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HUMAN ANATOMY

ABDOMINAL CAVITY:

TEXTBOOK AND PRACTICE DIAGRAMS

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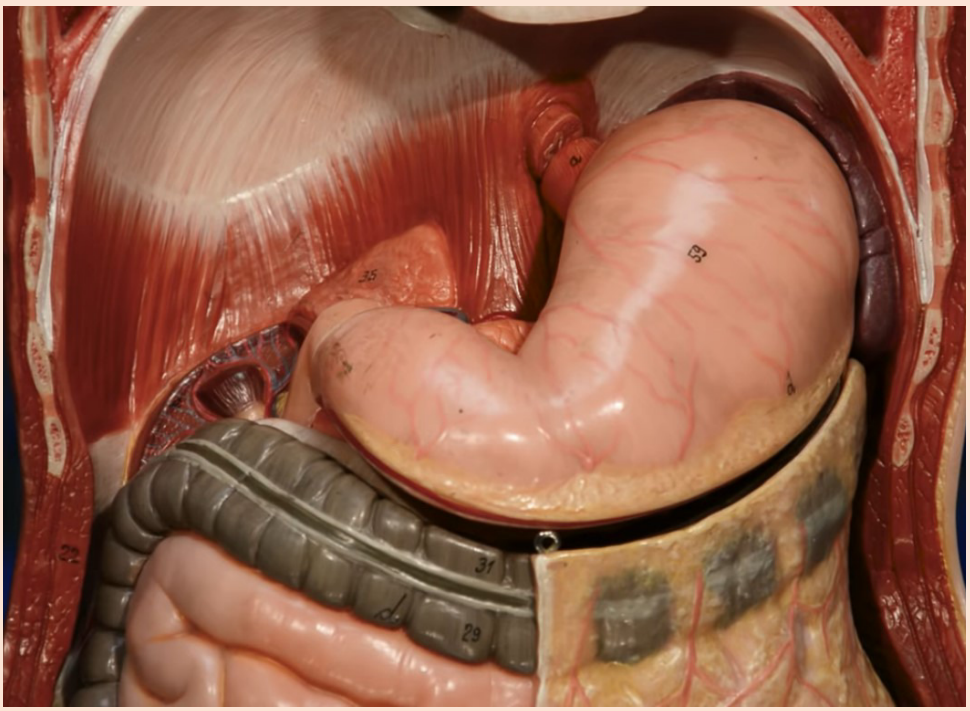

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Contents

I. The Abdominal cavity- overview (Laura Octavia Grigoriță)

Abdominal cavity is part of a greater space, abdomino pelvic cavity, which is the sub diaphragmatuc part of the trunk.

Limit in between these two cavities is represented by a conventional plane, passing through promontorium and superior extremity of the pubic symphysis. They communicate each other.

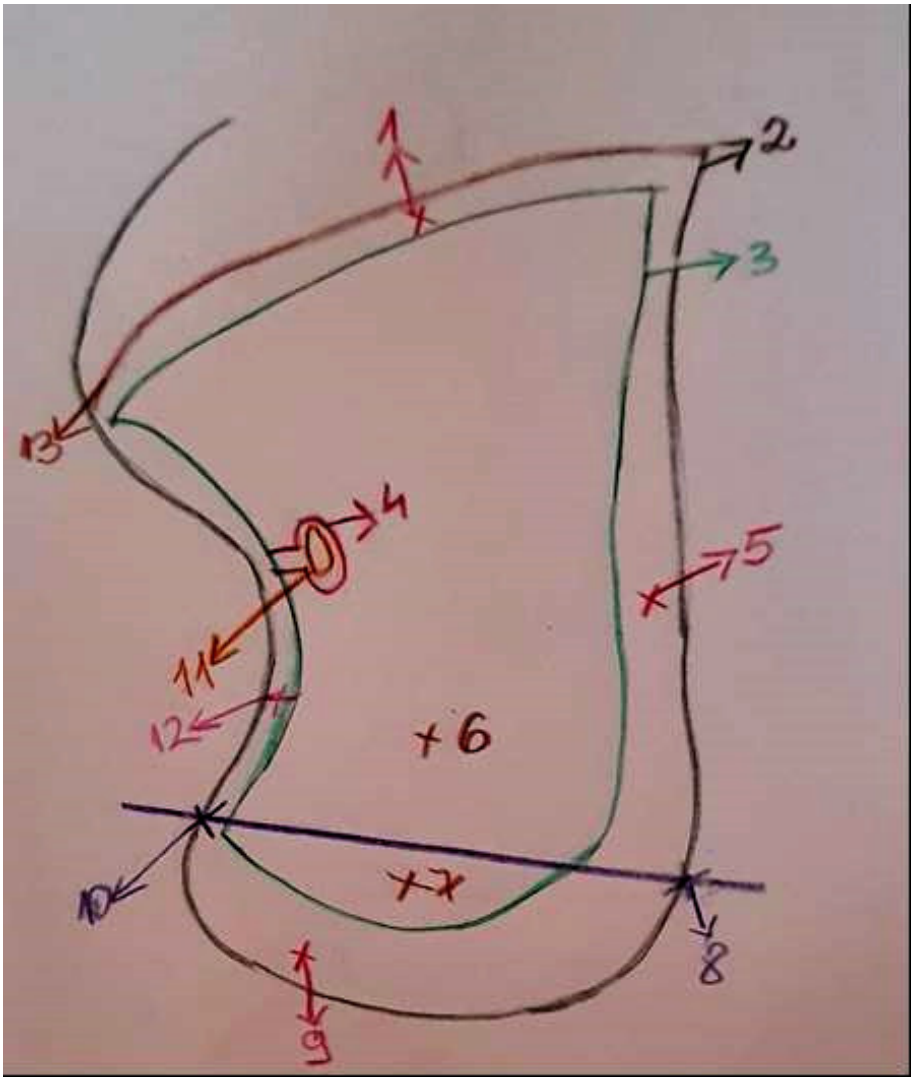

Figure 1: Abdominal cavity, divisions: 1. Supra peritoneal space; 2. Abdominal wall; 3. Parietal layer of peritoneum; 4. Visceral layer of peritoneum; 5. Pre peritoneal space; 6. Abdominal cavity; 7. Pelvic cavity; 8. Superior extremity of pubic symphysis; 9. Pelvic sub peritoneal space; 10. Promontorium; 11. Intra peritoneal organ; 12. Retro peritoneal space; 13. Diaphragm.

The Peritoneum *(Tunica serosa)*

Peritoneum is given off by the mesotelial cells of embryonic somatopleura and splanchnopleura, being separate to the pleura and pericardium during the 6th week of gestation.

It presents two layers, parietal and visceral peritoneum, continuous to each other.

Visceral peritoneum is thin and adherent. It invests the intra peritoneal organs, anchors them to the abdominal wall, and links them together.

Parietal peritoneum is thicker and less adherent than the visceral peritoneum. It lines the abdomino pelvic cavity walls and partially covers the extra peritoneal organs.

In between the parietal peritoneum and the abdomino pelvic cavity walls some spaces are born. They are as follows;

1. Supra peritoneal space
2. Pre peritoneal space
3. Right lateral peritoneal space
4. Left lateral peritoneal space
5. Retro peritoneal space
6. Sub peritoneal space

In between the visceral and parietal layers of peritoneum there is a potential space, the peritoneal cavity. It contains a small amount of peritoneal fluid, which allows the sliding viscera in between.

This cavity becomes real in pathologic cases: ascites, internal hemorrhage, peritonitis, pus in the cavity due to an infection.

Organs situated in the abdominal cavity, according to their fully or partially peritoneal investment are considered intra peritoneal or extra peritoneal.

Intra peritoneal organs are fully invested in peritoneum, which through its derivatives like meso, ligaments, are anchored to the abdominal wall. They have a different degrees of mobility.

Extra peritoneal organs are partially invested in peritoneum.

They are primary extra peritoneal organs, such as kidneys and adrenal glands, and secondary extra peritoneal organs, like duodenum, ascending colon, pancreas, and descending colon. The secondary extra peritoneal organs were initially intra peritoneal,

but during the ontogenetic development, because of the abdominal viscera torsion and associated with the coalescence phenomenon, they become extra peritoneal. So, they are only covered by the peritoneum and fixed to the abdominal wall.

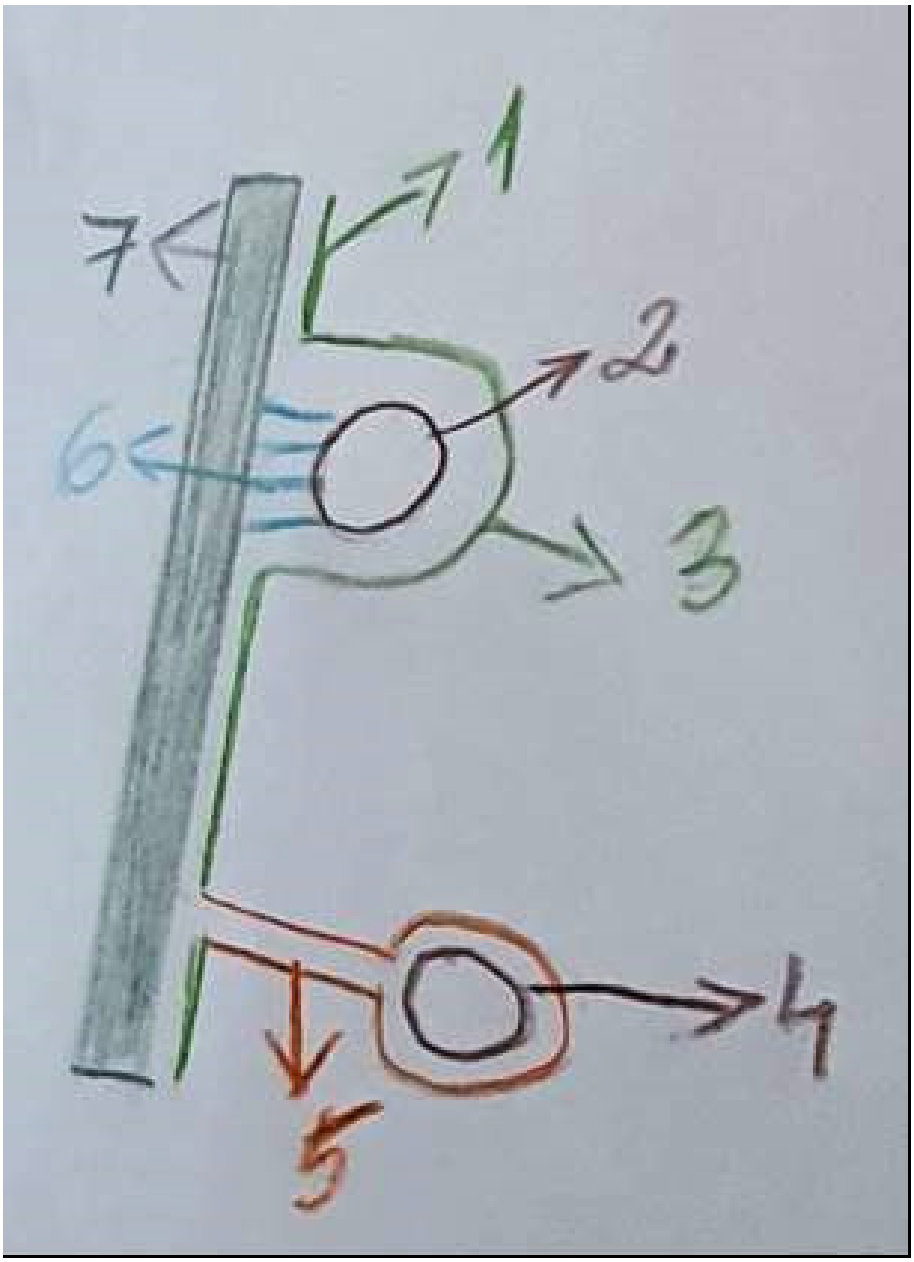

Figure 2: Peritoneum: 1. Parietal layer of peritoneum; 2. Fixed organs; 3. Visceral peritoneum; 4. Mobile organs; 5. Meso; 6. Coalescence fascia; 7. Posterior abdominal wall.

The coalescence fascia means the welding of the two peritoneal layer, and represents another anchor of the abdominal viscera.

This has different names, according its location:

1. Located to the duodenum= fascia of Treitz;

2. Located to the pancreas= retro pancreatic fascia of Treitz and pre pancreatic fascia of Fredet;

3. Located to the ascending colon and descending colon=fascia of Toldt.

4. Located to the large intestine=meso;

5. Located to the small intestine=mesentery.

According to the complete or incomplete peritoneal investment of soma parts of the intestine, this could presents fixed and mobile portions.

Peritoneal structures are represented by the:

1. Peritoneal folds, determined by the vessels, ducts, canals, ligaments, which produce peritoneal elevations;

2. Peritoneal fossae, which represent peritoneal depressions, given by the peritoneal folds= duodenal fossae, caecal fossae, sigmoid fossae, supra vesical fossae, inguinal fossae;

3. Peritoneal ligaments link intra-abdominal organs to each other = gastro hepatic, gastro colic, gastro lienal, pancreatico lienal, phrenico lienal; or anchor the viscera to the abdominal wall= liver ligaments, gastro phrenic;

4. Meso and mesentery are peritoneal structures which contain vessels and nerves from their suspended organs in the abdominal cavity.

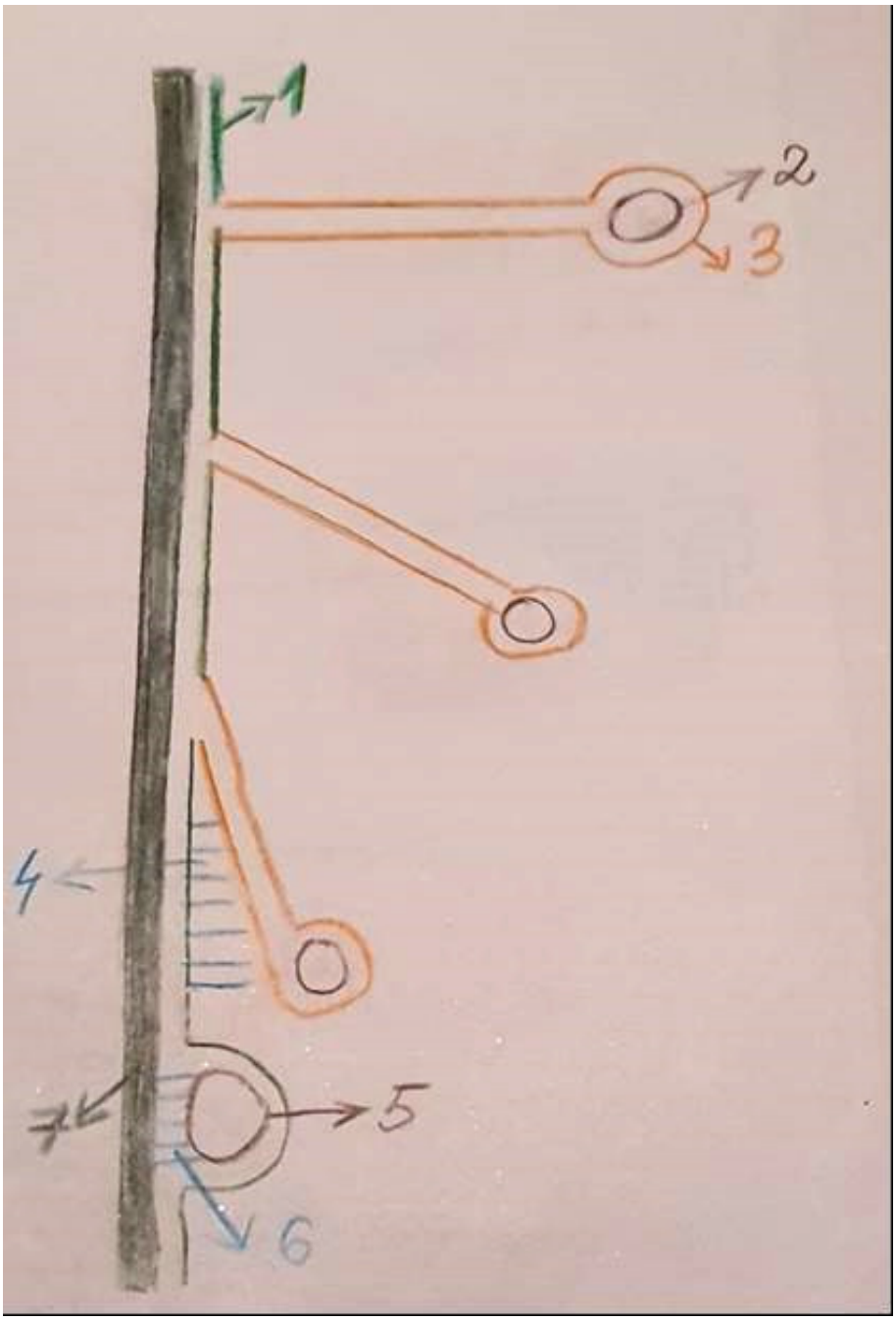

Figure 3, Peritoneum: 1. Parietal layer of peritoneum; 2. Intra peritoneal organ; 3. Visceral peritoneum; 4. Coalescence process.

Intra peritoneal organs:

1. Stomach
2. Appendix
3. Liver
4. Spleen
5. Duodenum- 1st part
6. Small intestine, jejunum and ileum
7. Pancreas- tail
8. Transverse colon
9. Sigmoid colon
10. Rectum- upper 3rd

Retro peritoneal organs:

1. Aorta
2. Inferior vena cava
3. Adrenal glands
4. Kidneys
5. Ureter
6. Ascending colon
7. Descending colon
8. Duodenum -2nd ,3rd ,4th parts
9. Pancreas
10. Rectum
11. Oesophagus

II. Abdominal cavity –topography (Alina Maria Șișu)

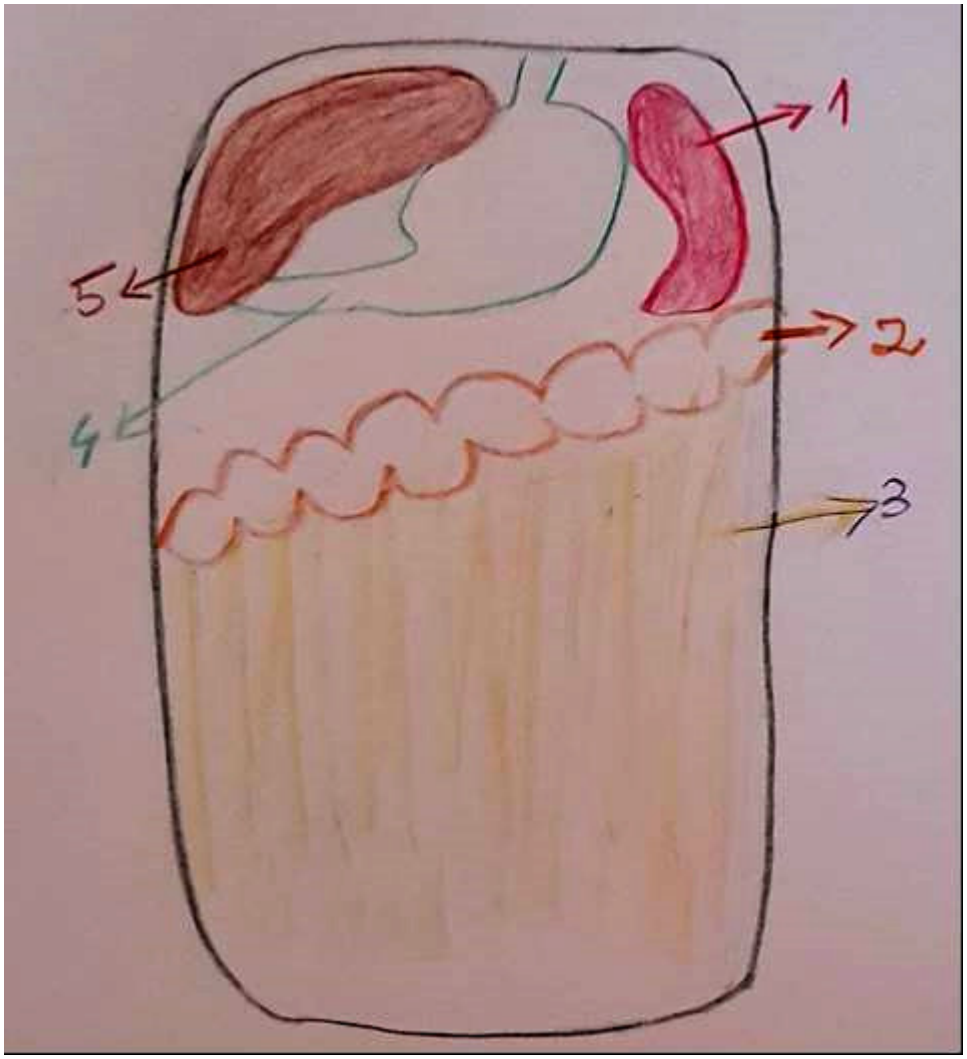

Figure 4: Abdominal cavity, topography: 1. Spleen; 2. Transverse colon; 3. Greater omentum; 4. Stomach; 5. Liver.

When the abdominal cavity is open, we can see the following arrangement:

- Superior, from right to left: the liver, the stomach, the spleen;
- Inferior, a part of transverse colon, from which descends like an apron the greater omentum, or greater epiploon.

In between the posterior aspect of the anterior abdominal wall on one side and liver, stomach, spleen, transverse colon and greater omentum on the other side there is the pre visceral cavity. Transverse mesocolon and transverse colon divide the abdominal cavity into two areas: supra mesocolic level and infra mesocolic level.

Supra mesocolic space

It contains: the liver, the stomach, and the spleen, each located into a fossa. The three formed fossae: gastric, splenic, hepatic, communicate to each other.

The liver helps in forming some spaces or recesses or peritoneal cul-de-sac:

- Right and left sub phrenic recesses, situated in between the superior surface of the liver and the inferior surface of the diaphragm, being separated to each other by the liver falciform ligament;
- Right and left sub hepatic recesses: the right one reaches the right kidney, being deeper than the left one, hence the name the right hepato renal recess or the bag of Morison. The left one corresponds to the *bursa omentalis*, which is a diverticulum of the abdominal cavity, situated behind the stomach and communicate with the greater abdominal cavity through the Winslow hiatus.

