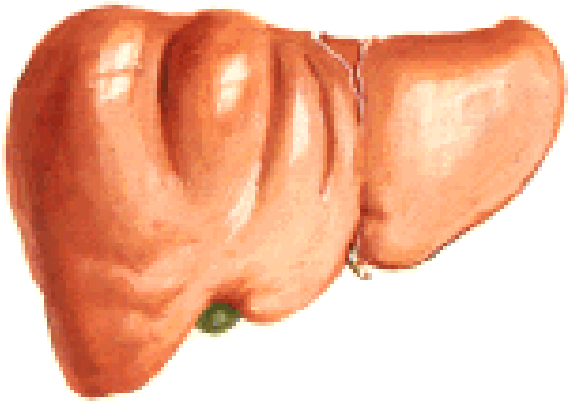




"Tonguelike" process of right lobe



Very deep renal impression and "corset constriction"

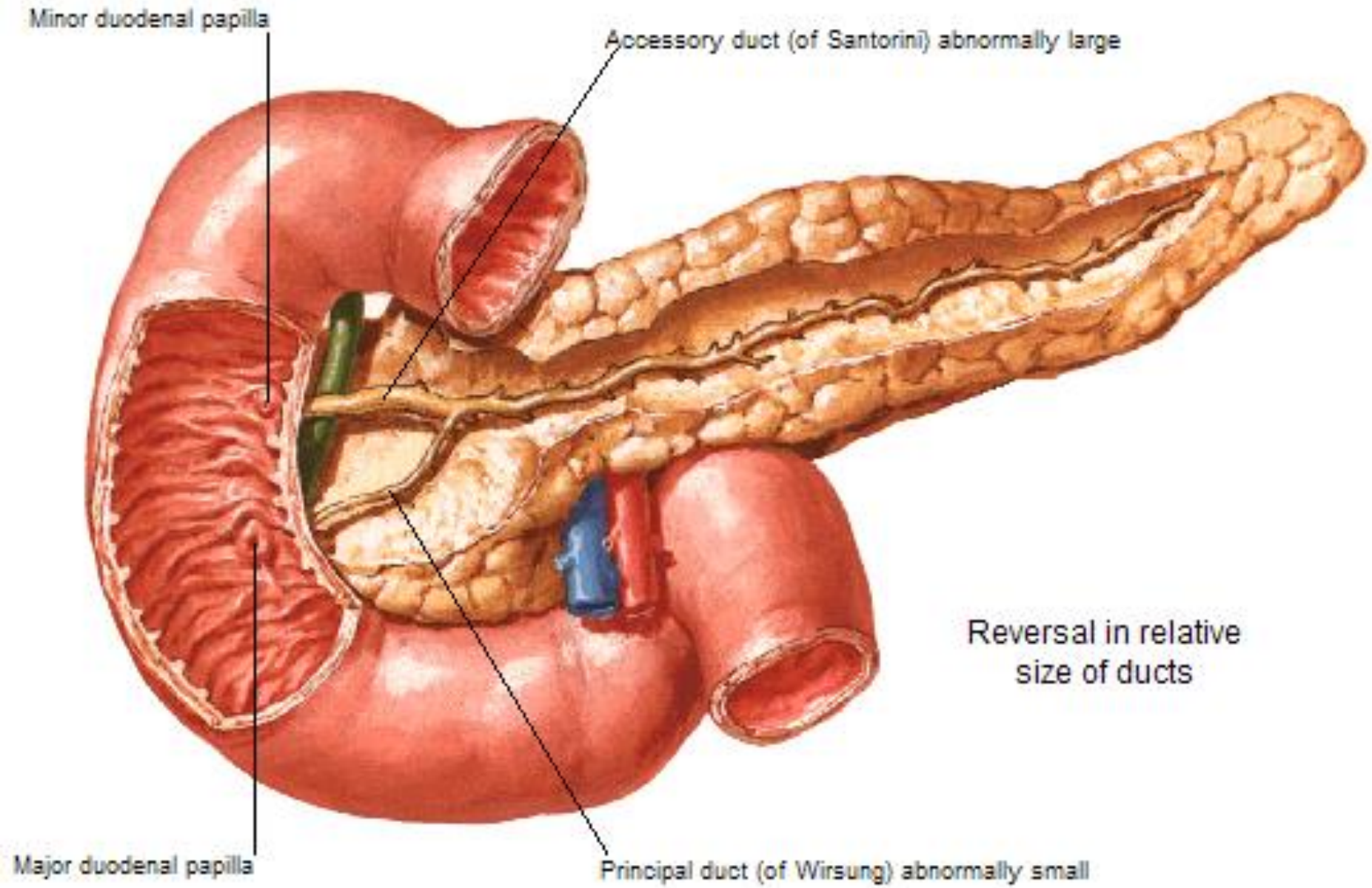


Diaphragmatic grooves

The Pancreas

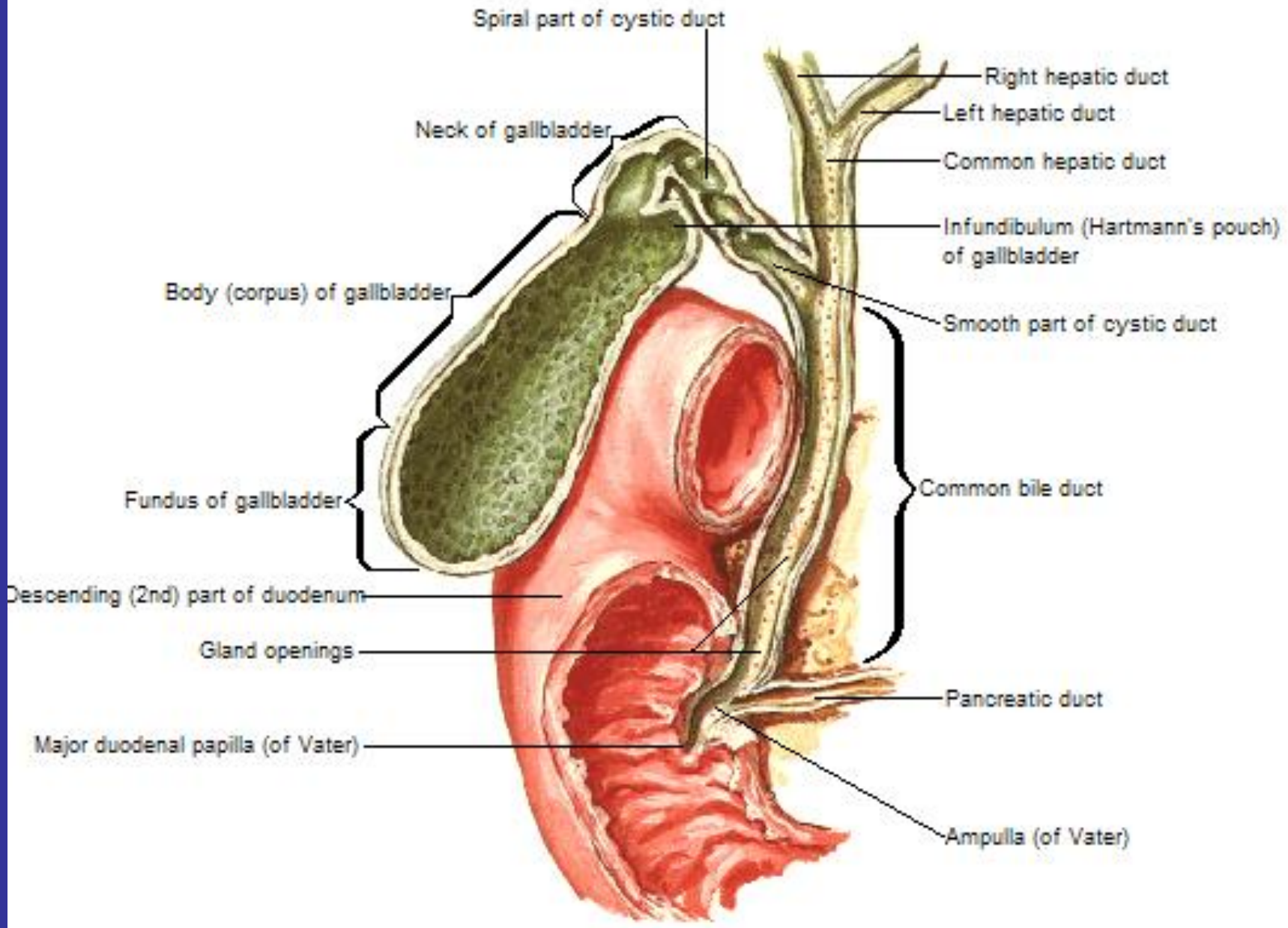
It has head, body and tail. It exocrine part secrete pancreatic juice, it endocrine part secrete insulin, glucagon).

Variations in Pancreatic Ducts



Gallbladder and Extrahepatic Bile Ducts

Sectioned



The Peritonium

Like any serous sacs it consists of two layers, parietal **(peritoneum parietale)** which lines the abdominal wall and visceral **(peritoneum viscerale)**