Infra mesocolic space

It contains the colic frame, formed by the large intestine parts. It surrounds the jejunum and ileum ansae, being obscured by the greater omentum. At this level are delimited some spaces, mesenteric colic, right ans left, and right and left para colic grooves.

Bursa omentalis

It is a diverticulum of the abdominal cavity, whom communicate through Winslow hiatus. It is situated in the left supra mesocolic space, behind the stomach.

There are described a main part and three prolongations.

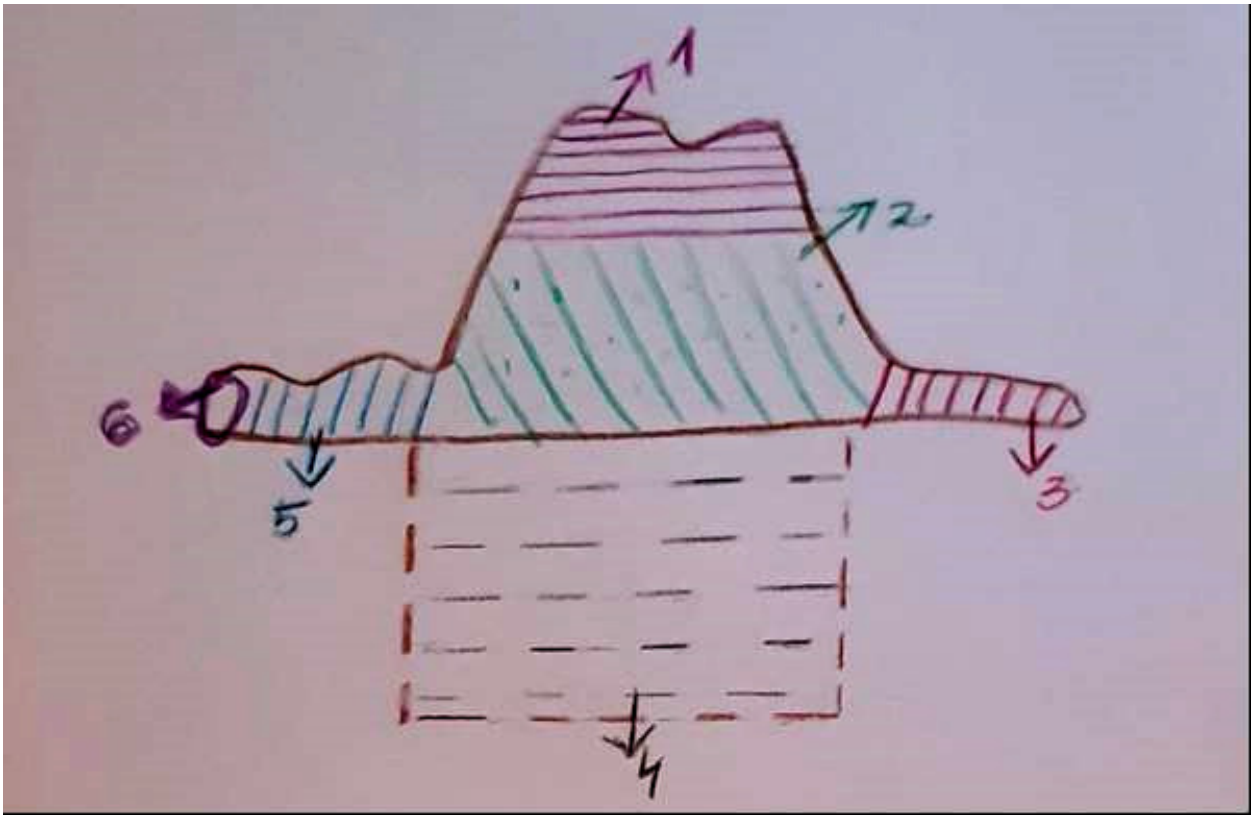

Figure 5: *Bursa omentalis*, divisions: 1. Superior prolongation= superior recess; 2. Main part; 3. Left prolongation= lineal (splenic) recess; 4. Inferior prolongation= inferior recess; 5. Right prolongation= Vestibule of *bursa omentalis*; 6. Winslow hiatus (foramen epiploicuum).

The main part or *bursa omentalis* proper presents four walls:

- Anterior wall, formed by the peritoneum which lines the posterior surface of the stomach and the gastro colic ligament.
- Posterior wall, formed by the peritoneum which lines the anterior aspect of the posterior abdominal wall, passing over pancreas, left adrenal gland and left kidney;
- Superior wall, formed by the peritoneal reflection from the posterior abdominal wall (parietal peritoneum) on the posterior inferior surface of the stomach (visceral peritoneum), at the level of the gastro phrenic ligament;
- Inferior wall, formed by the transverse mesocolon, transverse colon, and the coalescence of the greater omentum layers.

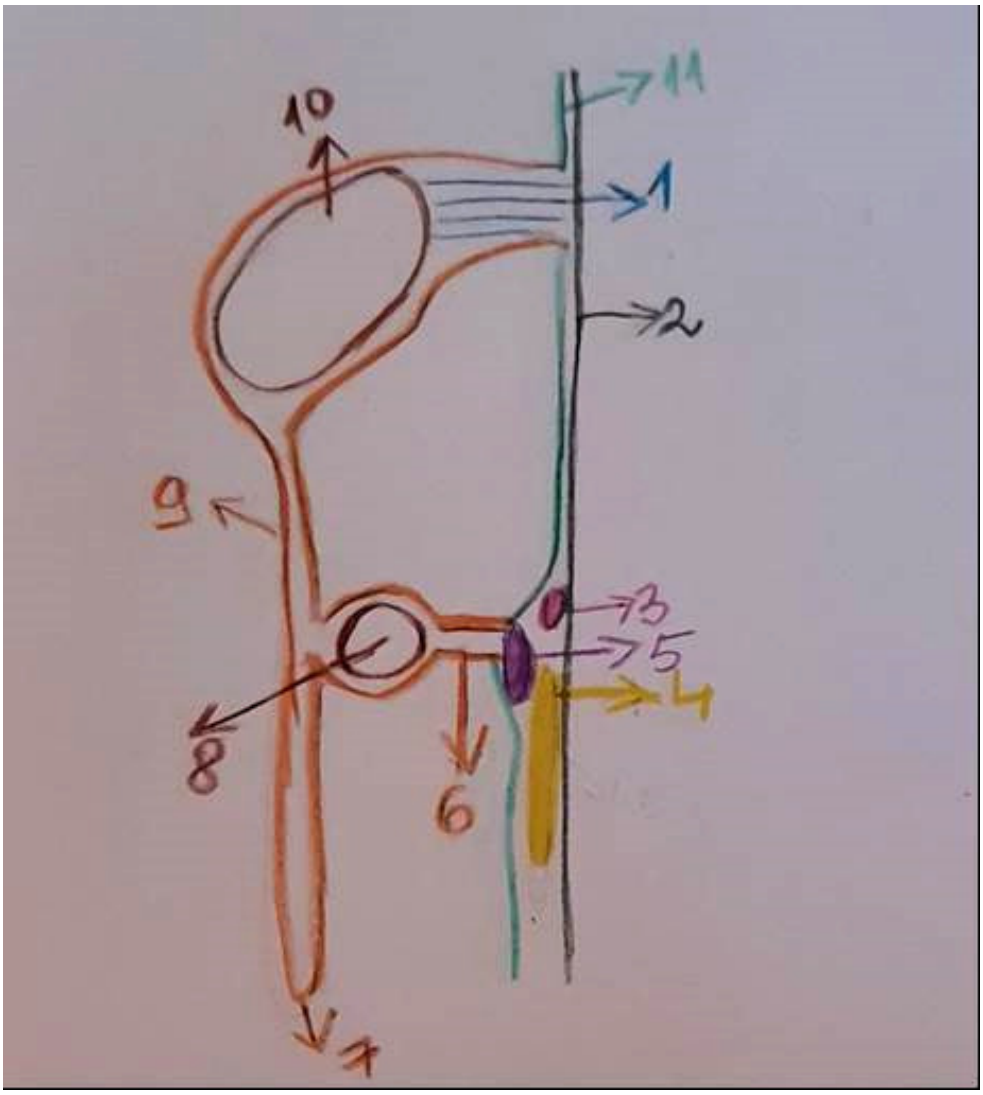

Figure 6: *Bursa omentalis*, sagittal section: 1. Phreno gastric ligament; 2. Posterior abdominal wall; 3. Left adrenal gland; 4. Pancreas; 5. Left kidney; 6. Transverse mesocolon; 7. Greater omentum; 8. Transverse colon; 9. Gastro colic ligament; 10. Stomach; 11. Parietal peritoneum.

Right prolongation or *vestibuli bursa omentalis* has four walls and two orifices:

1. Posterior wall= parietal peritoneum which lines the anterior wall of the posterior abdominal wall, in between the inferior vena cava and the gastro pancreatic folds;

2. Inferior wall= lesser curvature of the stomach and the first part of duodenum/ *bulbus duodenalis*, at its right limit;

3. Superior wall=caudate lobe of the liver;

4. Anterior wall=lesser *omentum* (gastro hepatic ligament+ duodeno hepatic ligament);

Right orifice=Winslow *hiatus* has the following borders:

- Superior=caudate lobe of the liver;

- Anterior=free border of the lesser omentum, which contains the hepatic pedicle;

- Posterior=inferior vena cava;

- Inferior=first part of duodenum;

Left orifice=*foramen bursae omentalis* realizes communication of *vestibulus* with the main part of *bursa omentalis*. It is bordered as it follows:

- Anterior= lesser curvature of the stomach;
- Postero inferior=inferior gastro pancreatic fold or the arch of hepatic artery;
- Postero superior=superior gastro pancreatic fold or the arch of left gastric artery.

Left prolongation or splenic/lineal recess=extends to the spleen hilum, having as anterior limit the gastrolienal ligament, and posterior limit the pancreatico lienal or phrenic lienal ligament.

Superior prolongation or superior recess= ascends in between the inferior vena cava (right lateral side) and oesophagus (left lateral side), to the coronary ligament of the liver.

Inferior prolongation or inferior recess= is present in the foetal life, but could persist in the adult life. When present, stays in between the layers of the greater *omentum.*

Access pathways in *bursa omentalis* are:

1. Winslow hiatus, the only natural way;

2. Gastro colic ligament;

3. Transvers mesocolon;

4. Lesser omentum;

5. Gastro lienal ligament;

6. Pancreatico lienal ligament;

7. Greater *omentum* layers detachment, very rare.

Peritoneal reflections

This is followed on three sagittal sections and two transversal sections.

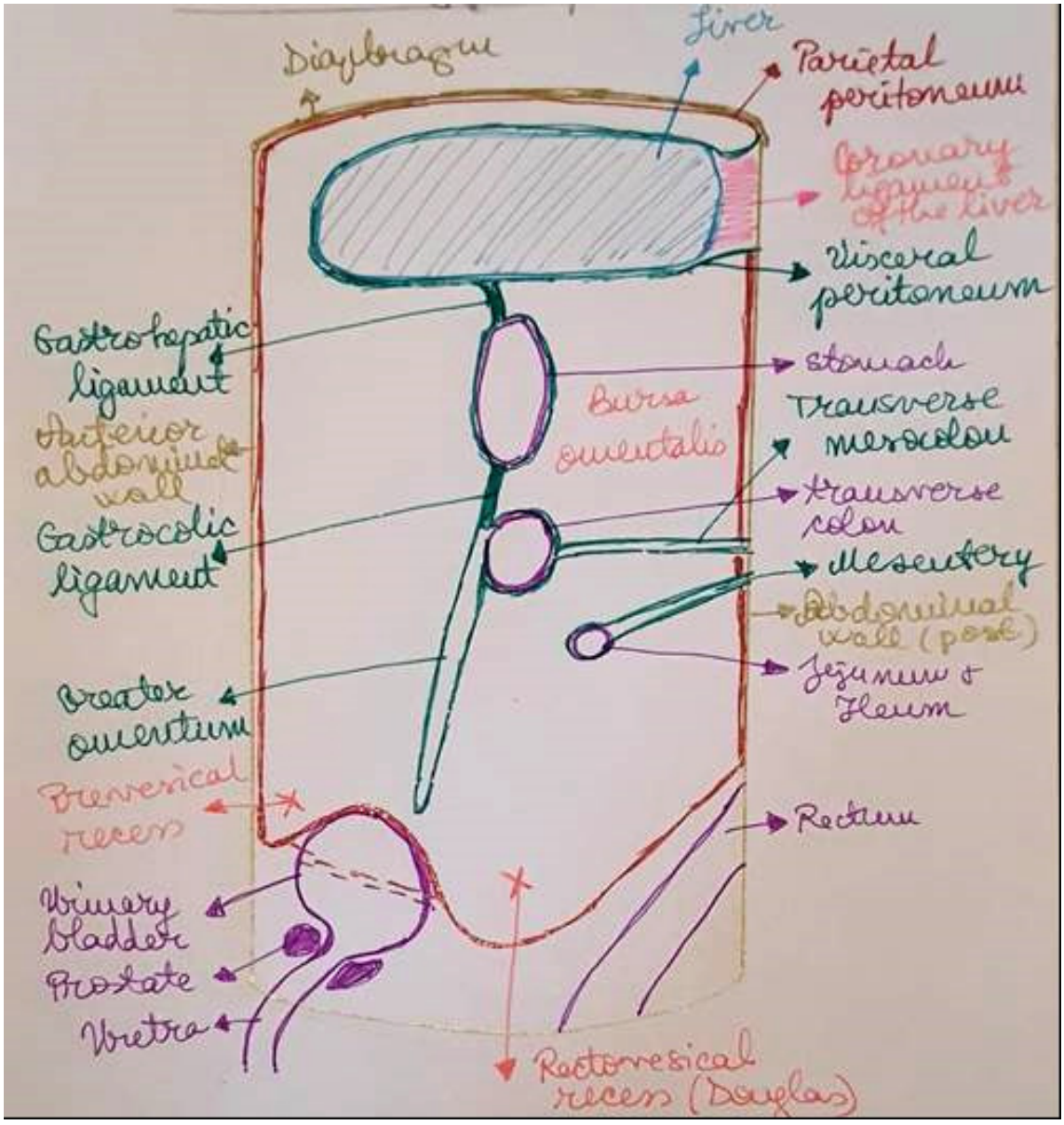

Figure 7: Peritoneal reflection in to the mediosagittal plane

Prevesical recess is real only when the urinary bladder is filled, its emptiness leads to the contours vanishing.

Recess of Douglas or cul-de-sac Douglas is named recto vesical recess in male, while in female is called recto terine recess. It represents the deepest part of the peritoneal cavity. Here could occur pathologic liquids accumulation that irritate the peritoneum. In clinics this is known as" the scream of Douglas". The recto vesical recess puncture/punction in male is performed via the rectum, while the recto uterine recess puncture/punction in female is performed via rectum and vagina.

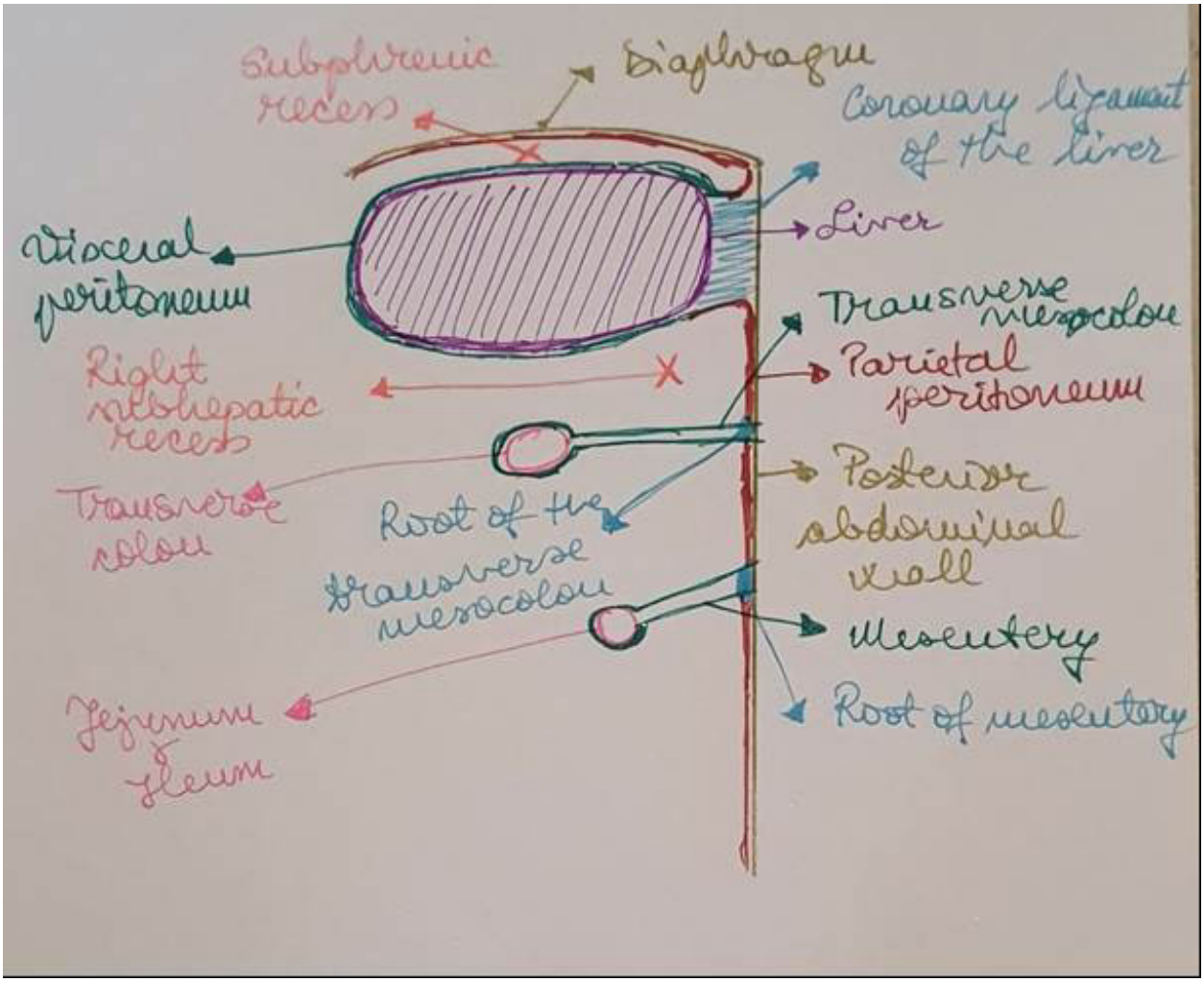

Figure 8: Peritoneal reflection in to the right para sagittal plane

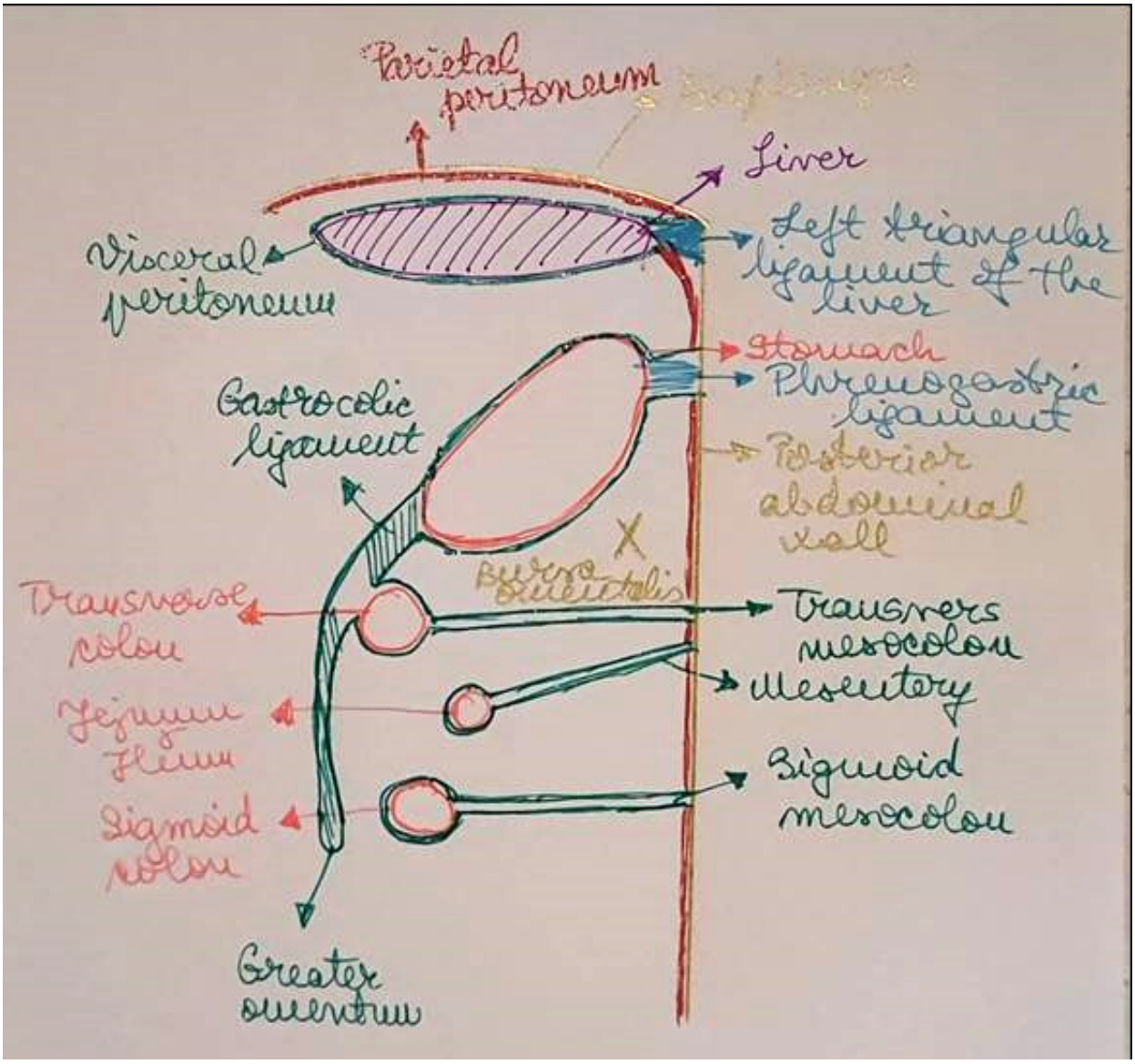

Figure 9: **Peritoneal reflection in to the left para sagittal plane**

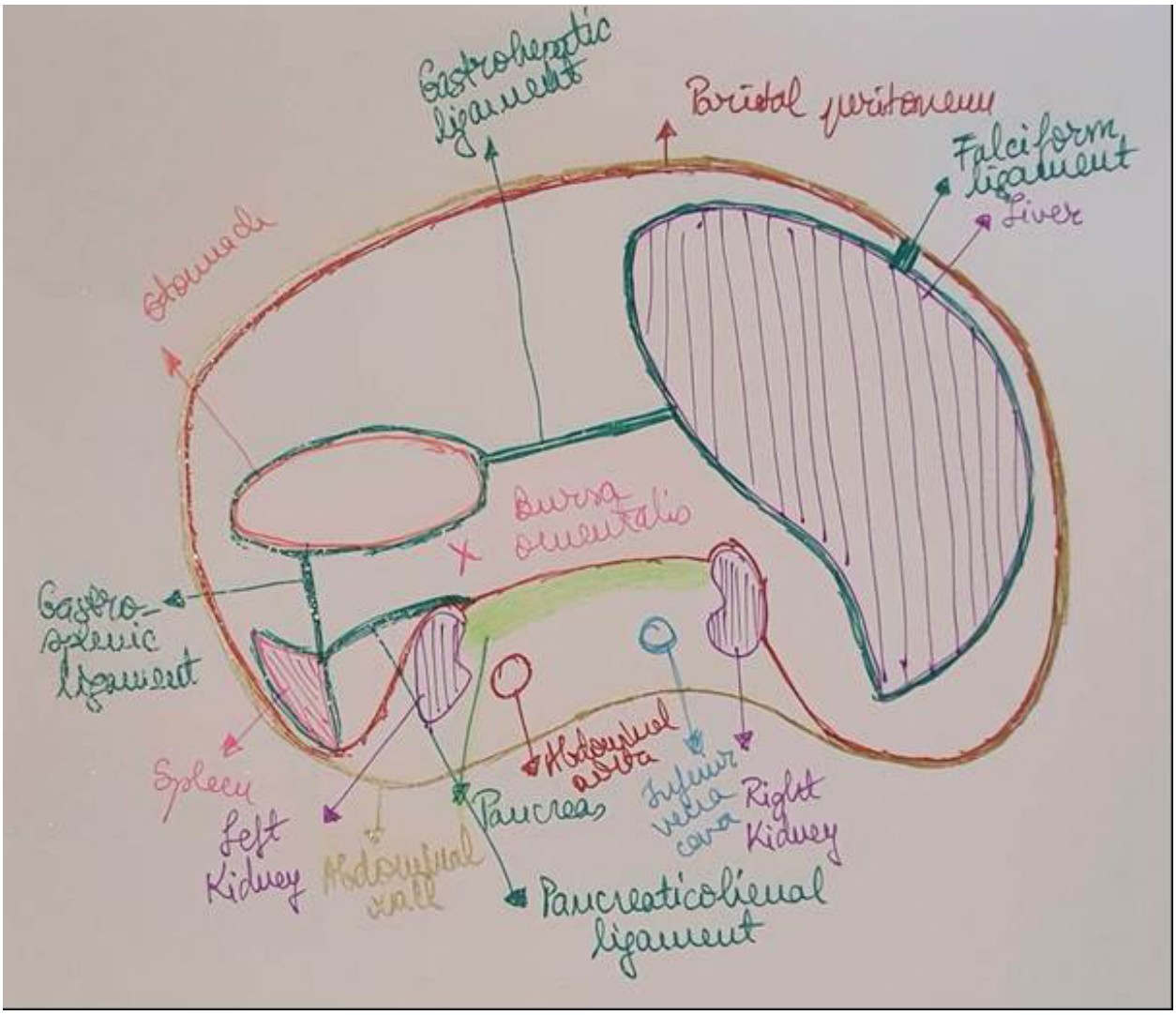

Figure 10: Peritoneal reflection in to the supra mesocolic transversal plane

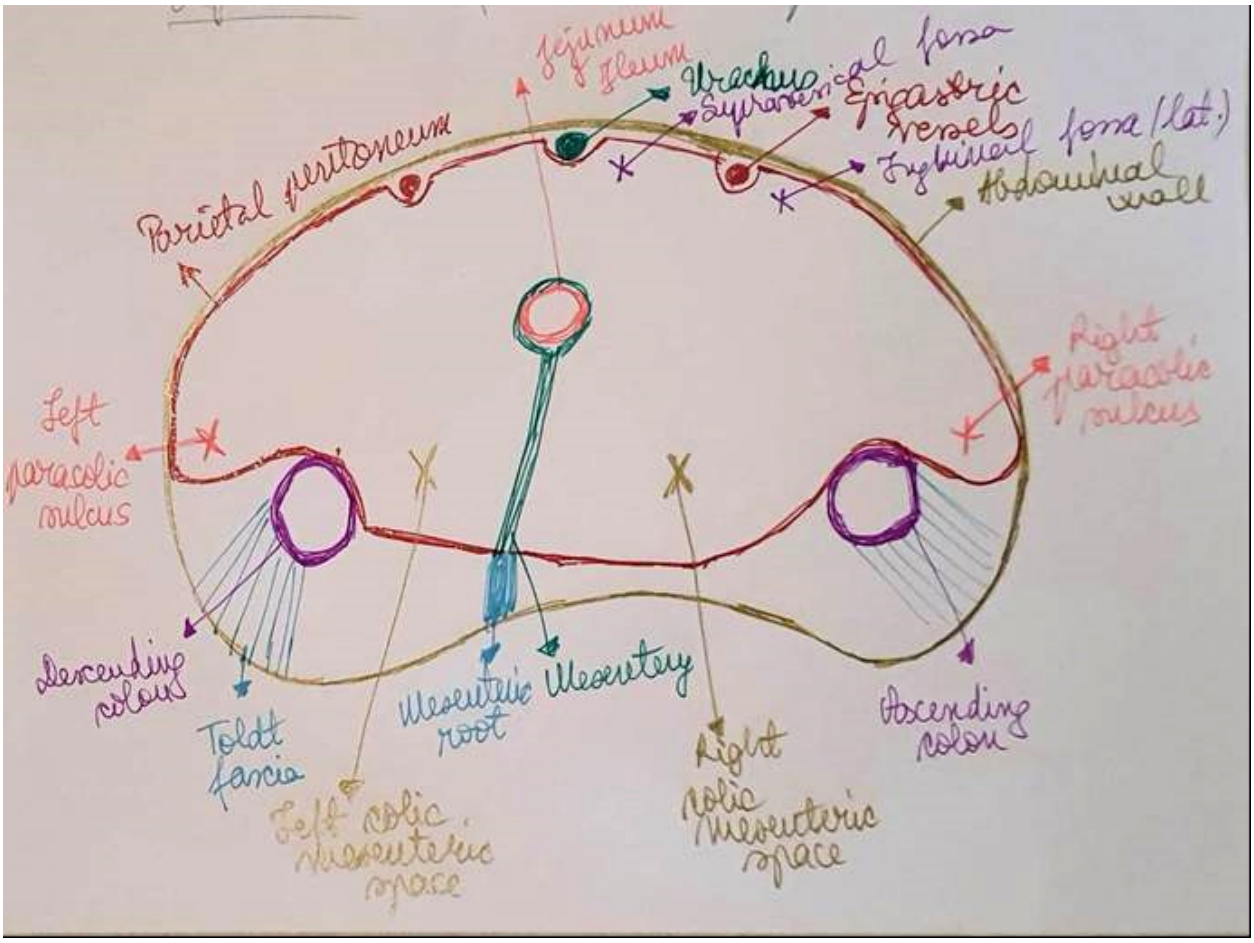

Figure 11: Peritoneal reflection in to the infra mesocolic transversal plane

Coeliac region of Luschka

It is a region situated retro peritoneal in the supra mesocolic level of the abdominal cavity, at the level of *bursa omentalis.*

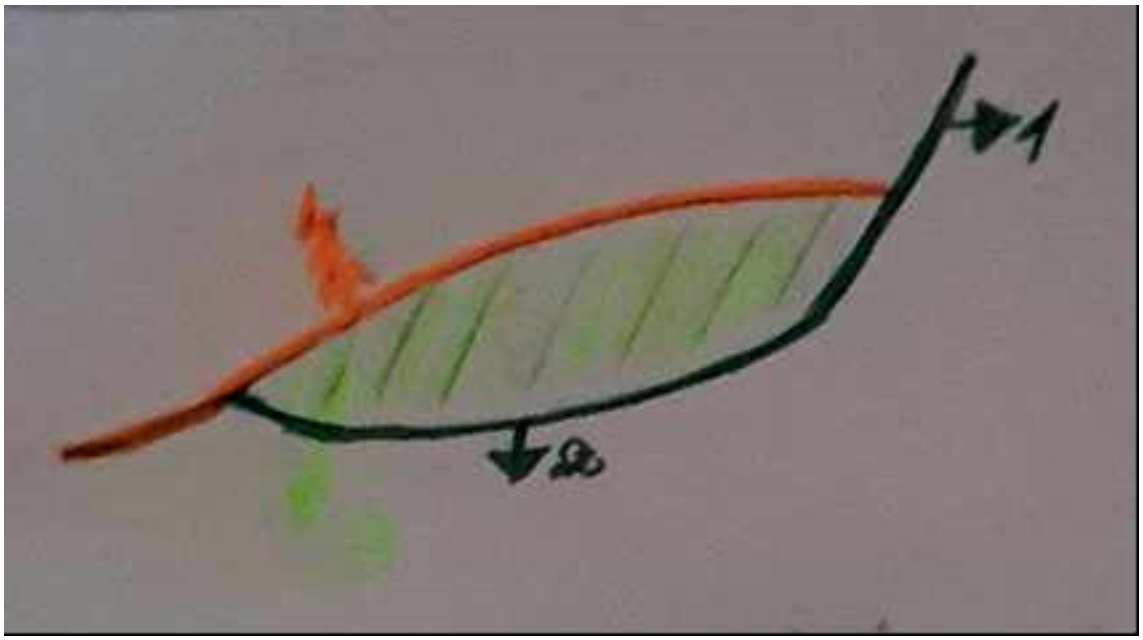

Figure 12: Coeliac region of Luschka, superficial limits: 1. Left lateral=vertical part of smaller curvature of the stomach; 2. Inferior=Horizontal part of smaller curvature of the stomach; 3. Gastro hepatic ligament; 4. Superior and right lateral=liver.

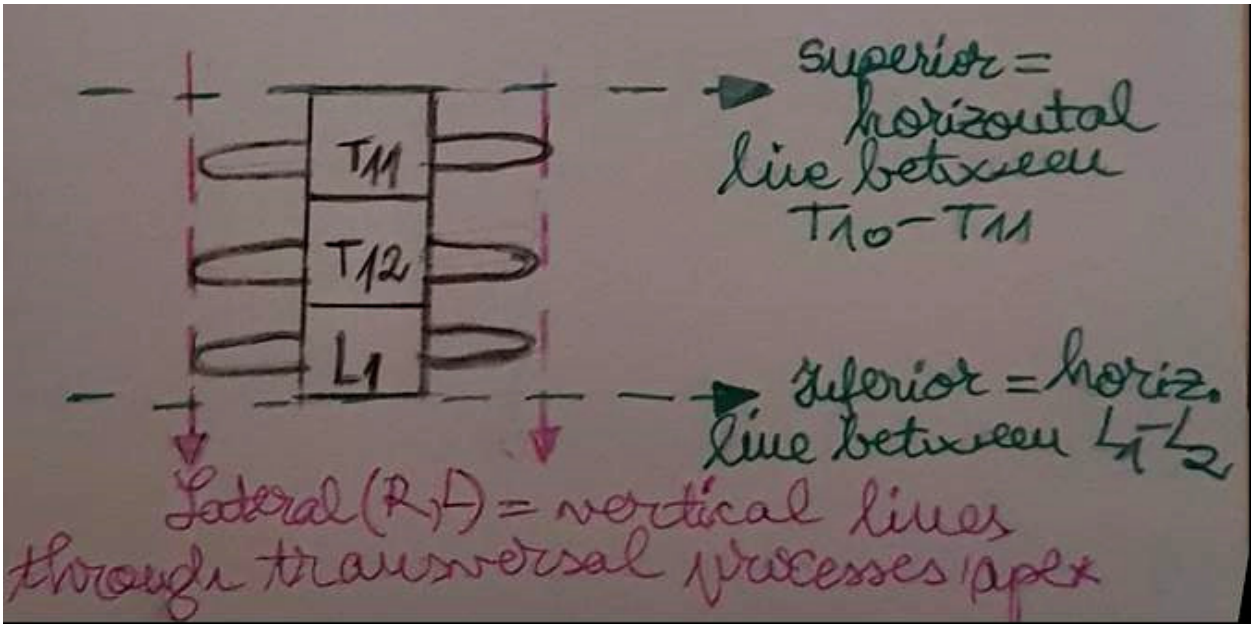

Figure 13: Coeliac region of Luschka, deep limits

Coeliac region of Luschka, layers

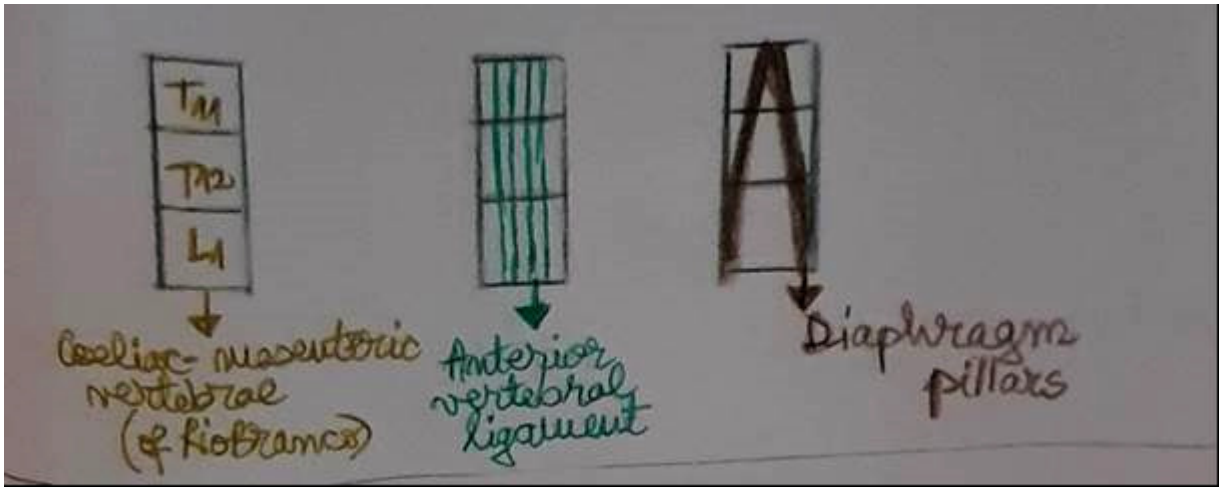

Figure 14: Coeliac region of Luschka, osteo fibrous muscular layer

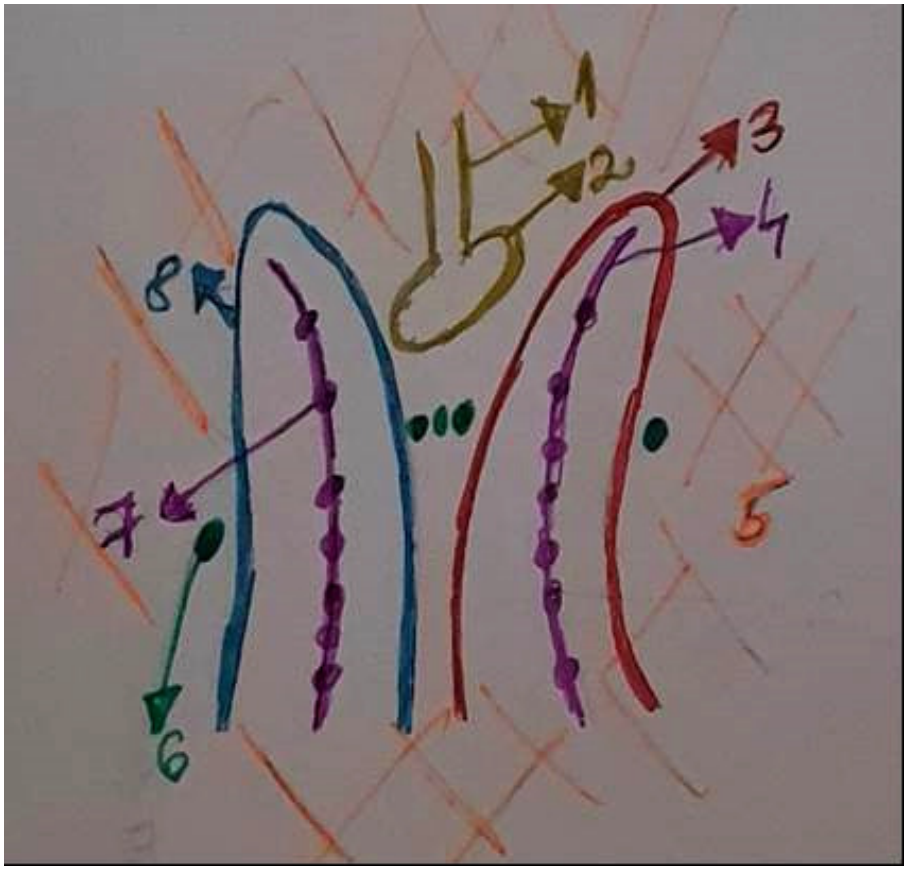

Figure 15: Coeliac region of Luschka, vasculo nervous layer: 1. Thoracic duct; 2. Pequet lymphatic reservoir; 3. Abdominal aorta; 4. Left lumbar sympathetic chain; 5. Coeliac plexus fibers. 6. Lumbar aortic lymph nodes; 7. Right lumbar sympathetic chain; 8. Inferior vena cava

Peritoneal plane is represented by the parietal peritoneum which lines the anterior aspect of the posterior abdominal wall, covering the retroperitoneal organs.

Abdominal aorta *(Aorta abdominalis)*

It represents the infra diaphragmatic part of the descending aorta. It starts at the diaphragmatic hiatus and finishes at the L4 level, where bifurcates into the right and left common iliac arteries.

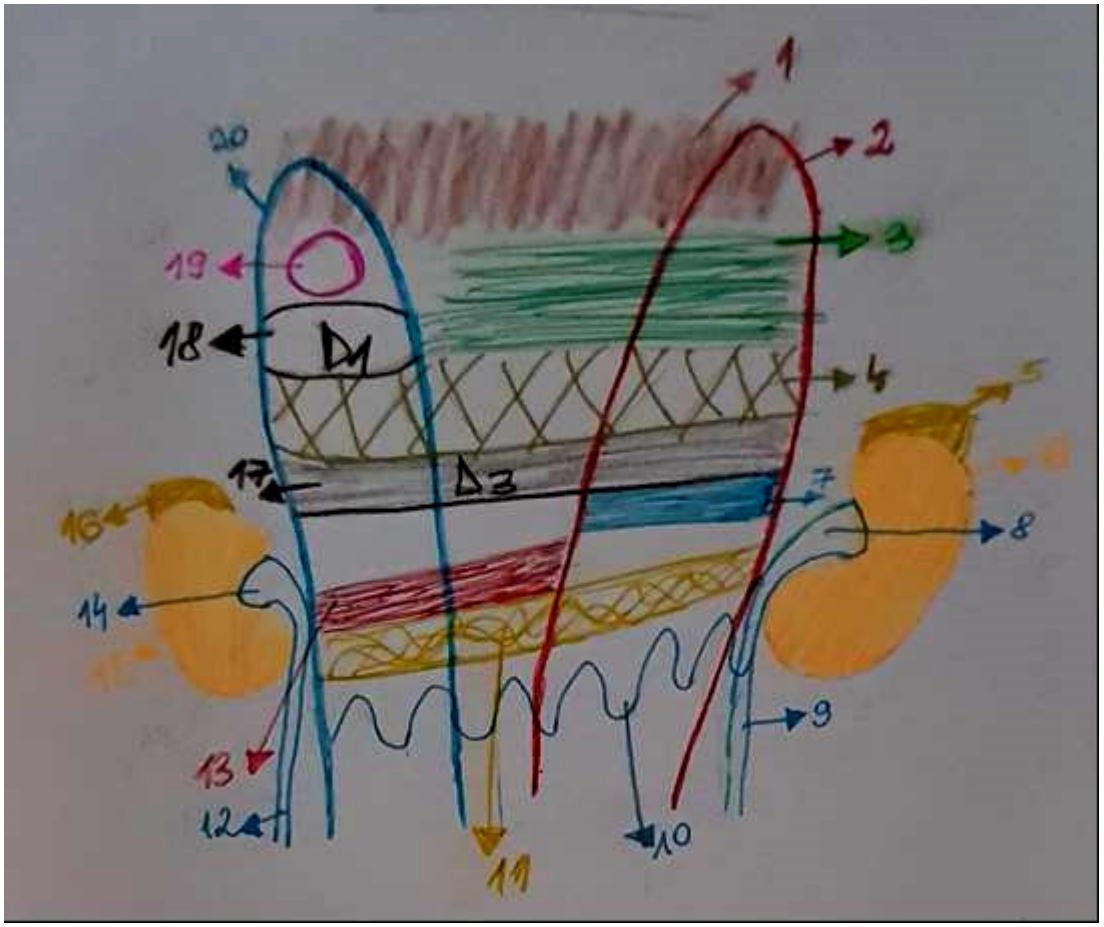

Figure 16: Abdominal aorta, relations: 1.Liver; 2.Abdominal aorta; 3. Omental bursa (stomach); 4. Pancreas, head and body; 5. Left adrenal gland; 6. Left kidney; 7. Left renal vein; 8. Left renal pelvis; 9. Left ureter; 10. Jejunal-ileal *ansae*; 11. Mesenteric root; 12. Right ureter; 13. Right gonadal artery; 14. Right renal pelvis; 15. Right kidney; 16. Right adrenal gland; 17. Third part of duodenum; 18. First part of duodenum; 19. Winslow hiatus; 20. Inferior vena cava