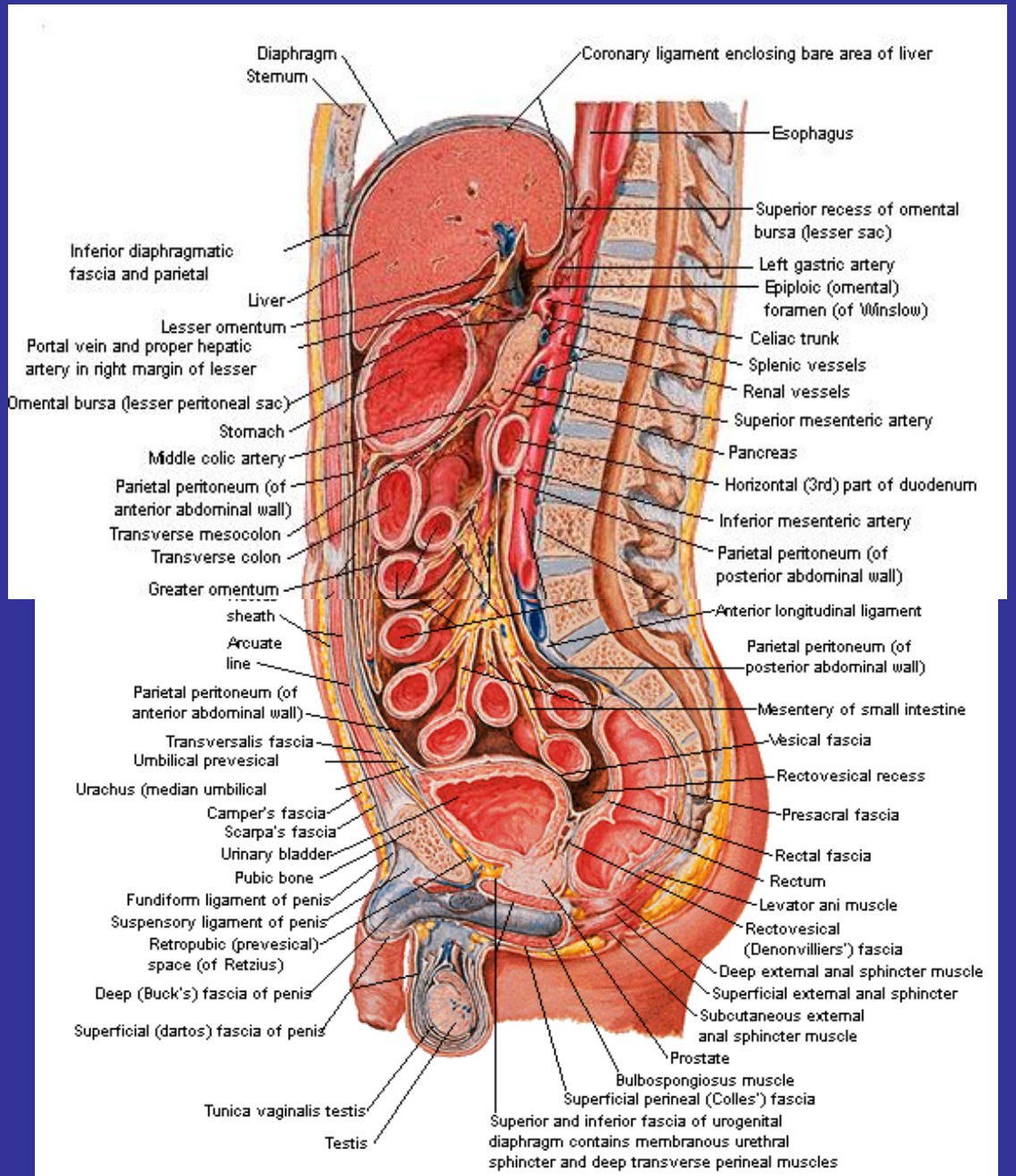
The cavity of the peritoneum is divided into three regions or storeys:

- Upper storey, bounded superiorly by the diaphragm and inferiorly by theb root of the mesocolon transversum.
- Middle storey extends downwards from the root of the mesocolon transversum to the entrance of the true pelvis.
- Lower storey begins at the line of the entrance into the true pelvis and corresponds to the cavity of the pelvis which is the lowest part of the abdominal cavity.