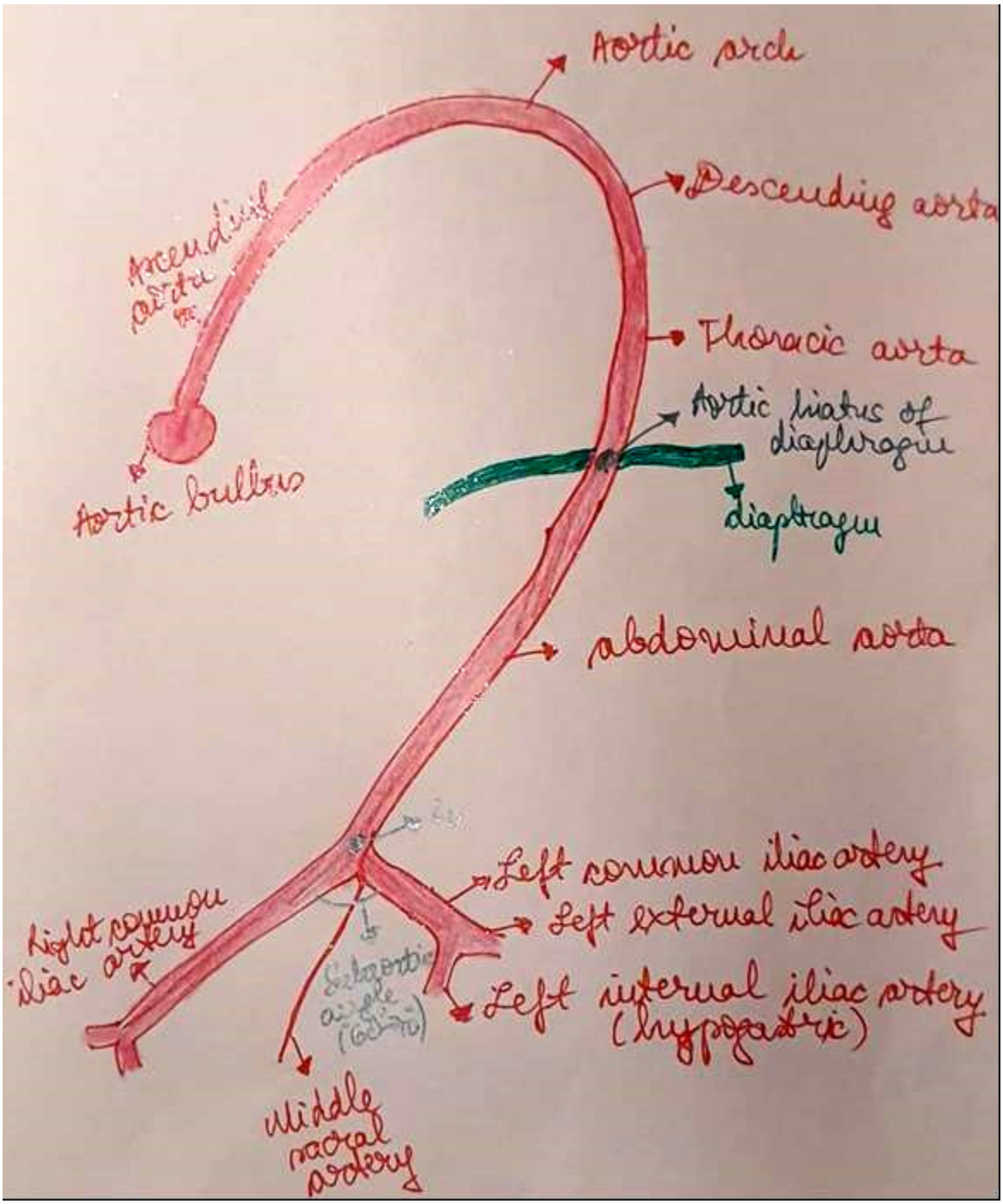

Figure 17: Abdominal aorta, parts

Relations:

1. Anterior, from upward downward:

- Liver,
- *Bursa omentalis* peritoneum,
- Stomach,
- Pancreatic body,
- 3rd part of duodenum,
- Left renal vein,
- Mesenteric root,
- Jejunalileal loops.

2. Posterior:

- Vertebral column,
- Left lumbar veins,
- Left lumbar sympathetic nervous chain,
- Thoracic duct,
- Main lymphatic collector Pequet.

Right lateral: inferior vena cava

Left lateral:

- Left kidney,
- Left adrenal gland,
- Left renal pelvis,
- Left ureter.

Lumbar aortic lymph nodes have relations with inferior vena cava and abdominal aorta.'

Branches

Abdominal aorta branches are divided into collateral and terminal.

The terminal branches are the two common iliac arteries, which is added the middle sacral artery. It descends in the sub aortic angle, at the aortic bifurcation.

The collateral parietal branches are:

1. Inferior diaphragmatic /phrenic arteries,

2. Lumbar arteries, synonymous to the inter costals, are 5 pairs, the last pair has origin in the middle sacral artery.

The collateral visceral branches are:

1. Coeliac trunk/artery of Haller;

2. Superior mesenteric artery;

3. Renal artery;

4. Gonadal artery;

5. Inferior mesenteric artery;

9. Middle suprarenal artery;

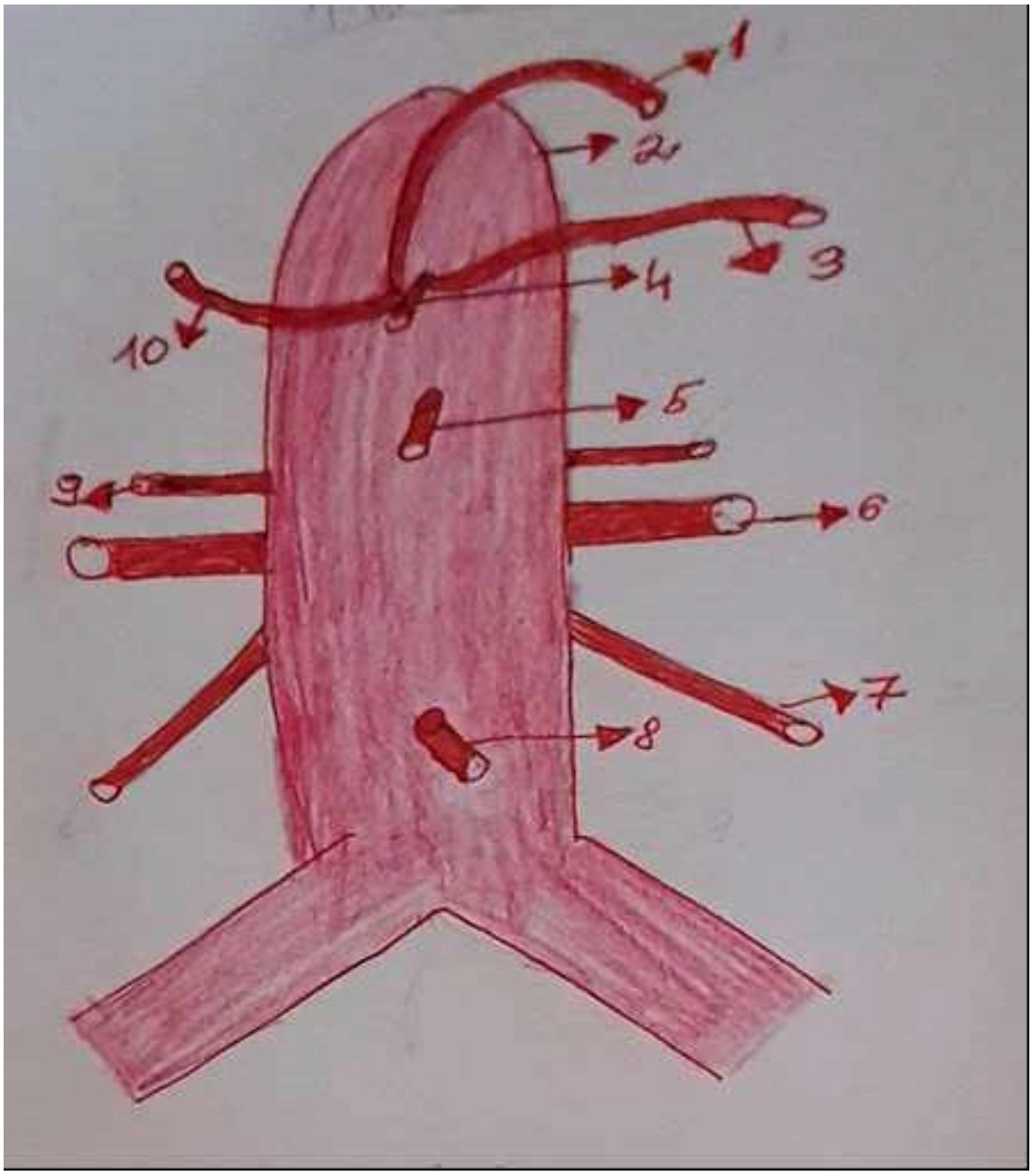

Figure 18: Abdominal aorta, visceral branches: 1. Left gastric artery; 2. Abdominal aorta; 3. Splenic artery; 4. Coeliac trunk/artery of Haller; 5. Superior mesenteric artery; 6. Renal artery; 7. Gonadal artery; 8. Inferior mesenteric artery; 9. Middle suprarenal artery; 10. Common hepatic artery.

Inferior vena cava *(Vena cava inferior)*

It has origin at the level of the superior part of the L5 vertebral body. Then ascends on the right side of the vertebral column, reaching the diaphragmatic hiatus. It crosses it and opens in the inferior wall of the right atrium via an orifice guarded by the Eustachio valve.

Relations:

Anterior=. From upward downward are:

-Liver,

- Winslow hiatus,
- First part of duodenum,
- Pancreatic head,
- Third part of duodenum,
- Right gonadal artery,
- Mesenteric root,
- Jejunalileal loops.

Posterior:

- Right flank of vertebral column
- Lumbar arteries,
- Right lumbar sympathetic chain.

Right lateral:

- Right adrenal gland,
- Right kidney,
- Right renal pelvis,
- Right ureter,
- Psoas muscle.

Left lateral:

-Abdominal aorta

Both main vessels of the abdomen have relations with the lomboaortic lymph nodes.

Tributaries:

They are origin tributaries, parietal tributaries and visceral tributaries.

Origin tributaries are represented by the right and left common iliac veins, the left one receiving the middle sacral vein.

Parietal tributaries are: inferior diaphragmatic veins, lumbar veins, 5 pairs.

Visceral tributaries are:

-Supra hepatic veins, 2 large and 20 small,

- Right and left renal veins,

- Right middle suprarenal vein,

- Right gonadal vein.

Left gonadal vein reaches the inferior vena cava via left renal vein. The suprahepatic veins collect blood from the liver.

The portal vein is formed by the unit of the splenic vein, inferior mesenteric vein and superior mesenteric vein.

Lymphatic of the abdomen

Lymphatic vessels unit into two lumbar lymph collector tubes. They drain into *cisterna chyli* of Pequet, which continues upward with the thoracic duct.

The lymph nodes are grouped into visceral and parietal.

Parietal lymph nodes are also divided into:

- lymph nodes of anterior lateral abdominal wall;

- retro peritoneal parietal lymph nodes/ lombo aortic are disposed into 4 groups: retro caval, latero caval, pre caval, inter aortico caval.

Visceral lymph nodes are situated close to the abdominal organs, and also alongside the vessels, like the coeliac trunk and its branches, and the superior and inferior mesenteric arteries and their branches.

Lumbar sympathetic chain

It is represented by two sympathetic chain ganglia situated paravertebral, on the left side behind the aorta, and on the right side posterior to the inferior vena cava.

It presents 5 pairs of sympathetic ganglia, which communicate to one another via intermediary columns. The lumbar sympathetic chain is continuous upward with the thoracic sympathetic chain, and downward with the sacral sympathetic chain.

Branches:

1. muscular;

2. vascular;

3. osseous;

4. communicating branches with lumbar spinal nerves;

5. to the periaortic plexus.

6. to the splanchnic nerves.

The lumbar sympathetic chain gives off branches disposed around the aorta, forming a peri aortic plexus. This could be present only on the anterior surface of the aorta= pre aortic plexus, or even more restricted, in between the origins of the two mesenteric arteries= inter mesenteric plexus.

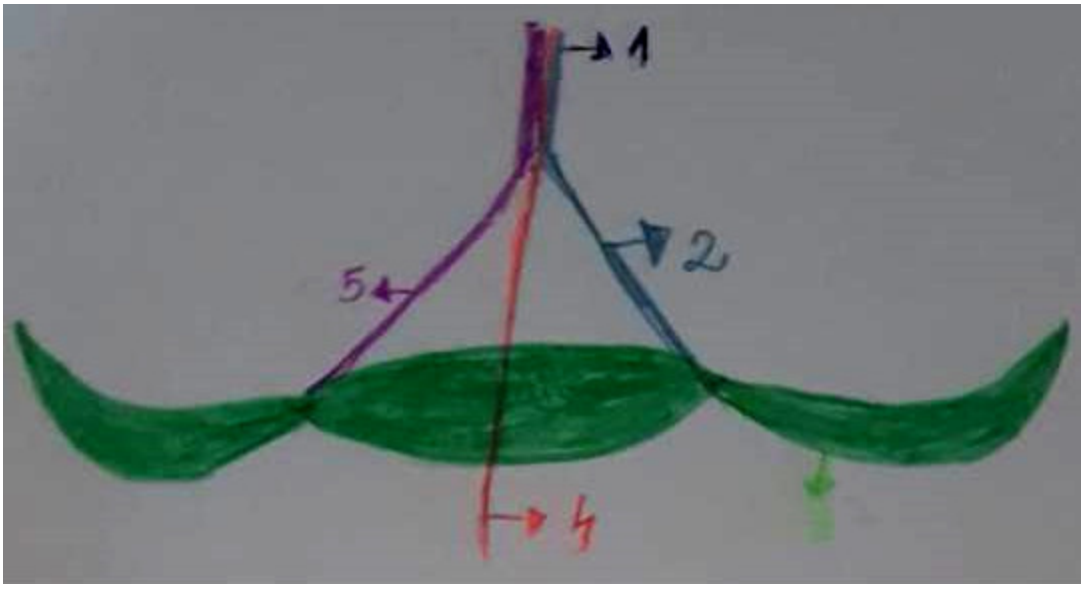

Figure 19: Posterior vagal trunk: 1. Posterior vagal trunk/ vagus abdominiis of Delmas; 2. Left solar branch; 3. Left semilunar ganglion; 4. Middle solar branch; 5. Right solar branch.

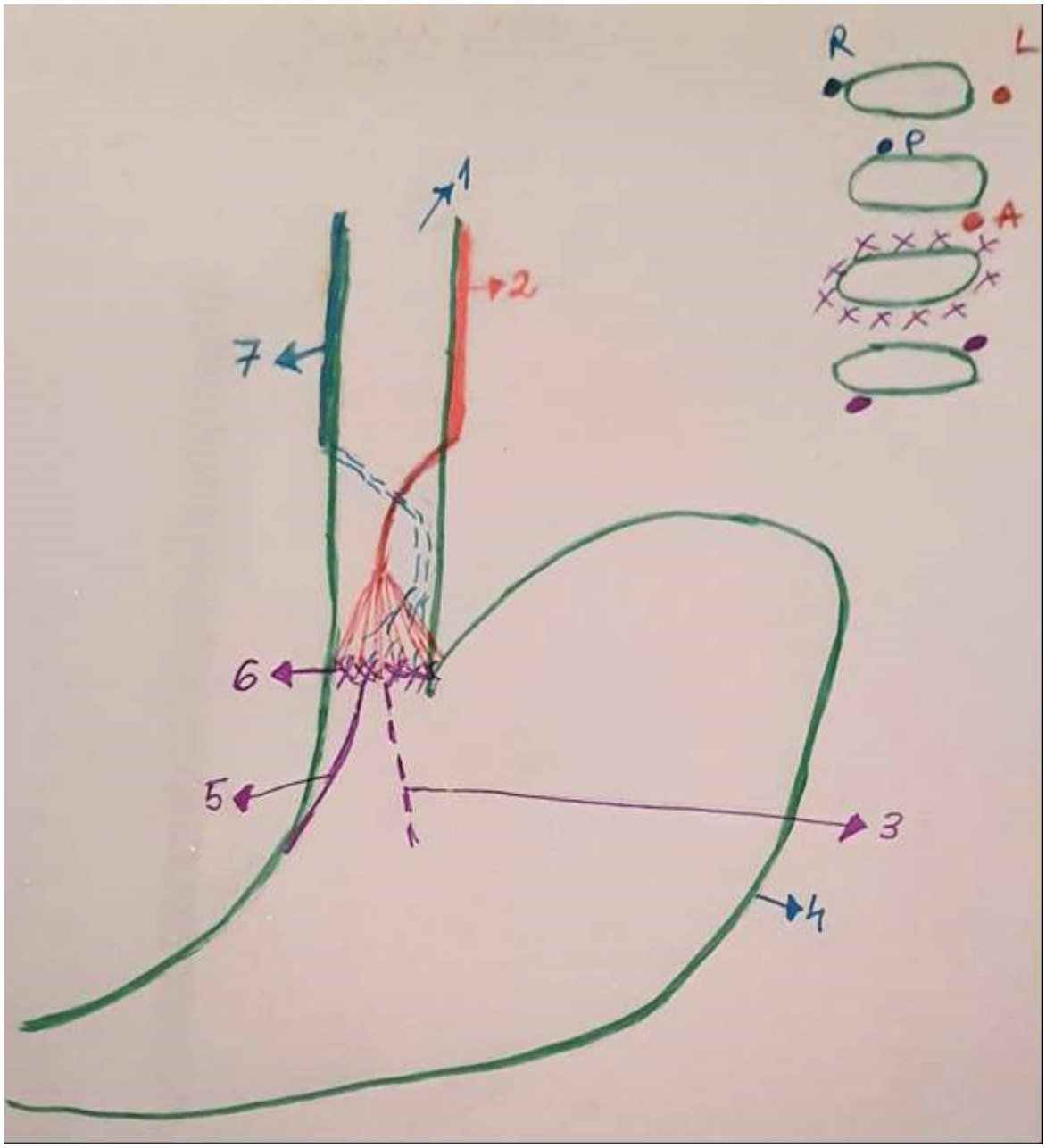

Figure 20 : Vagal nerves: 1.Oesophagusv; 2. Left vagus nerve; 3. *Vagus abdominalis* of Delmas; 4. Stomach; 5. Anterior vagal trunk; 6. Peri oesophageal plexus; 7. Right vagus nerve.

Solar plexus (*Plexus solaris)*

The coeliac plexus or solar plexus, also named “the abdominal brain”, consists of ganglia and vegetative nervous fibres, grouped in afferent and efferent.

The ganglia

They are sympathetic three pairs. Sometimes a fourth pair is present.

1. Semilunar ganglia, right and left, each presents:

- An anterior surface;

- A posterior surface;

- A concave superior border,

- A convex inferior border,

- A lateral horn;

- A medial horn.

They are linked by a double bridge which units the medial horns, passing above and below the coeliac trunk origin.

2. Aortico mesenteric ganglia, right and left, spherical in shape, are situated para aortic, being linked via a nervous bar, below the inferior mesenteric artery origin.

3. Aortico renal ganglia, right and left, spherical in shape, are disposed on the side of the renal arteries emergencies.

4. Retro renal ganglia of Hirschfeld, right and left, are small and inconstant. They are located posterior to the renal arteries, being linked to the aortico renal ganglia.

The afferent branches

They are vegetative nervous fibres, sympathetic (thoracic sympathetic) and parasympathetic *(vagi* nerves), inconstant being attached the right phrenic nerve.

The right splenic nerve reaches the superior border of the right semilunar ganglion, close to its lateral horn.

The *vagi* nerves, right and left, descend initially on the oesophagus sides, make a torsion, and so the left vagus nerve passes anterior to the oesophagus, and right *vagus* nerve passes posterior to it, eventually all fibres forming a peri oesophageal vagal plexus. From this moment, we discus about two vagal trunks, anterior and posterior, the last one participate to the constitution of solar plexus.

From the posterior vagal trunk (Delmas) are given off three solar branches:

1. Right, thick, reaches the medial horn of the right semilunar ganglion,

2. Left, thinner, reaches the medial horn of the left semilunar ganglion,

3. Middle, the thinnest, descends on the anterior aspect of aorta.

The splanchnic nerves

There are two, greater and lesser, sometimes contributes also an imus nerve.

They participate in forming the solar plexus as follows:

The greater splanchnic nerve reaches the lateral horn of the semilunar ganglia.

The lesser splanchnic nerve has got three branches, one superior, reaches the inferior border of the semilunar ganglia, close to its lateral horn, one middle, which finishes at the level of mesenteric ganglia, and one inferior which ends at the level of the aortico renal ganglia.

The *imus* splanchnic nerve, inconstant, it reaches the aortico renal ganglia.

All splanchnic nerves come from thoracic sympathetic.

The efferent branches

They are distributed to the abdominal viscera. These branches travel to organs as plexuses alongside the abdominal vessels:

- the proper coeliac plexus, that gives off the hepatic plexus, the lineal plexus, the left gastric plexus,
- the superior mesenteric plexus,
- the suprarenal plexus, paired,
- the renal plexus, paired,
- the gonadal plexus, paired,
- the inferior mesenteric plexus,
- the inferior diaphragmatic (phrenic) plexus, the only parietal plexus.

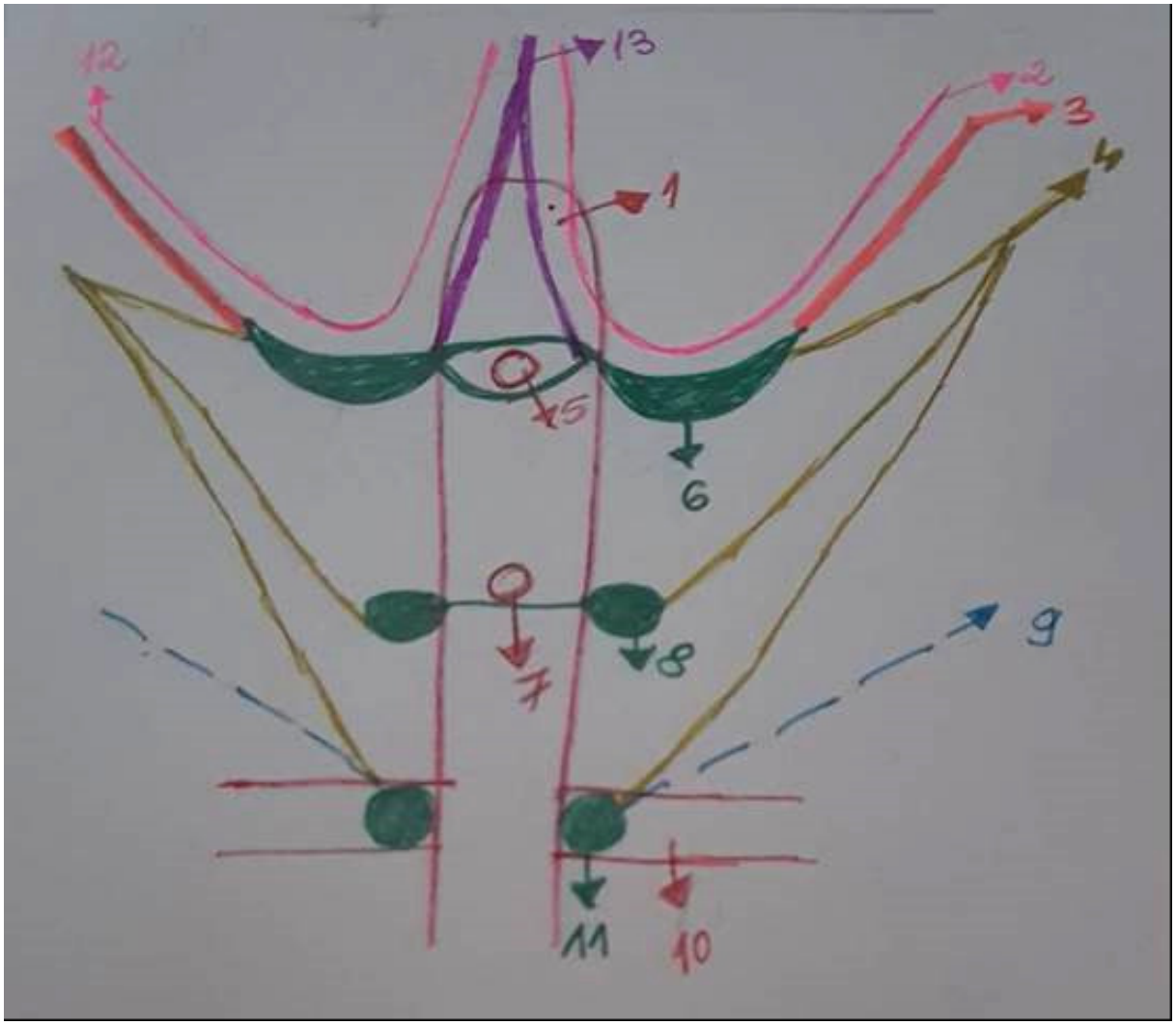

Figure 21: Splanchnic nerves: 1. Abdominal aorta; 2. Nervous loop of Laignel- Lavastine; 3. Greater splanchnic nerve; 4. Lesser splanchnic nerve; 5. Coeliac trunk; 6. Left semilunar ganglion; 7. Inferior mesenteric artery; 8. Aortico mesenteric ganglia; 9. *Nervus splanchnicus minimus*. 10. Renal artery; 11. Aortico renal ganglia; 12. Wrisberg nervous loop; 13. Solar branches of posterior vagal trunk.

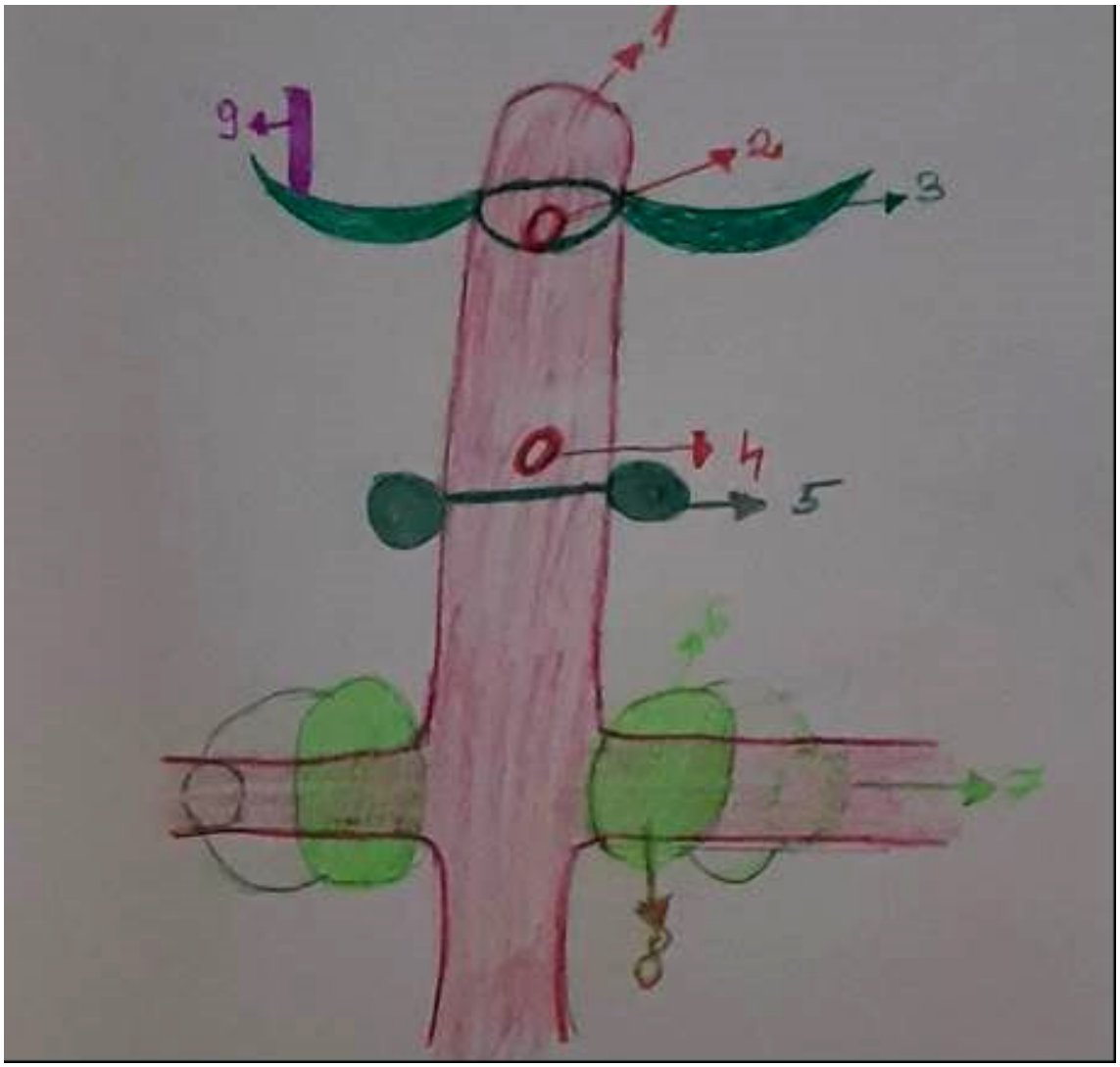

Figure 22: Coeliac/solar plexus, ganglia: 1. Abdominal aorta; 2. Origin of coeliac trunk; 3. Semilunar ganglia; 4. Inferior mesenteric artery; 5. Aortico mesenteric ganglia; 6. Aortico renal ganglia; 7. Retro renal ganglia; 8. Renal artery; 9. Right phrenic nerve

III. Abdominal viscera (Alina Maria Șișu)

The Liver *(Hepar)*

The liver is the largest gland in the body.

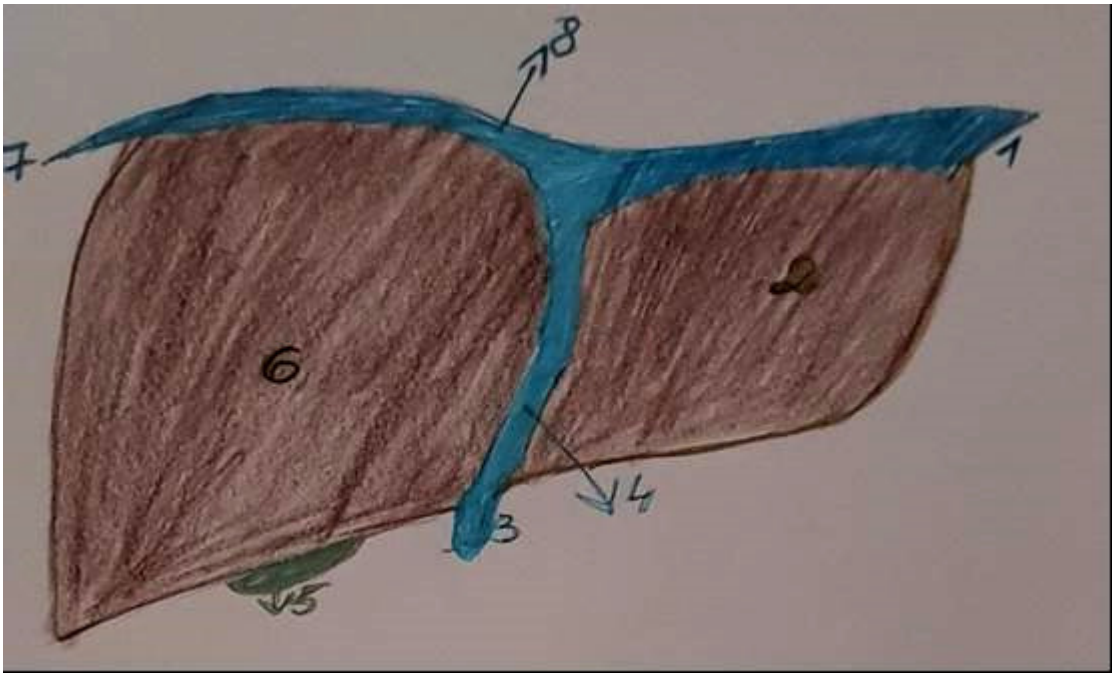

Figure 23: Liver, anterior superior (diaphragmatic) surface: 1. Left triangular ligament; 2. Left lobe of liver; 3. Round ligament; 4. Falciform ligament; 5. Gallbladder. 6. Right lobe of liver; 7. Right triangular ligament; 8. Coronary ligament.

Ligaments of the liver are:

1. Ligaments to the diaphragm	2. Ligaments to organs
• lig. falciform hepatis	• lig. hepatogastricum
• lig. coronaries hepatis	• lig. hepatoduodenale
• lig. triangulare D/S	• lig. hepatorenale
	• lig. teres hepatis

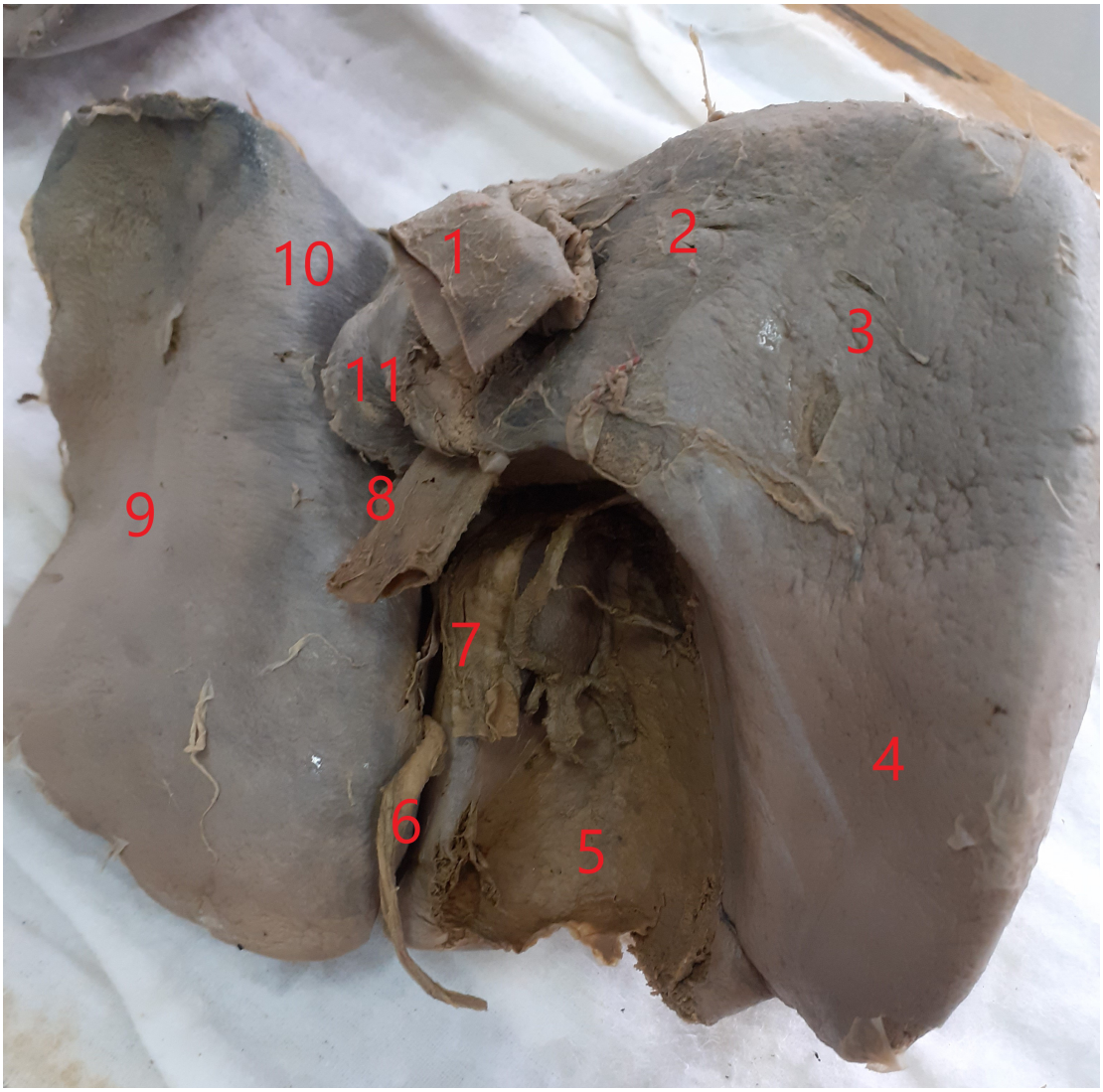

Figure 24: Liver, posterior inferior (visceral) surface: 1. Inferior vena cava; 2. Adrenal impression; 3. *Area nuda*; 4.Colic surface; 5. Fossa for gallbladder. 6. *Ligamentum teres* groove; 7. Cystic duct; 8 Portal vein. ; 9. Gastric impression; 10. Cardiac impression.

Surfaces

The liver has two surfaces; superior (diaphragmatic) and inferior (visceral).

The superior surface is in close contact with the abdominal wall via the falciform ligament. In its the free border is *ligamentum teres* (obliterated umbilical vein).

The inferior surface is broken down into four lobes , in the form of the letter H.

The left limb of the H = the left sagittal groove/fossa is formed of two parts, the fossa for the umbilical vein anterior / superior and the fossa for the ductus venosus posterior/ inferior.

The right limb of the H = the right sagittal groove/fossa, formed anterior by the fossa for the gall-bladder(*fossa vesicæ felleæ*, and posterior by the fossa for the inferior vena cava (*fossa venæ cavæ*).

These are separated by a belt of liver= the caudate process.

The bar connecting the two limbs of the H is the porta *hepatis* (*transverse fissure*). Anterior of it is the quadrate lobe, posterior the caudate lobe.

The superior surface (*facies superior*) is situated mostly under the ribs.

The anterior border (*margo anterior*) is thin and sharp.

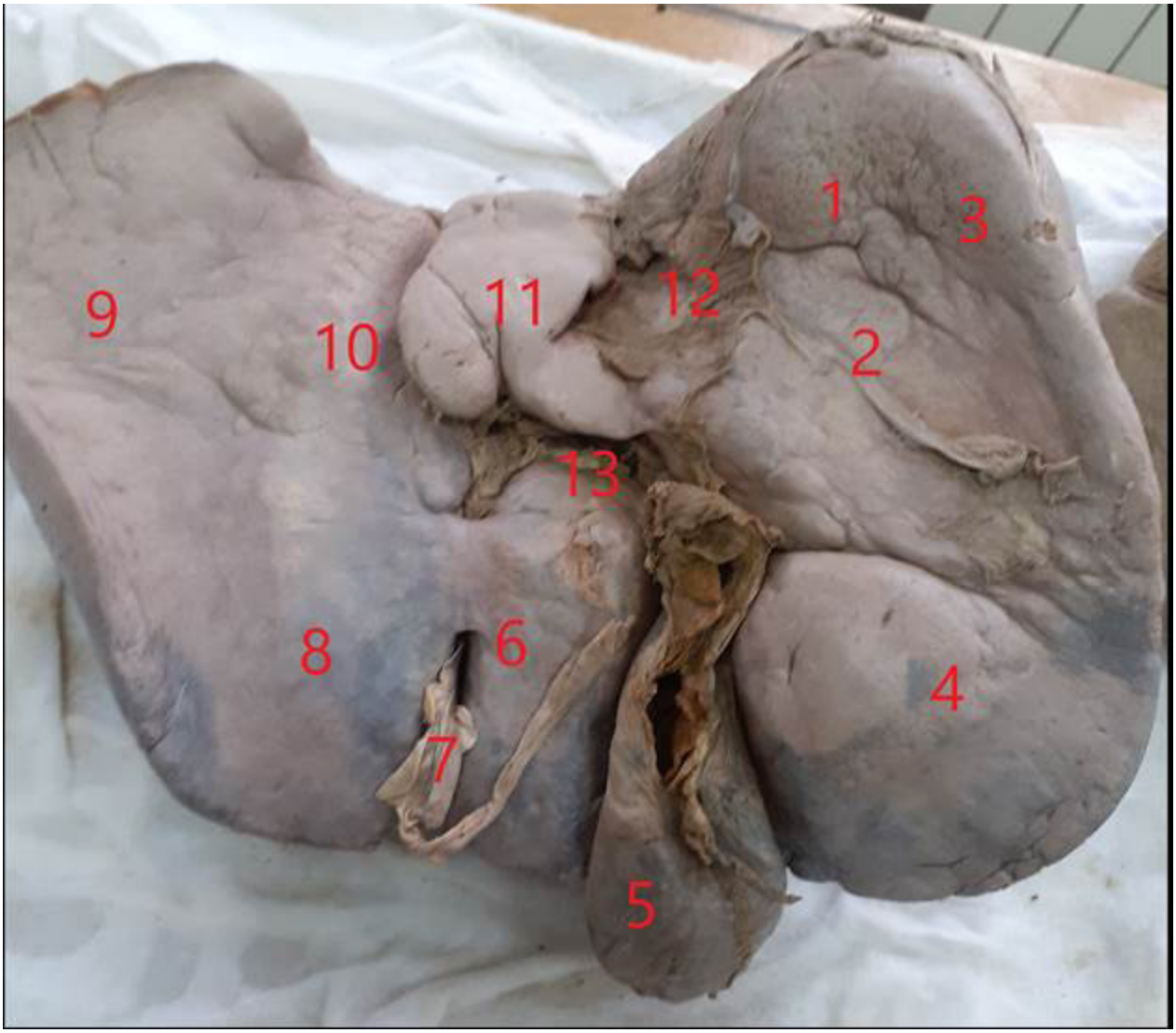

Figure 25: Liver, posterior inferior (visceral) surface: 1. Adrenal impression; 2. Bare area; 3. Renal impression; 4.Colic impression; 5. Gallbladder in the fossa. 6. Quadrate lobe; 7. *Ligamentum teres hepatis*; 8. Duodenal impression; 9. Gastric impression; 10. Groove for *sulcus venosus*; 11.Cuadrate lobe*;* 12. Groove for inferior vena cava.

Lobes

The right lobe (*lobus hepatis dexter*) is much larger than the left. It is situated in the right hypochondrium, separated from the left by the falciform ligament.

The quadrate lobe (*lobus quadratus*) is situated on the inferior surface of the right lobe.

The caudate lobe (*lobus caudatus*) is situated superior to the posterior surface of the right lobe.

The left lobe (*lobus hepatis sinister*) is located in the epigastrium and left hypochondriac ares.

Figure 26: Liver, dissection picture (taken by student Nikol Magaziner): 1.Left lobe of the liver; 2. Gastro hepatic ligament (lesser *omentum*); 3. Stomach; 4. Greater *omentum*; 5. Gallbladder. 6. Right lobe of liver; 7. *Ligamentum teres hepatis*.

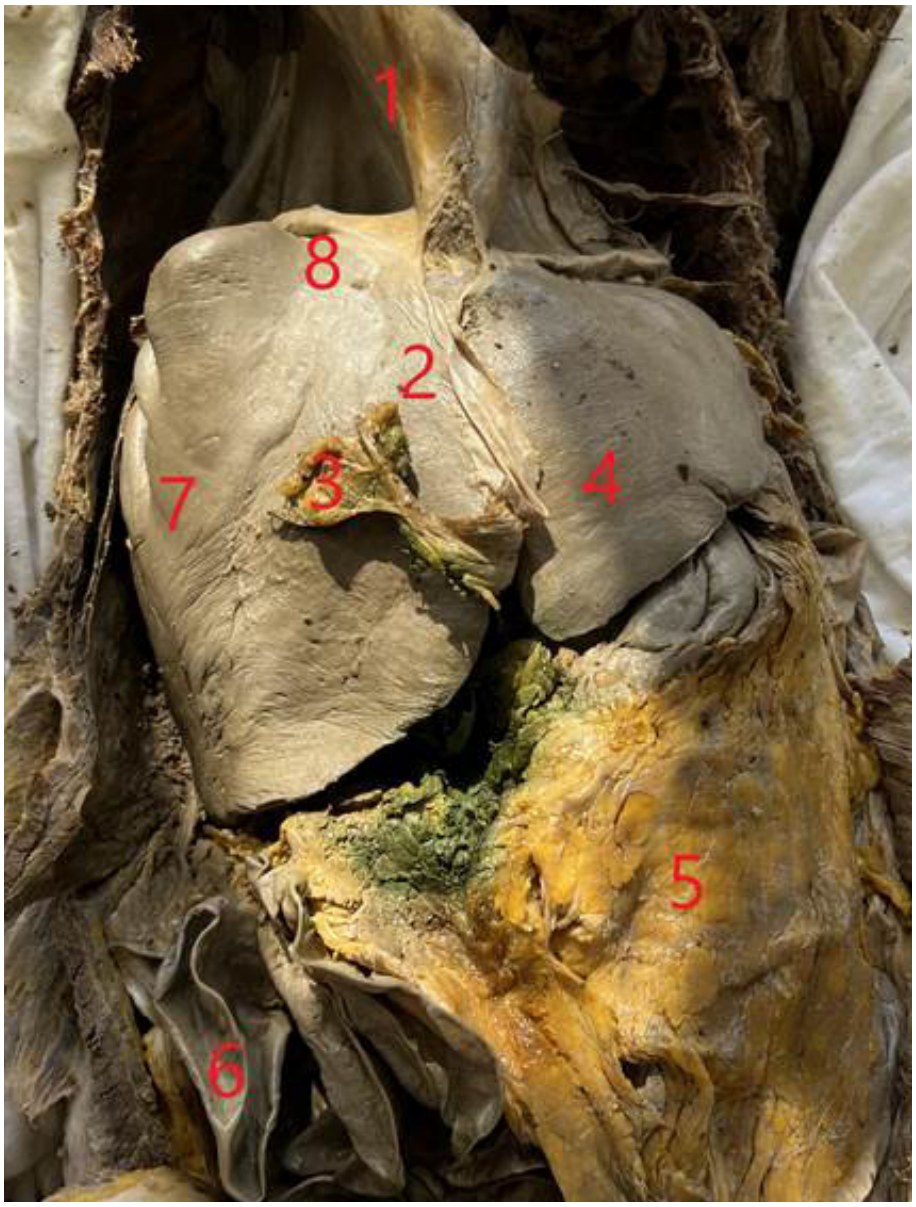

Figure 27: Liver, dissection picture (taken by student Nikol Magaziner): 1. Diaphragm; 2. Falciform ligament; 3. *Ligamentum teres hepatis*; 4. Left lobe of the liver; 5. Greater *omentum.;* 6.Jejunal loops; 7. Right lobe of liver; Coronary ligament.