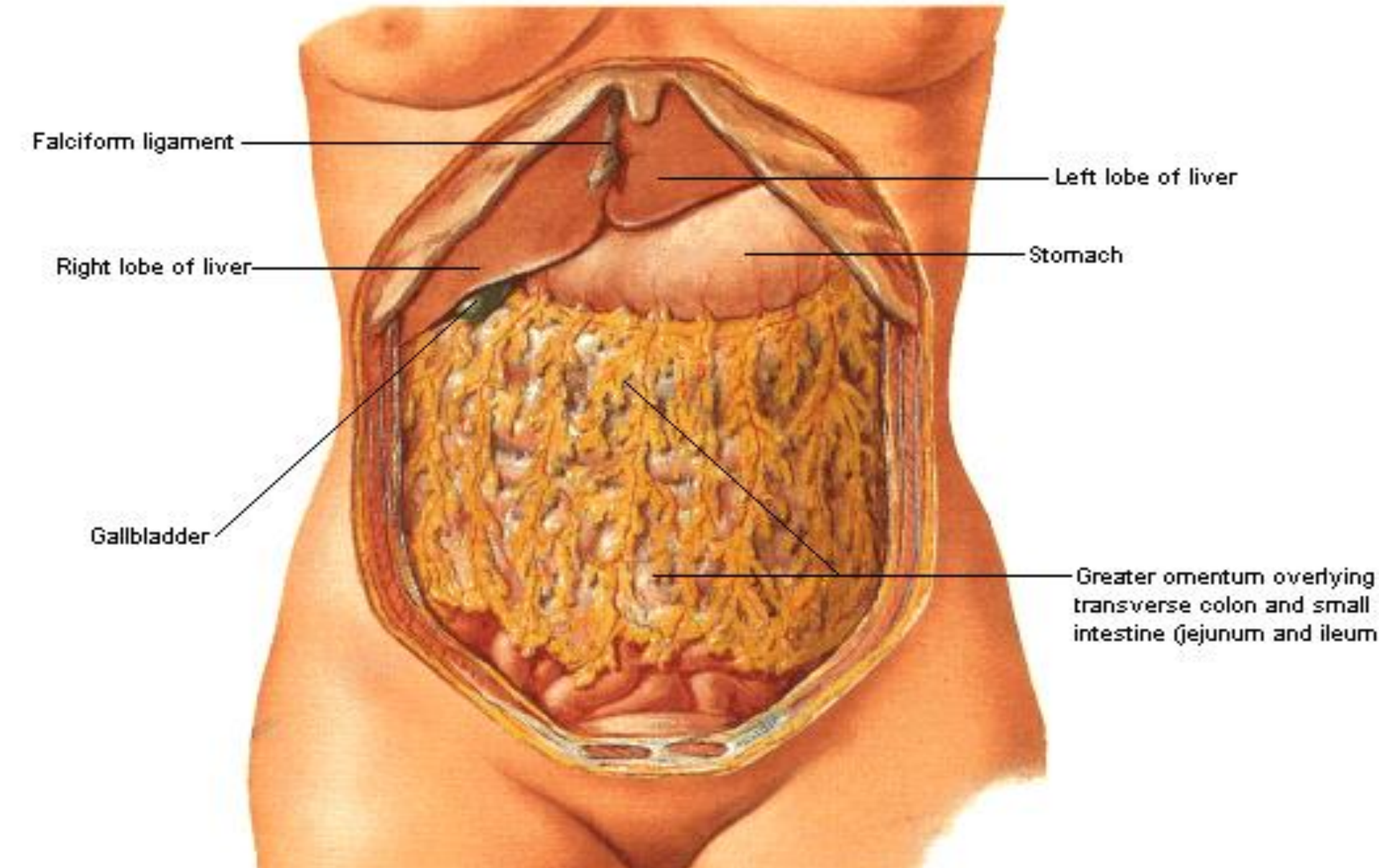
The liver with the gall bladder, the stomach, spleen, pancreas and the upper part of the duodenum are located in this storey.

The loops of the jejunum and the ilium (in the middle), the part of the duodenum (posteriorly) and the large intestine except the rectum (on the sides) are located in this storey.

The rectum and urinary bladder located in third story in male. In female- urinary bladder, uterus and rectum.