Figure 28: Lesser *omentum*, dissection picture (taken by student Nikol Magaziner)

Figure 29: Abdominal cavity, dissection picture (taken by student Nikol Magaziner): 1. Left lobe of the liver; 2. Lesser *omentum*; 3. Stomach; 4. Greater *omentum*; 5. *Ligamentum teres hepatis*;.; 6. Falciform ligament.

The Gallbladder (*vesica fellea*)

The gall-bladder is a conic musculomembranous sac, situated in a fossa,on the visceral surface of the right lobe of the liver.

It serves as reservoir, in which the bile produced by the liver accumulates during meals.

It consists of a fundus, body,neck.

The gall-bladder consists of three coats: serous (visceral peritoneum), fibromuscular, and mucous.

The **Cystic duct** (*ductus cysticus*)

The cystic duct continues the gallbladder, and joins the common hepatic duct to form the common bile duct.

The **Common bile duct** (*ductus choledochus*)

The common bile duct is formed by the unit of the cystic and common hepatic ducts.

This union of the two ducts is dilated into an enlarged sac, the ampulla of Vater**.**

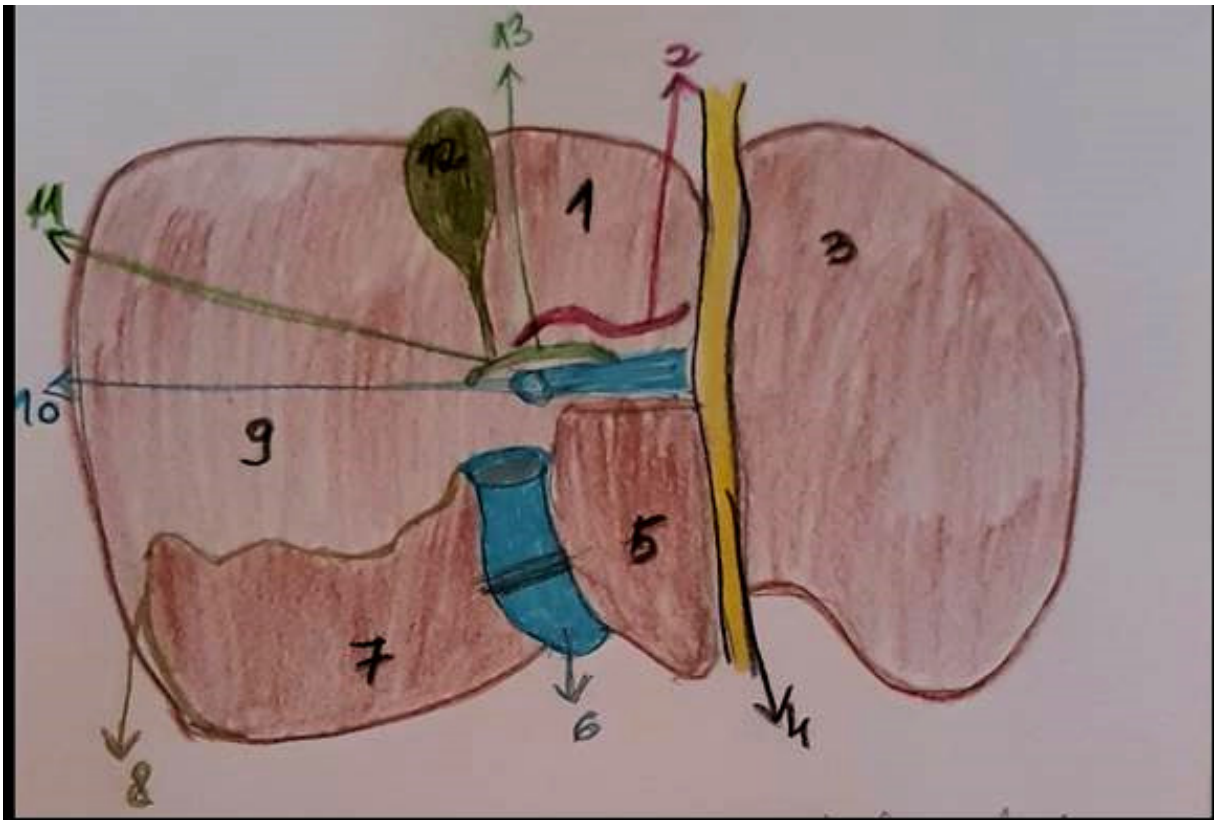

Figure 30: Liver, posterior inferior (visceral) surface: 1. Quadrate lobe of liver; 2. Proper hepatic artery; 3. Left lobe of liver; 4. *Ligamentum venosum*; 5. Caudate lobe of liver. 6. Inferior vena cava; 7. Bare area/ *area nuda*/ naked area; 8. Coronary ligament; 9. Right lobe of liver; 10. Portal vein; 11. *Ductus choledochus;* 12. Gallbladder; 13. Common hepatic duct.

The Stomach *(Gaster)*

It is a hollow organ, situated in the supra mesocolic level of the abdominal cavity. It serves as food reservoir, being the most dilated part of the gastrointestinal tract.

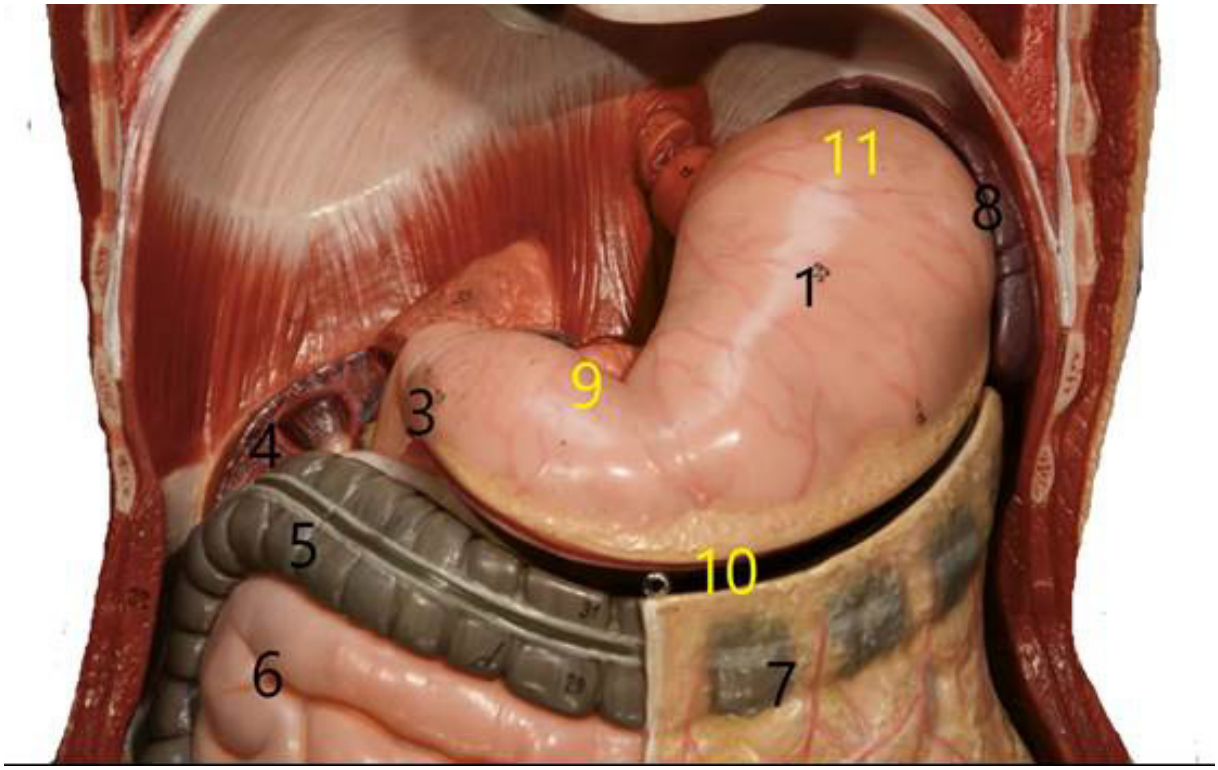

Figure 31: Stomach: 1. Body of stomach; 2. Diaphragm; 3. Pylorus; 4. Right kidney; 5. Transverse colon; 6. *Jejunum;* 7. Greater *omentum*; 8. Spleen; 9. *Antrum piloricum;* 10. Greater curvature of the stomach; 11. *Fundus* of the stomach.

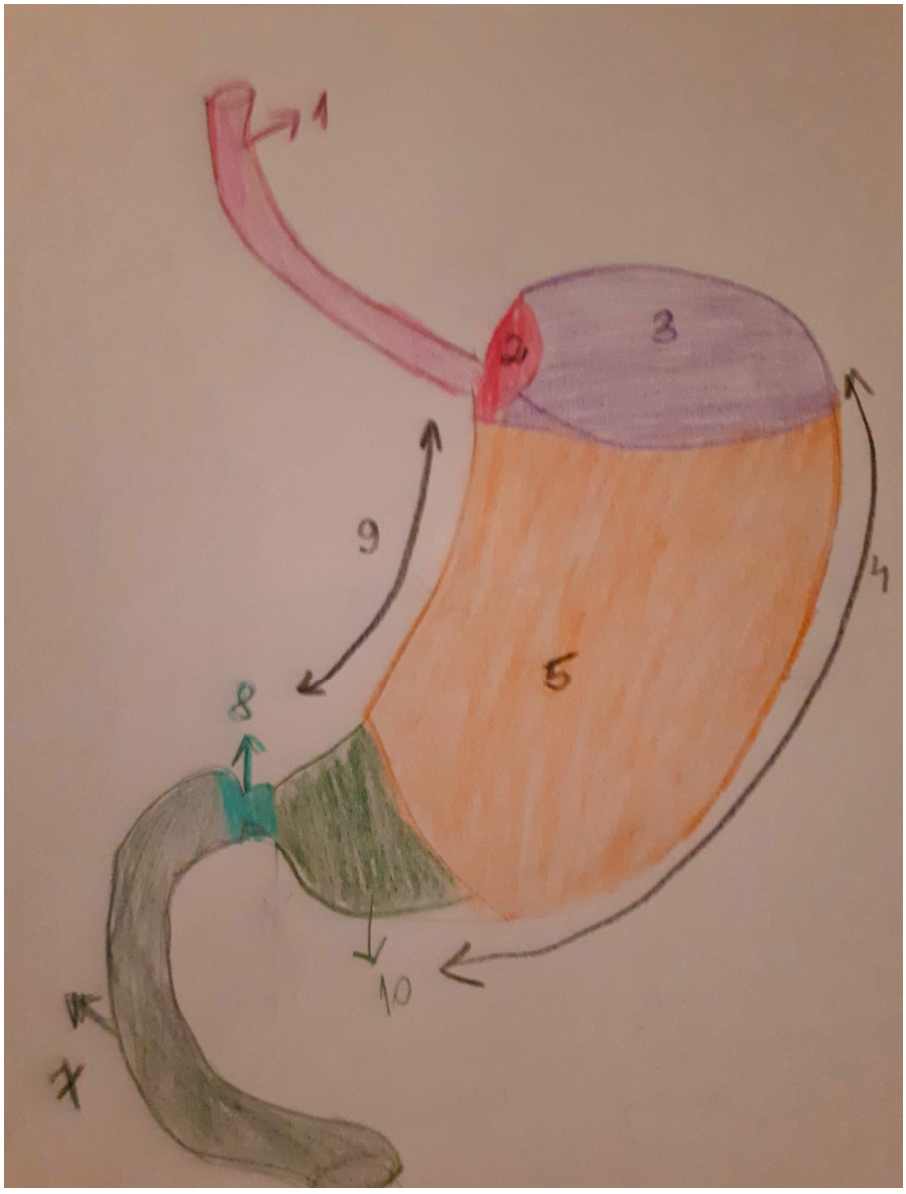

Figure 32: Stomach, divisions: 1. Oesophagus; 2. Cardia orifice; 3. *Fundus*; 4. Greater curvature; 5. Body; 6. Pyloric *antrum;* 7. *Duodenum*; 8. Pyloric sphincter; 9.Lesser curvature; 10. *Antrum*

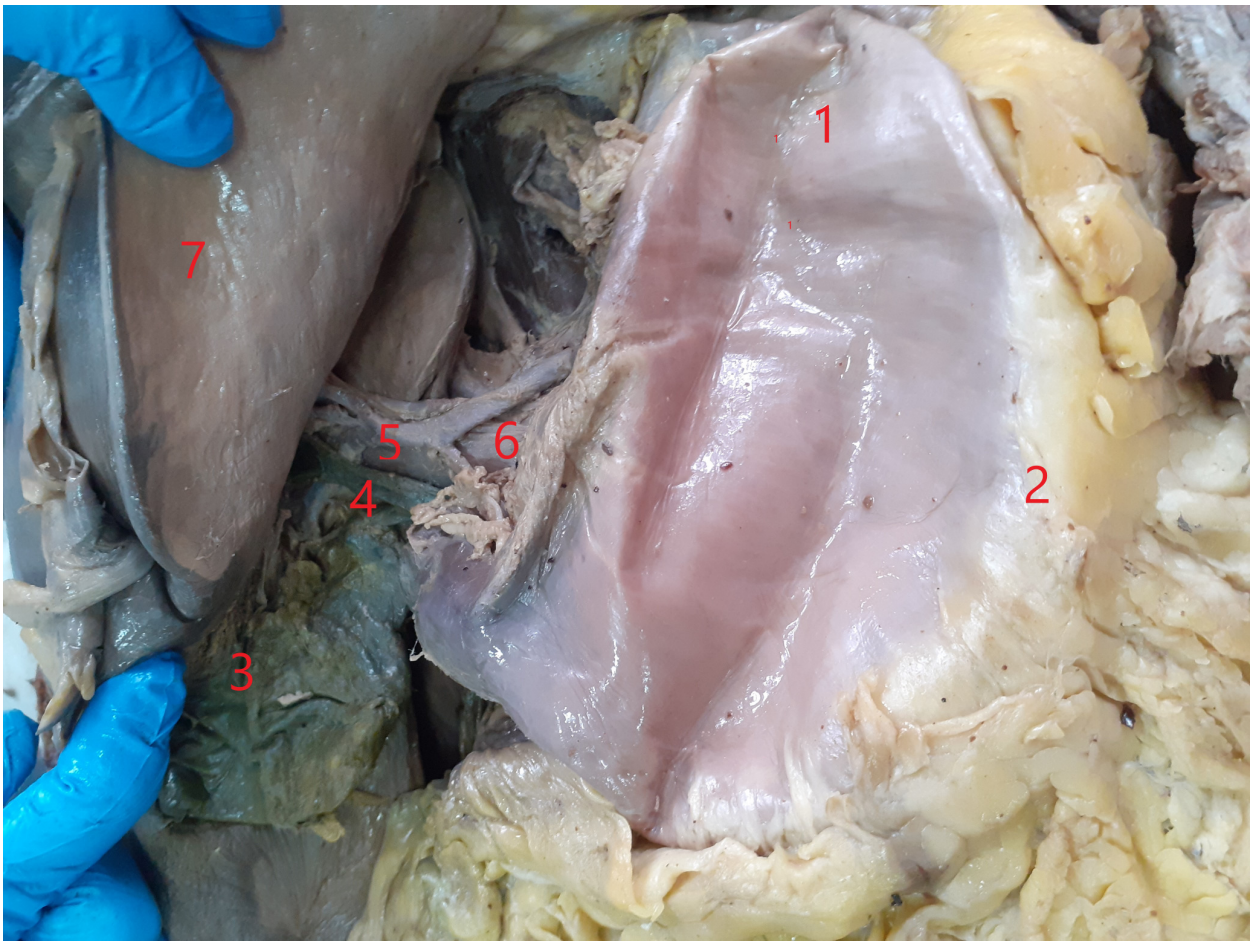

Figure 33: Supra mesocolic space, dissection : 1. Fundus of the stomach; 2. Greater curvature of stomach, having attached the greater *omentum;* 3.Gallbladder; 4. Cystic duct; 5.Proper hepatic artery; 6. Portal vein; 7. Left lobe of liver.

The stomach presents:

-. Two openings or orifices: cardiac orifice, for the communication with the oesophagus, and pyloric orifice, for the communication with the duodenum;

- Two borders or curvatures, lesser curvature (*curvatura ventriculi minor*), and greater curvature (*curvatura ventriculi major*)

- Two surfaces: antero superior surface and postero inferior surface;

The antero-superior surface

It has relations with the diaphragm, which separates it from the base of the left lung, the pericardium, and the 7th , 8th, and 9th ribs, and left intercostal spaces. Also comes in contact with the quadrate lobes of the liver and anterior abdominal wall.

This surface is covered by the peritoneum.

The postero-inferior surface is in relation with the:

- diaphragm,
- spleen,
- left adrenall gland,
- superior part of the anterior aspect of the left kidney,
- anterior surface of the pancreas,
- left colic flexure,
- superior layer of the transverse mesocolon.

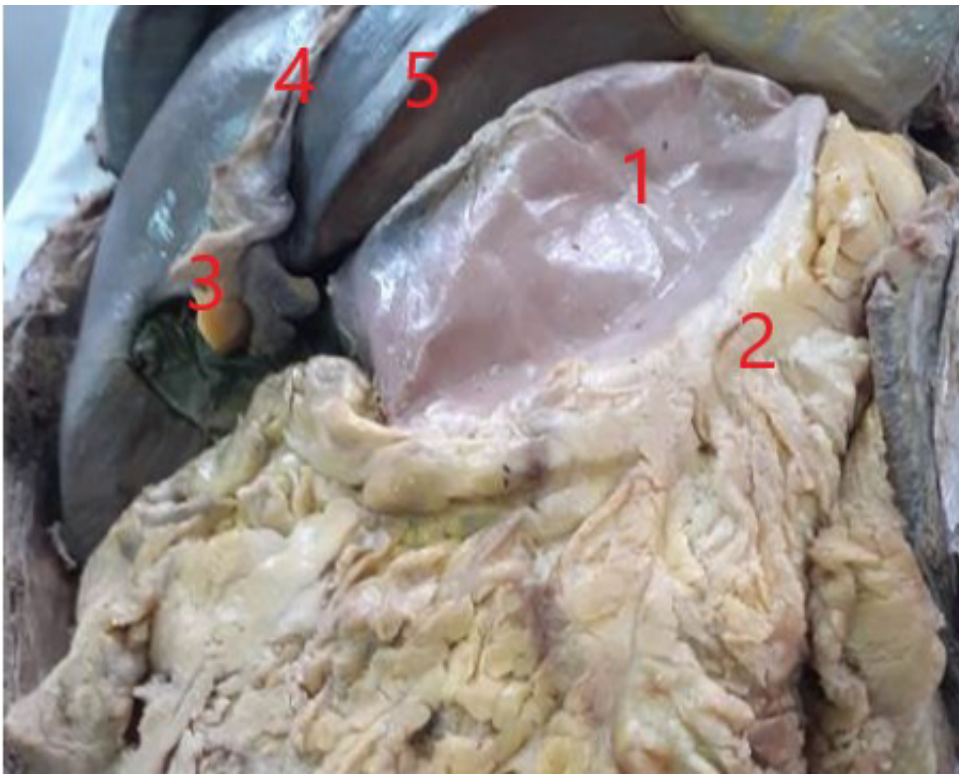

Figure 34: Stomach, relations (taken by student Ludovica Tesoriere: 1. Anterior surface of stomach; 2.Greater *omentum;* 3.*Ligamentum teres hepatis*; 4.Falciform ligament of liver; 5. Left lobe of liver.

Internal structure

The wall of the stomach consists of four layers: serous, muscular, sub mucosa, and mucosa.

The serous layer *(tunica serosa)* comes from the peritoneum and covers almost the entire organ.

The muscular coat (*tunica muscularis)* consists of three types of muscular fibres: longitudinal, circular and oblique.

The longitudinal fibers (*stratum longitudinale)* is the most superficial.

The circular fibers (*stratum circulare*) are the most abundant to the pyloric region.

The oblique fibers (*fibræ obliquæ*)

The areolar or sub mucous coat *(tela submucosa)* consists of a loose, areolar tissue, connecting the mucous and muscular layers.

The mucous layer (*tunica mucosa*) presents plaits or *rugæ,* increasing the surface of absorbtion.