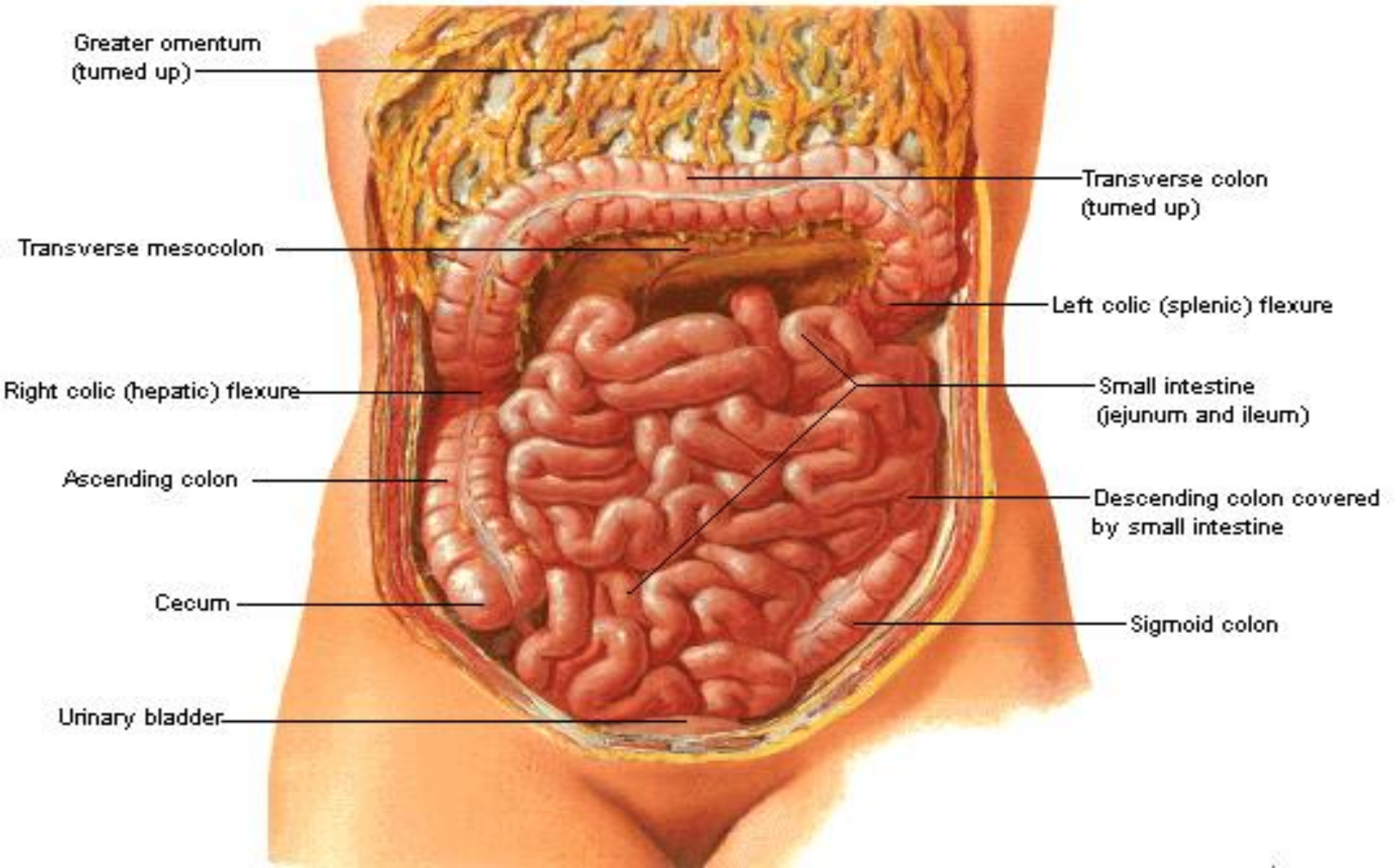

Diaphragm
Sternum
Coronary ligament enclosing bare area of liver
Esophagus
Superior recess of omental bursa (lesser sac)
Inferior diaphragmatic fascia and parietal
Left gastric artery
Epiploic (omental) foramen (of Winslow)
Liver
Lesser omentum
Portal vein and proper hepatic artery in right margin of lesser
Celiac trunk
Splenic vessels
Renal vessels
Omental bursa (lesser peritoneal sac)
Superior mesenteric artery
Stomach
Pancreas
Middle colic artery
Horizontal (3rd) part of duodenum
Parietal peritoneum (of anterior abdominal wall)
Inferior mesenteric artery
Transverse mesocolon
Parietal peritoneum (of posterior abdominal wall)
Transverse colon
Greater omentum
Anterior longitudinal ligament
sheath
Arcuate line
Parietal peritoneum (of posterior abdominal wall)
Parietal peritoneum (of anterior abdominal wall)
Mesentery of small intestine
Transversalis fascia
Vesical fascia
Umbilical prevesical
Rectovesical recess
Urachus (median umbilical
Presacral fascia
Camper's fascia
Scarpa's fascia
Rectal fascia
Urinary bladder
Rectum
Pubic bone
Levator ani muscle
Fundiform ligament of penis
Rectovesical (Denonvilliers') fascia
Suspensory ligament of penis
Deep external anal sphincter muscle
Retropubic (prevesical) space (of Retzius)
Superficial external anal sphincter
Deep (Buck's) fascia of penis
Subcutaneous external anal sphincter muscle
Superficial (dartos) fascia of penis
Prostate
Bulbospongiosus muscle
Superficial perineal (Colles') fascia
Tunica vaginalis testis
Testis
Superior and inferior fascia of urogenital diaphragm contains membranous urethral sphincter and deep transverse perineal muscles

Greater Omentum and Abdominal Viscera



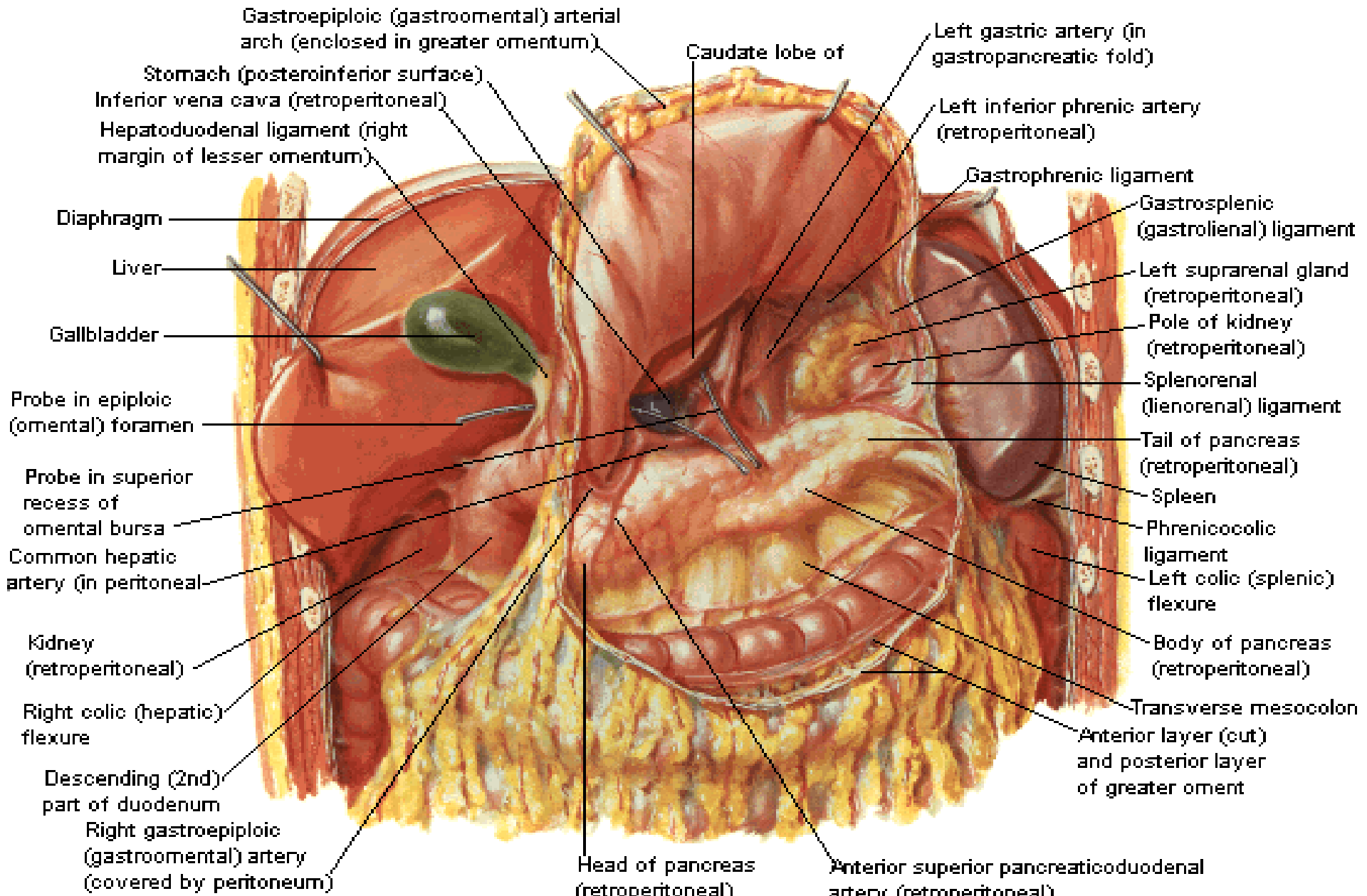
Greater Omentum and Abdominal Viscera

Omentum Raised