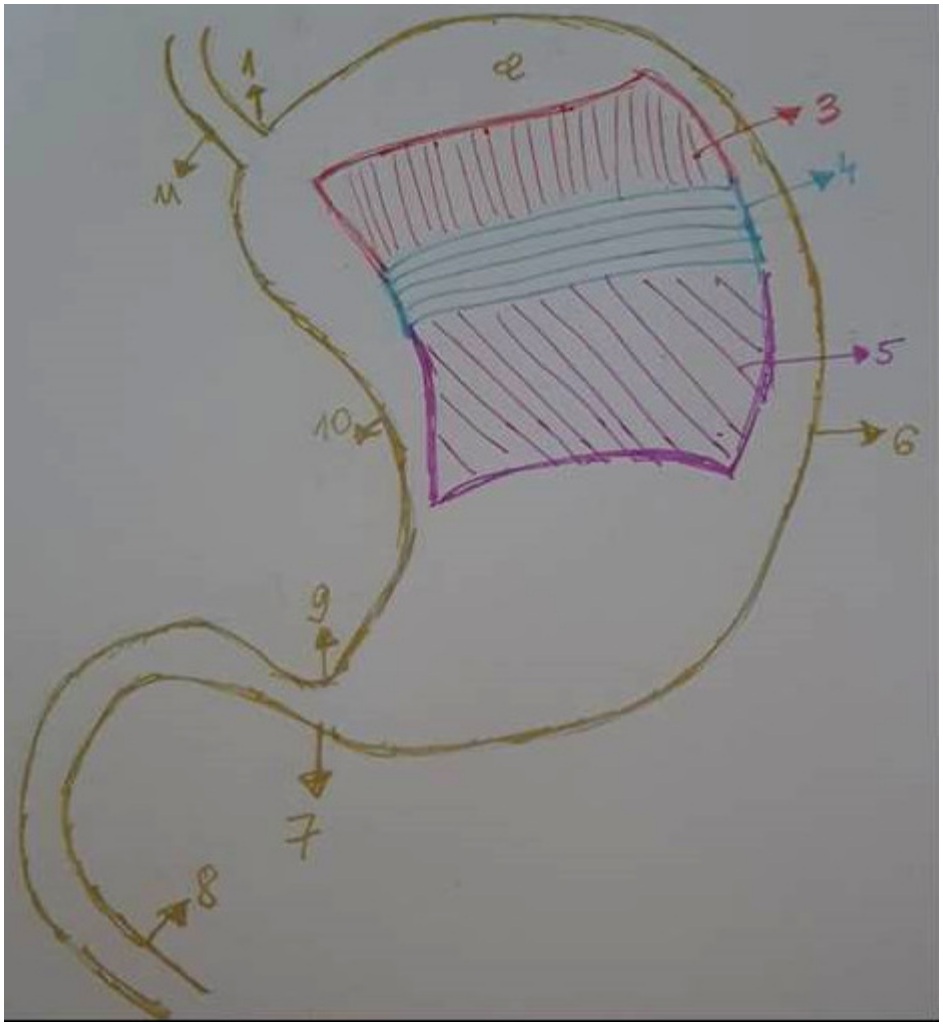

Figure 35: Stomach, muscular layer: 1. Cardia incisure; 2. *Fundus;* 3. Longitudinal muscular layer; 4. Circular muscular layer; 5. Oblique muscular layer; 6. Greater curvature; 7. Pyloric *antrum*; 8. Duodenum; 9. Pyloric sphincter; 10. Lesser curvature; 11. Oesophagus.

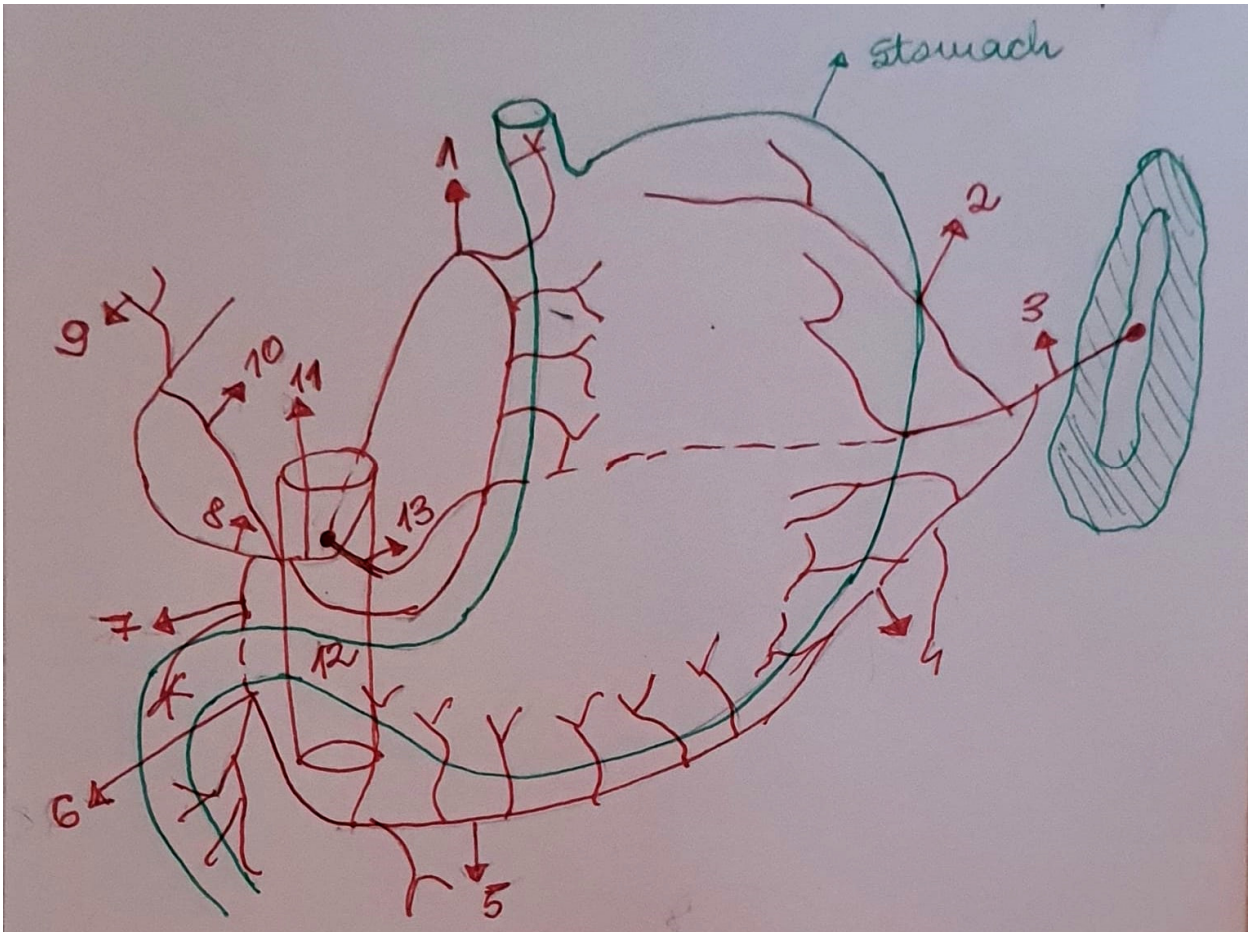

Figure 36: Stomach, arterial blood supply: 1. Left gastric artery; 2. Short gastric arteries; 3. Splenic artery; 4. Left gastro epiploic artery; 5. Right gastro epiploic artery; 6. Superior pancreatico duodenal artery; 7. Gastro duodenal artery; 8. Proper hepatic artery; 9. Cystic artery; 10. Right gastric artery; 11. Common hepatic artery; 12. Abdominal aorta; 13. Coeliac trunk.

The Pancreas *(Pancreas)*

It is an accessory gland of gastrointestinal tract that has two functions:

1. Digestive - produces digestive enzymes;

2. Hormonal - islets of Langerhans produce insulin and glucagon in order to control blood sugar levels

It is located anterior to the posterior abdominal wall, behind the stomach.

Parts:

1. Head
2. Uncinate process
3. Neck
4. Body
5. Tail

The arterial blood supply to the pancreas comes from multiple branches from the coeliac and superior mesenteric arteries.

The common hepatic artery gives rise to the gastro duodenal artery before continuing as proper hepatic artery.

The gastro duodenal artery becomes the superior pancreatico duodenal artery as it passes behind the first portion of the duodenum and branches into the anterior and posterior superior pancreatico duodenal arteries.

As the superior mesenteric artery passes behind the neck of the pancreas, it gives off the inferior pancreatico duodenal artery.

This divides into the anterior and posterior inferior pancreatico duodenal arteries.

The splenic artery is tortuous, the biggest branch of the coeliac trunk..

The anterior surface of the body of the pancreas is covered by peritoneum.

The anterior inferior pancreatico duodenal vein joins the right gastro epiploic vein and the middle colic vein to form a common venous trunk, which empties the superior mesenteric vein. The splenic vein units with the inferior mesenteric vein, and then with the superior mesenteric vein, finally draining into the portal vein.

The gastric glands are of three kinds:

- pyloric,
- cardiac,
- fundus or oxyntic glands.

Vessels and nerves

The arteries supplying the stomach are:

- the left gastric artery,
- the right gastric artery;
- right gastro epiploic branches of the hepatic artery,
- the left gastro epiploic artery,
- short gastric branches of the lienal.artery

The nerves are branches coming from the right and left *vagi*. Nerve plexuses are found in the sub mucous layer and in between the layers of the muscular coat.

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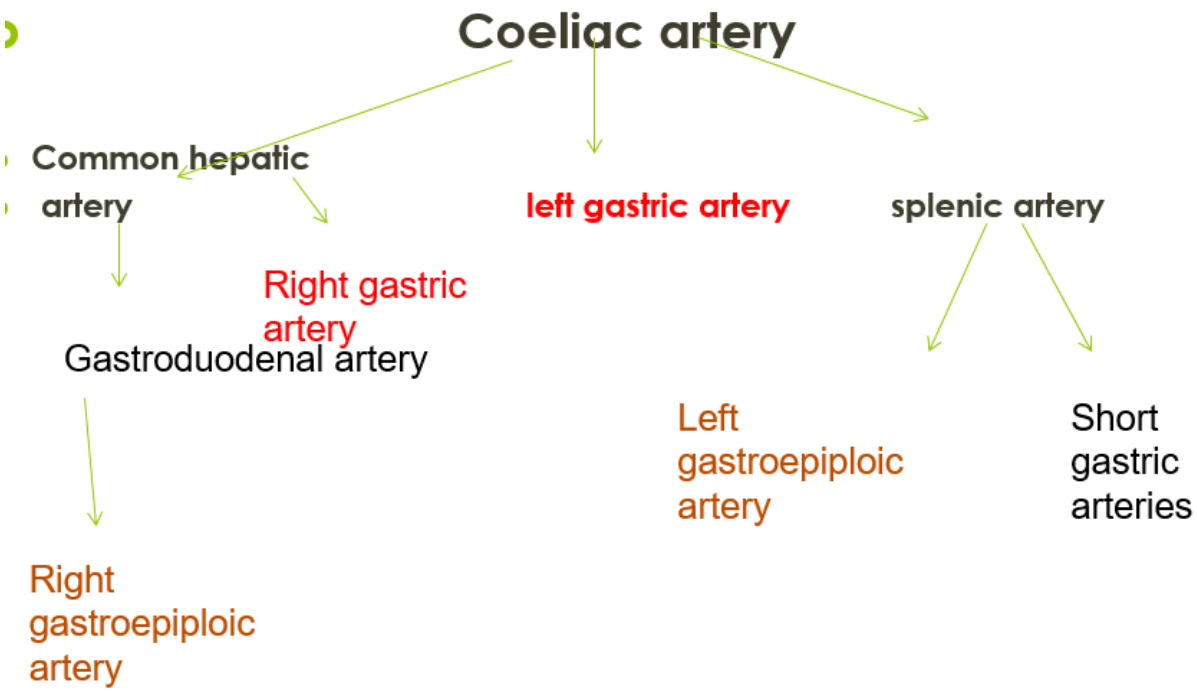

The Spleen *(Lien)*

The spleen is located in the left hypochondriac region.

External structure

It presents:

- The diaphragmatic surface (*facies diaphragmatica)*
- The visceral surface is divided by a ridge into an anterior or gastric and a posterior or renal part
- The superior extremity (*extremitas superior*)
- The inferior extremity or colic surface (*extremitas inferior*)
- The anterior border (*margo anterior*)
- The posterior border (*margo posterior*)
- The inferior border (*internal border*).

Figure 37: Spleen, morphogenesis, early stage.

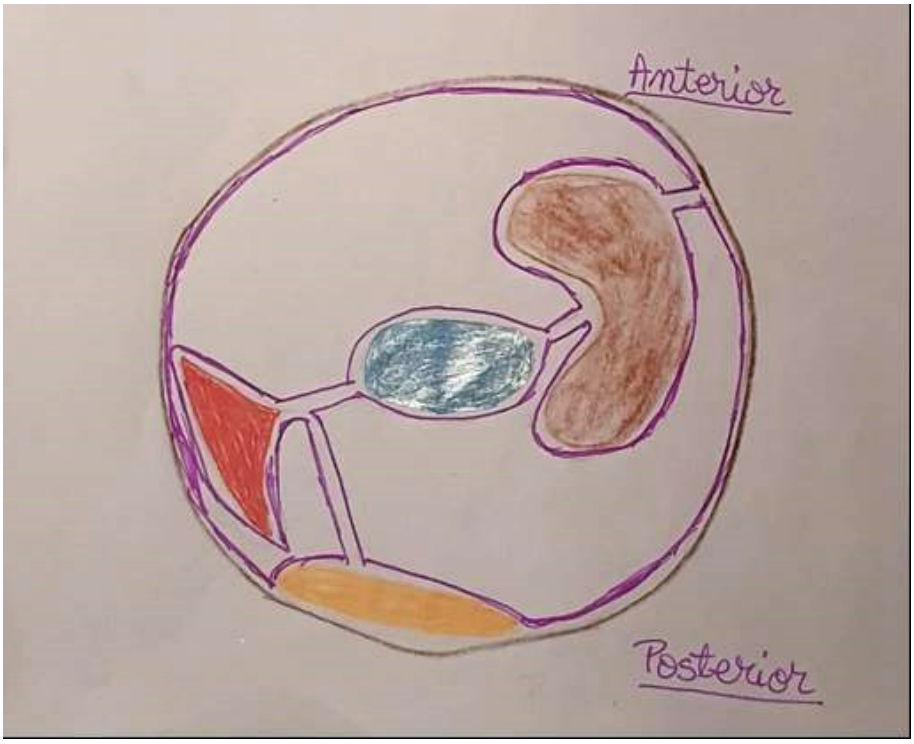

Figure 38: Spleen, morphogenesis, early stage.

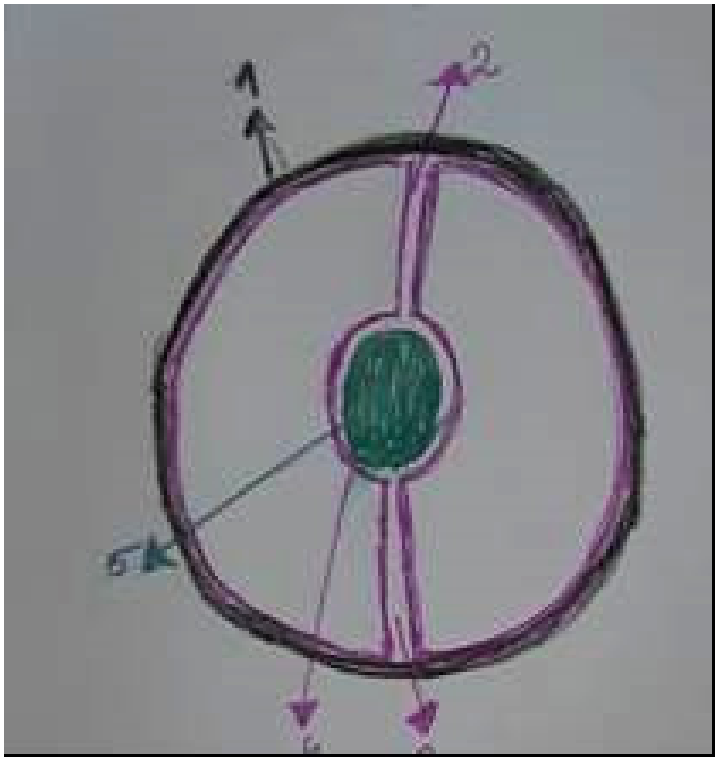

Figure 39: Spleen, morphogenesis, early stage: 1. Somato pleura; 2. Anterior *mesogastrum*; 3. Posterior *mesogastrum*; 4. Splanchno pleura; 5. Archenteron.

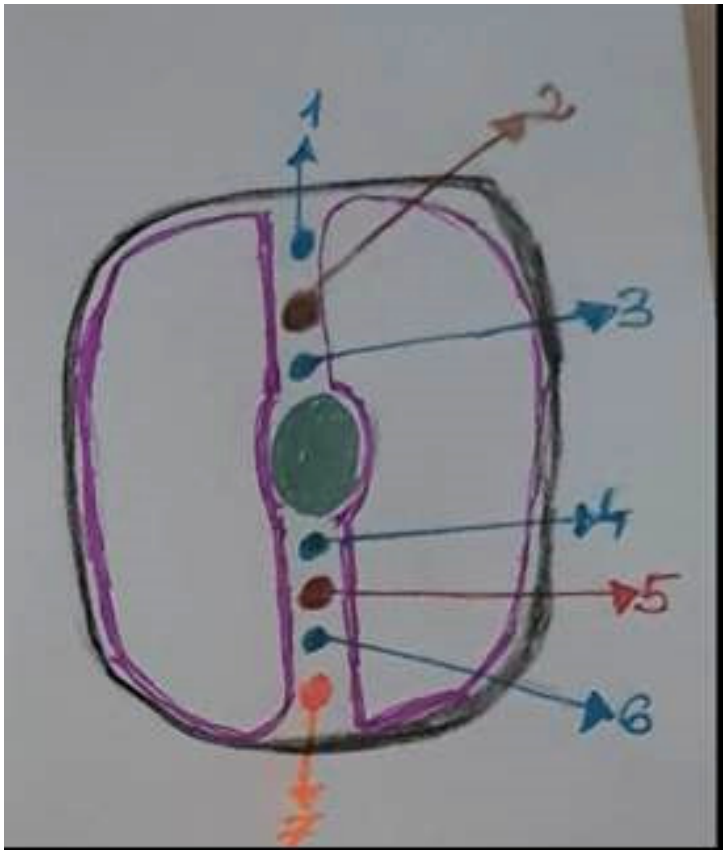

Figure 40: Spleen, morphogenesis: 1. Falciform ligament; 2. Hepatic bud; 3. Gastro hepatic ligament; 4. Gastro lienal ligament; 5. Splenic bud. 6. Pancreatico lienal ligament. 7. Pancreatic bud.

Figure 41: Spleen, dissection (taken by student Ludovica Tesoriere)

Internal structure

The spleen is wrapped by two layers: an external serous (*tunica serosa*) and an internal fibroelastic (*tunica albuginea*) layers.

The spleen is formed of a number of small spaces or areolæ, formed by the trabeculæ;

in these areolæ is contained the splenic pulp. The splenic pulp is two types: white and red.

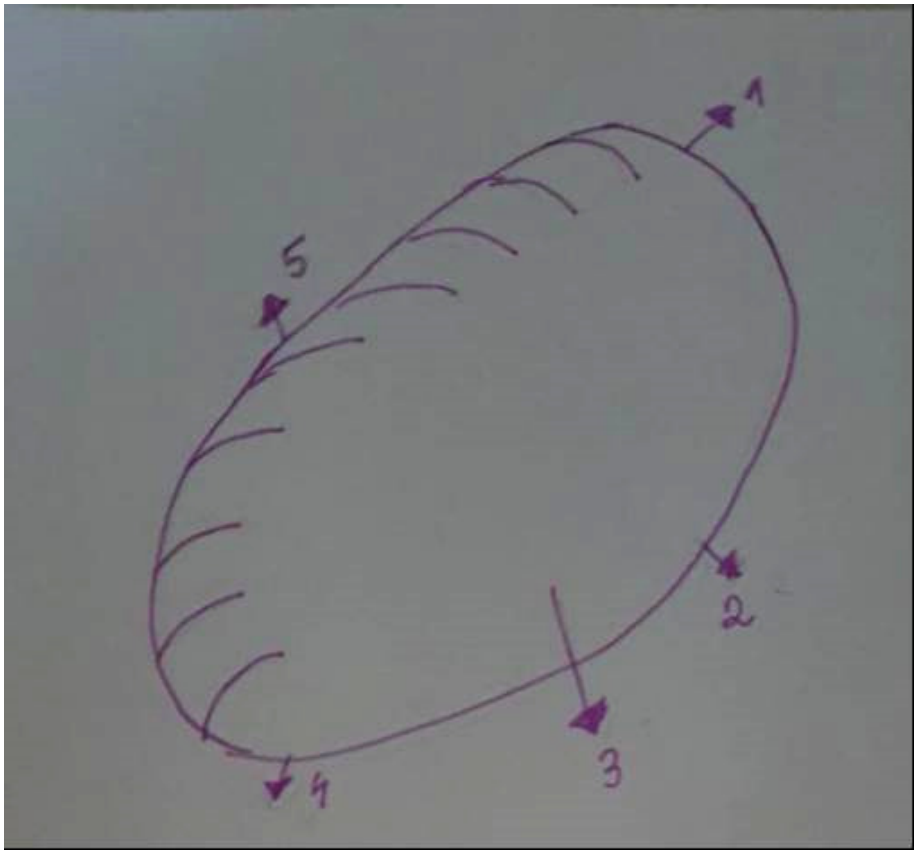

Figure 42 Spleen, external morphology: 1. Apex; 2. Posterior border; 3. Diaphragmatic surface; 4.Base; 5. Anterior (superior) border.