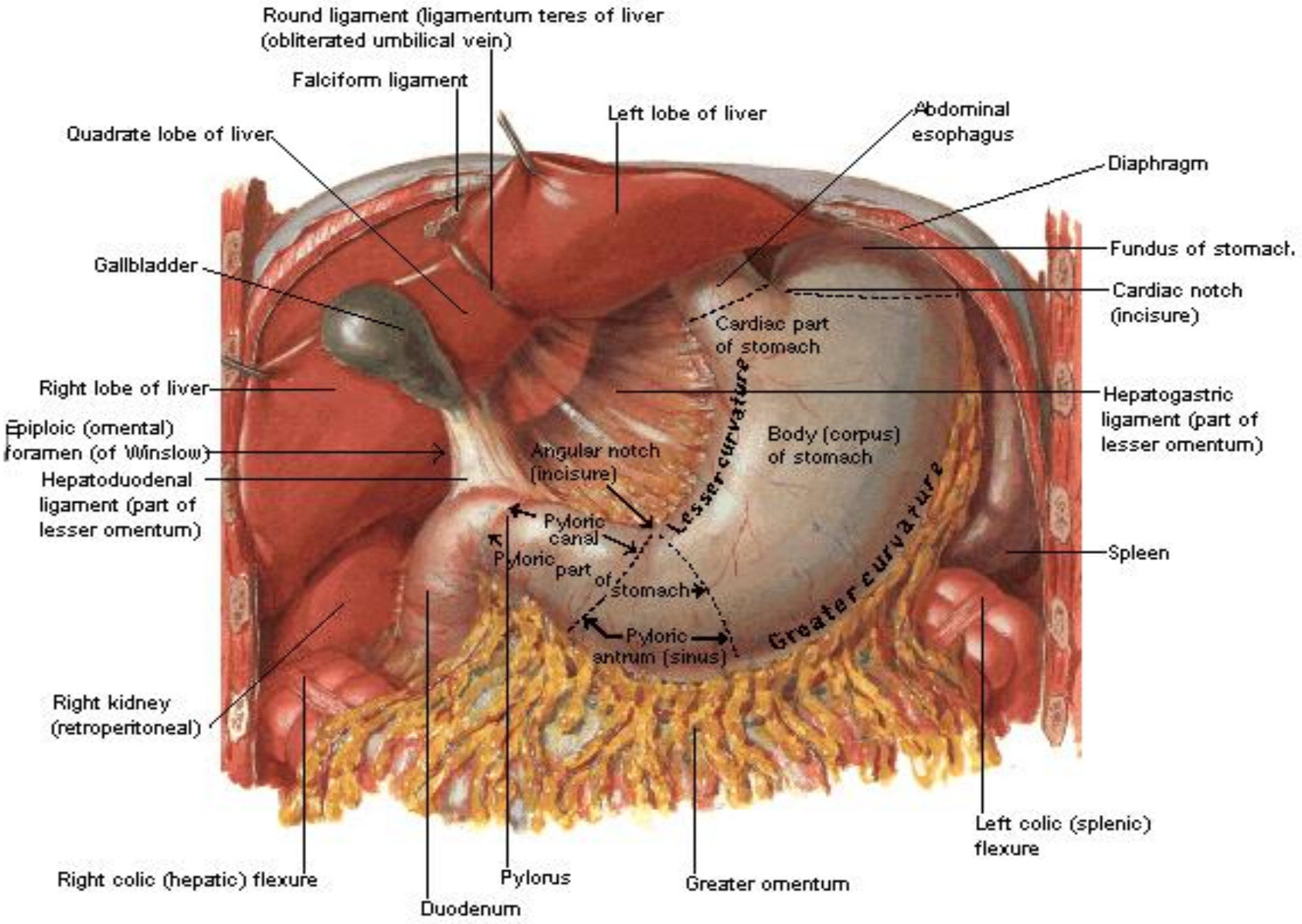


Omental Bursa

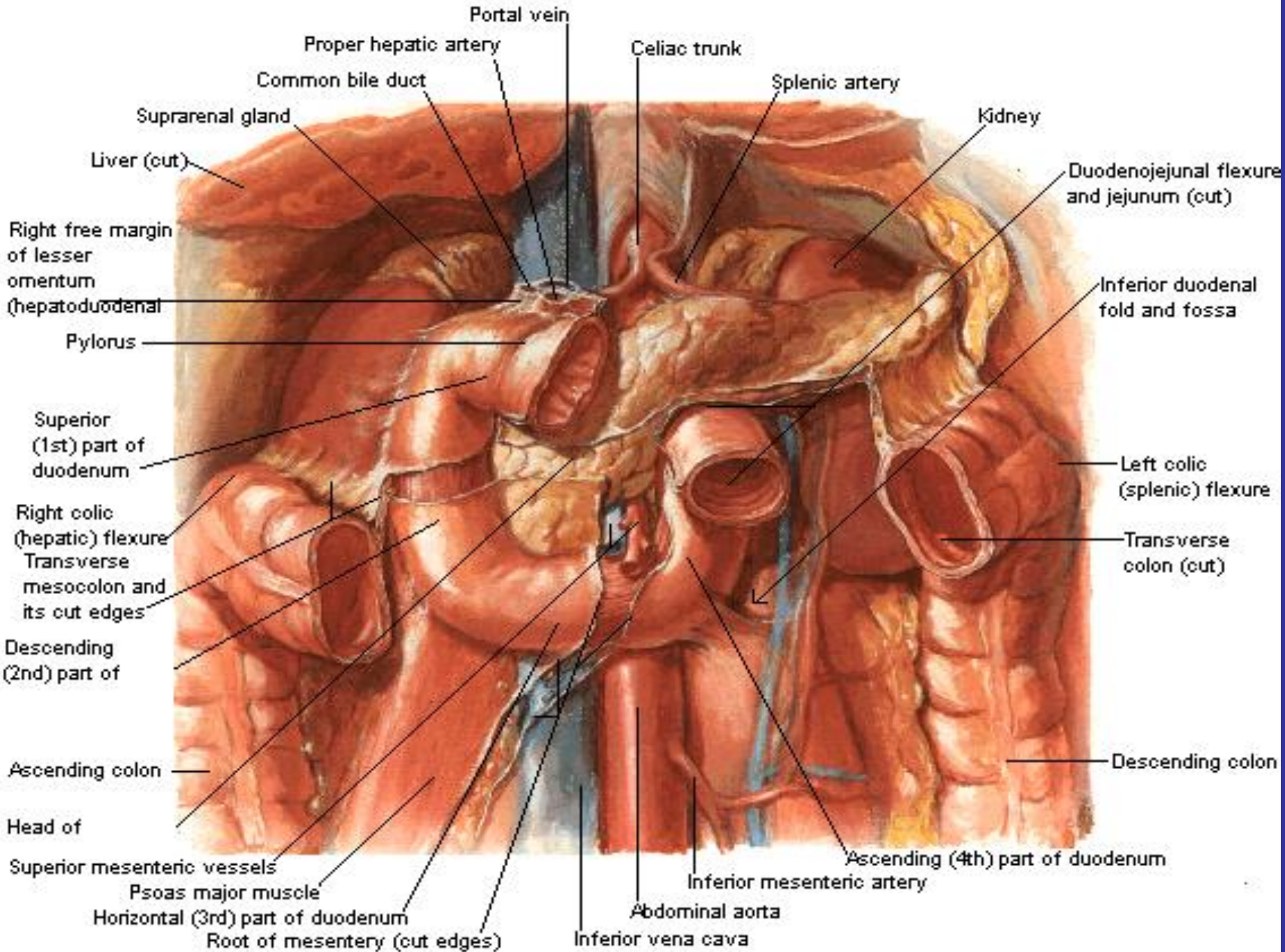
Stomach Reflected



Stomach in Situ

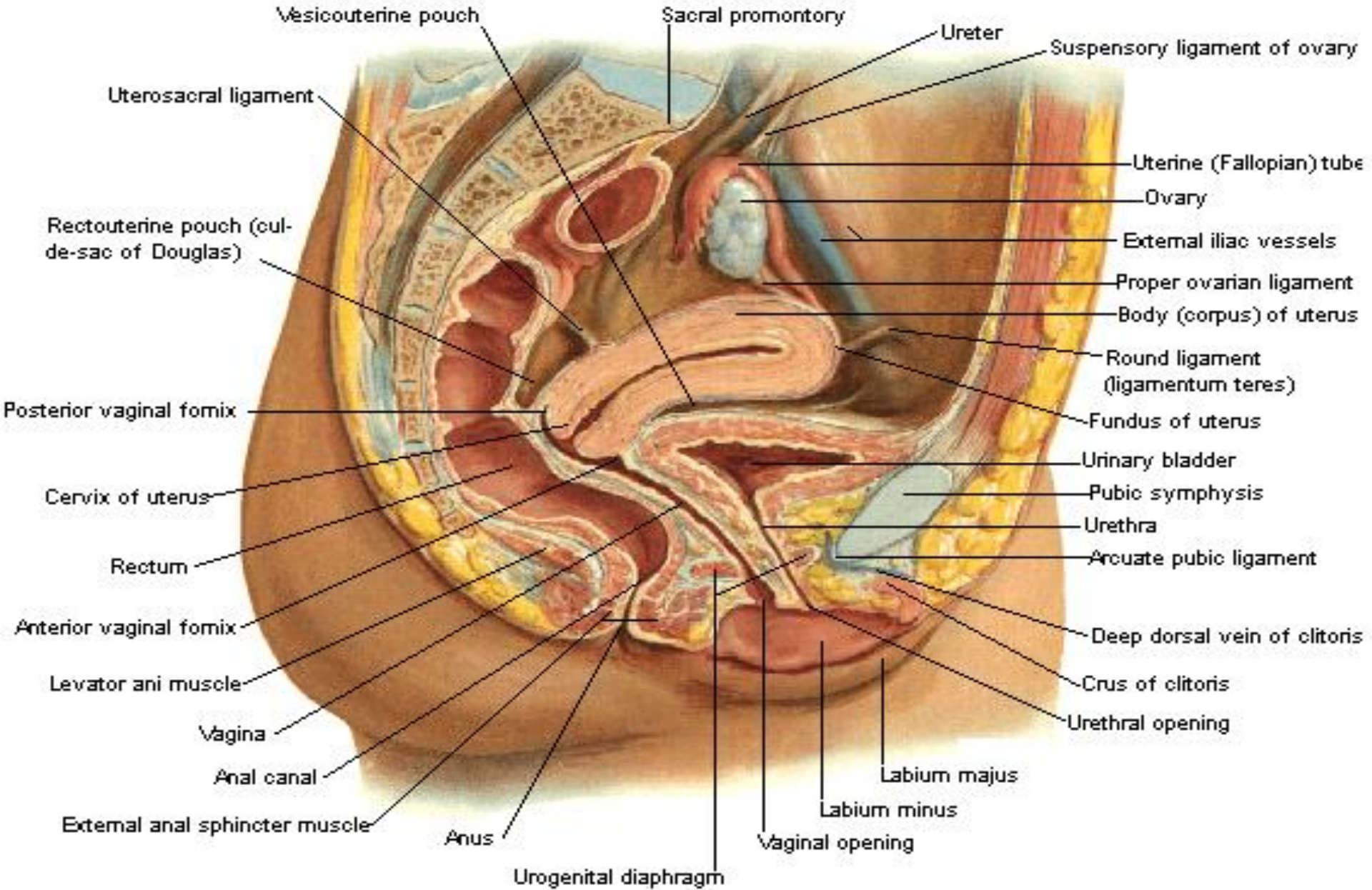


Duodenum in Situ



Pelvic Viscera and Perineum of Female

Midsagittal Section



Pelvic Viscera and Perineum of Male

Midsagittal Section