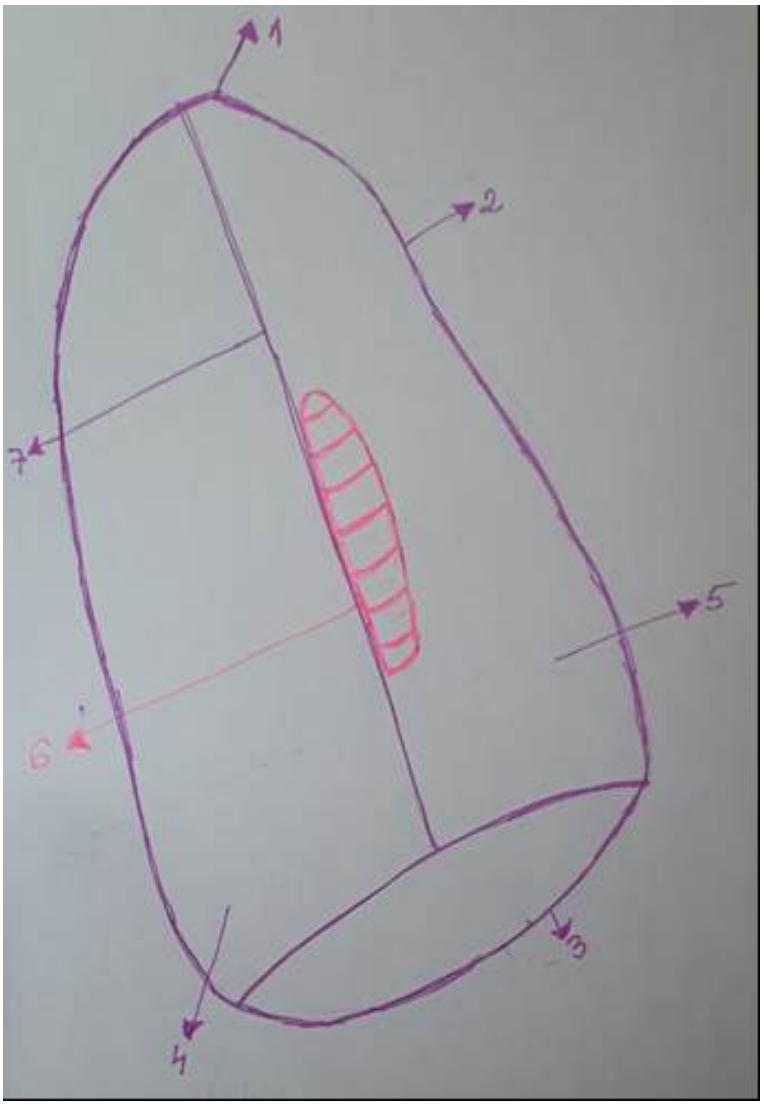

Figure 43: Spleen, external morphology: 1. Apex; 2. Anterior (superior) border; 3. Base (colic surface); 4. Renal surface; 5. Gastric surface; 6. Hilum; 7. Medial border.

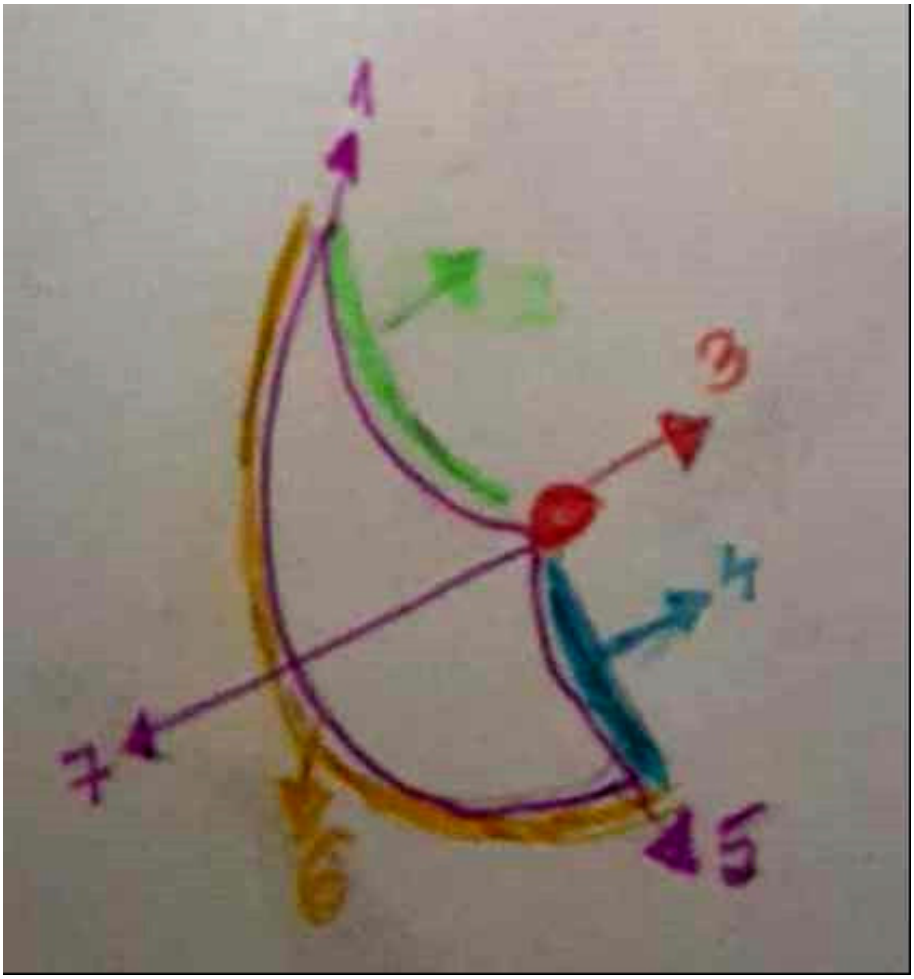

Figure 44: Spleen, external morphology: 1. Anterior border; 2. Gastric surface; 3. Hilum; 4. Renal surface; 5. Posterior border; 6. Diaphragmatic surface; 7. Medial border

Vascularization and inervation

The lienal artery is coming from the coeliac trunk, being the biggest branch of it.

The splenic vein participates in forming the portal vein, by uniting with the inferior mesenteric vein, and finaly with the superior mesenteric vein, carrying venous blood reached in nutrients to the liver.

The splenic nervous plexus, from the coeliac plexus, provides the spleen with nerves.

The Small intestine *(Intestinum tenue)*

The small intestine is a convoluted tube, extending from the pylorus to the colic valve.

The small intestine is broken down into three portions: the duodenum, the jejunum, and the ileum.

The ***Duodenum*** *(Duodenum)*

It has four parts: superior, descending, horizontal, and ascending.

The arteries supplying the duodenum are:

- The right gastric artery
- The superior pancreatico duodenal artery

Both are branches of the hepatic artery

- The inferior pancreatico duodenal artery, branch of the superior mesenteric artery.

The veins end in the splenic vein and superior mesenteric vein.

The nerves come from the cœliac plexus.

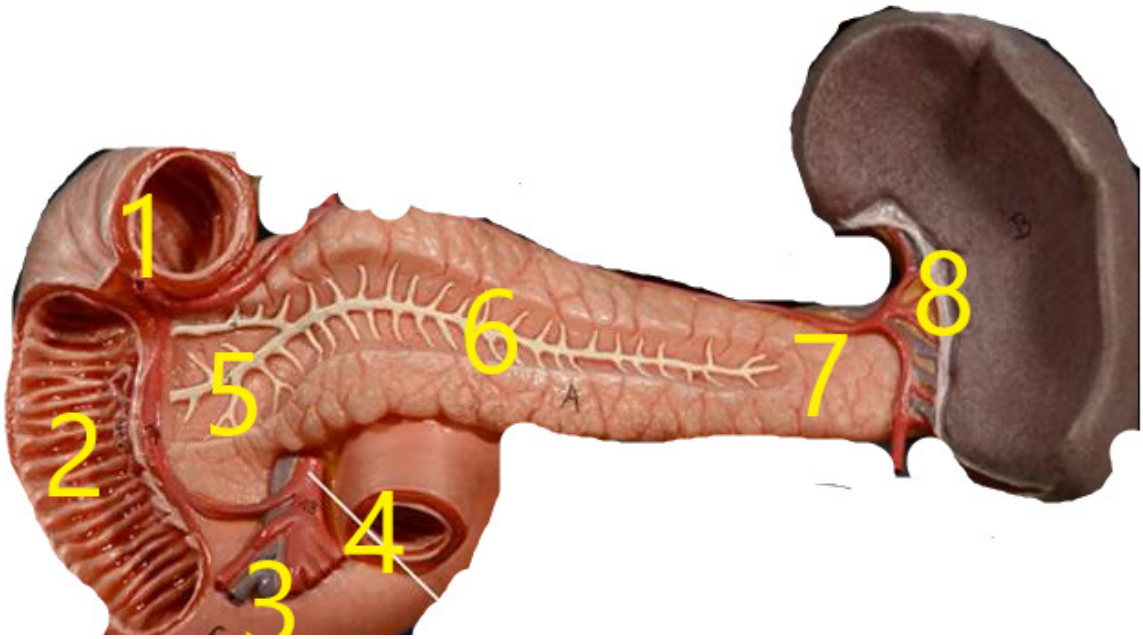

Figure 45: Supra mesocolic organs: 1. Superior part of the duodenum, *bulbus duodenalis*, 1st part 2. Descending part of the *duodenum*, 2nd part; 3 Horizontal part of the *duodenum*, 3rd part.; 4. Ascending part of the *duodenum*, 4th part; 5. Head of the pancreas; 6. Body of the pancreas; 7. Tail of the pancreas; 8. Hilum of spleen.

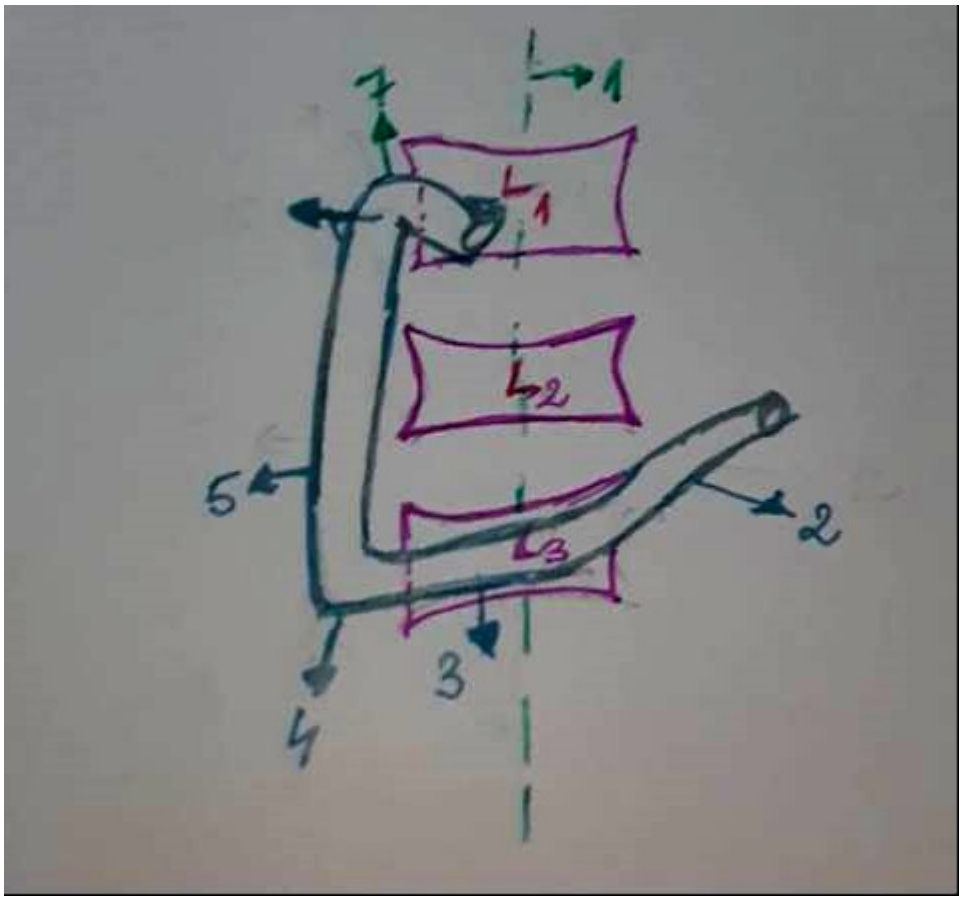

Figure 46: ***Duodenum*****:** 1. Midline; 2. Ascending part (IV); 3. Horizontal part (III); 4. Inferior angle; 5. Descending part (II); 6.Superior angle; 7. Superior part (I)

The *Jejunum* *(Intestinum jejunum*)

It is a mobile part of the small intestine, the second part of it. It has a larger diameter than the ileal intestine.

The Ileum (*intestinum ileum)* is the third, mobile part of the small intestine. Its coils are disposed more vertical than in the jejunum.

The mesentery is fan-shaped structure, derived from the peritoneum.

It is attached to the posterior abdominal wall from the left side of the body. From the very begining, it wraps the entire mobile parts of the small intestine. .

Between the two layers of it, there are bloodvessels, nerves, lacteals (lymphatic capillary of the small intestine), and lymph glands, all embeded in fat.

Structure of the intestinal wall

The wall of the small intestine is formed of four layers: serous, muscular, areolar/ submucosal, and mucous.

The serous coat *(tunica serosa)* is derived from the peritoneum.

The muscular coat *(tunica muscularis)* consists of two type of fibers: an external, longitudinal, and an internal, circular layer.

The areolar or submucous coat *(tela submucosa)* contains bloodvessels, lymphatics, and nerves.

The mucous membrane *(tunica mucosa)* is the most internal coat, presents the following structures:

- Circular folds.
- *Villi/microvilli.*
- Solitary lymphatic nodes.
- Intestinal glands.
- Aggregated lymphatic nodes.

The circular folds (*plicæ circulares* Kerkring; *valvulæ conniventes* are folds going down into the lumen of intestine.

The intestinal villi *(villi intestinales)* are fingerlike highly vascular processes, projecting from the mucous membrane of the small intestine.

They are largest and most numerous in the duodenum and jejunum, and fewer and smaller in the ileum.

The intestinal glands *(glandulæ intestinales* Lieberkühn) are numerous in every part of the mucous membrane of the small intestine.

The solitary lymphatic nodules *(noduli lymphatici solitarii*);

The aggregated lymphatic nodes (*noduli lymphatici aggregati*; Peyer's patches).

Vessels and nerves

The jejunum and ileum are supplied by the superior mesenteric artery branches.

Figure 47: Stomach, divisions: 1. Greater *omentum*, reflected; 2. Mesentery; 3. *Jejunum, ileum*.

The Large intestine *(Intestinum crassum)*

The large intestine extends from the terminal part of the ileum to the anus.

It starts in the right iliac region, in a dilated part, the *caecum*.

The large intestine is broken down into: *caecum*, colon, rectum, and anal canal.

The Caecum *(intestinum cæcum)*

It is the initial part of the large intestine, situated below the colic valve.

It is entirely wrappedinto the peritoneum.

The Colon *(colon)*

It is divided into four parts:

- The ascending colon *(colon ascendens)*,
- The transverse *(colon transversum)*,
- The descending *(colon descendens)*,
- The sigmoid colon (*colon sigmoideum*).

The Urinary organs

The urinary organs comprise:

- the kidneys, which secrete the urine,
- the ureters, which convey urine to the urinary bladder,
- The urinary bladder, the reservoir in which accumulates the urine,
- the urethra, through which it is discharged from the body.

The Kidneys *(Renes)*

The kidneys are situated in front of the posterior abdominal wall, one on either side of the vertebral column, posterior to the peritoneum.

The kidney has a characteristic form (bean), and presents: two surfaces, two borders, and an superior and inferior poles.

Figure 48: Right kidney *in situ*

Figure 49: Right kidney: 1. Right renal artery; 2. Right renal vein; 3. Right ureter; 4. Anterior surface of right kidney.

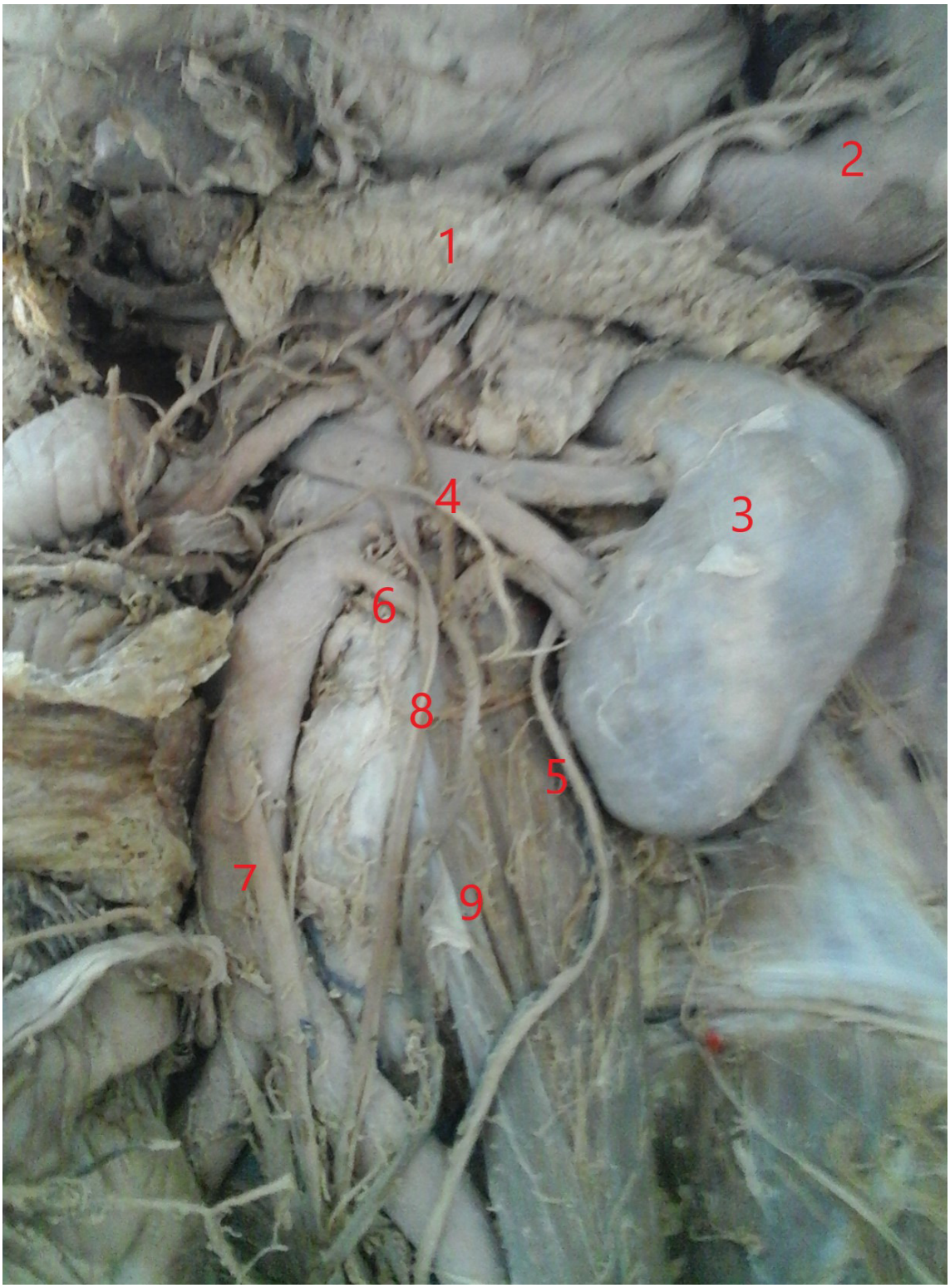

Figure 50: Left kidney, dissection picture: 1.Pancreas; 2. Spleen; 3. Left kidney; 4. Double renal vein; 5.Left ureter; 6.Superior mesenteric artery; 7. Inferior mesenteric artery; 8. Left gonadal vein; 9. Left psoas muscle.

External morphology

The kidney presents:

- the anterior surface *(facies anterior)*
- the posterior surface (*facies posterior)*
- The lateral border *(margo lateralis)*
- The medial border (*margo medialis*)
- The superior extremity (*extremitas superior)*
- The inferior extremity *(extremitas inferior)*

The relative position of the main structures in the hilum is as follows: the renal vein is situated anteriorly, the renal artery in the middle, and the ureter is situated posterior and inferior to these.

Coverings of the kidney

The adipose capsule, wrapped in a layer of fibrous tissue continuous with the subperitoneal fascia, named the renal fascia;

Internal structure of the kidney:

- The renal sinus;
- The renal calyces;
- The medullary substance *(substantia medullaris)* consists of conical masses, the renal pyramids,
- The cortical substance *(substantia corticalis*),
- The structures in between the pyramids = the renal columns (Bertin)

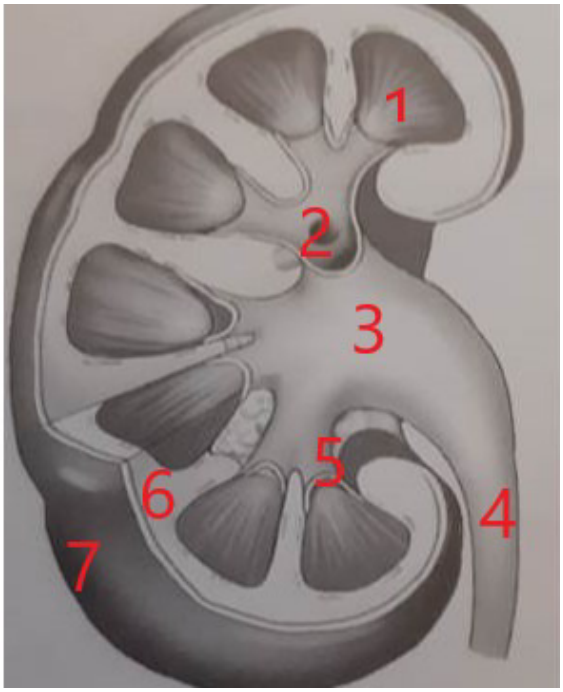

Figure 51: Right kidney, internal morphology: 1. Renal pyramid; 2.Major calyx; 3.Renal pelvis; 4. Ureter; 5. Minor calyx; 6. Renal cortex; 7. Renal capsule.

Microscopic anatomy

It consists of the following structures:

- The renal tubules, start in the convoluted part and renal columns as the renal corpuscles.
- The renal corpuscle has a central glomerulus of vessels, and a membrane, the glomerular capsule (capsule of Bowman),
- The glomerulus is a lobulated network of convoluted capillaries. This capillary network is derived from a small arterial vessel, the afferent artery, which enters the capsule;
- The vein, the efferent artery, emerges from the capsule.
- The proximal convoluted tube.
- The Henle's loop.
- The distal convoluted tubule.
- The straight or collecting tube.
- The central tube (duct of Bellini) which opens on the summit of one of the papillæ;

The renal vessels and nerves

- The renal artery, branch of the abdominal aorta;

Before it enters the kidney, each artery divides into four or five branches.

- The interlobular arteries;
- The *arteriæ rectæ;*
- The renal veins
- *The venæ stellatæ* are derived from the capillary network,
- The interlobular veins,
- The *venæ rectæ*.
- The interlobular veins
- The *venæ propriæ renales*,
- The renal vein,
- The inferior vena cava

Nerves of the kidney

- The renal plexus, which is formed by branches from the coeliac plexus,
- The lesser and imus splanchnic nerves.

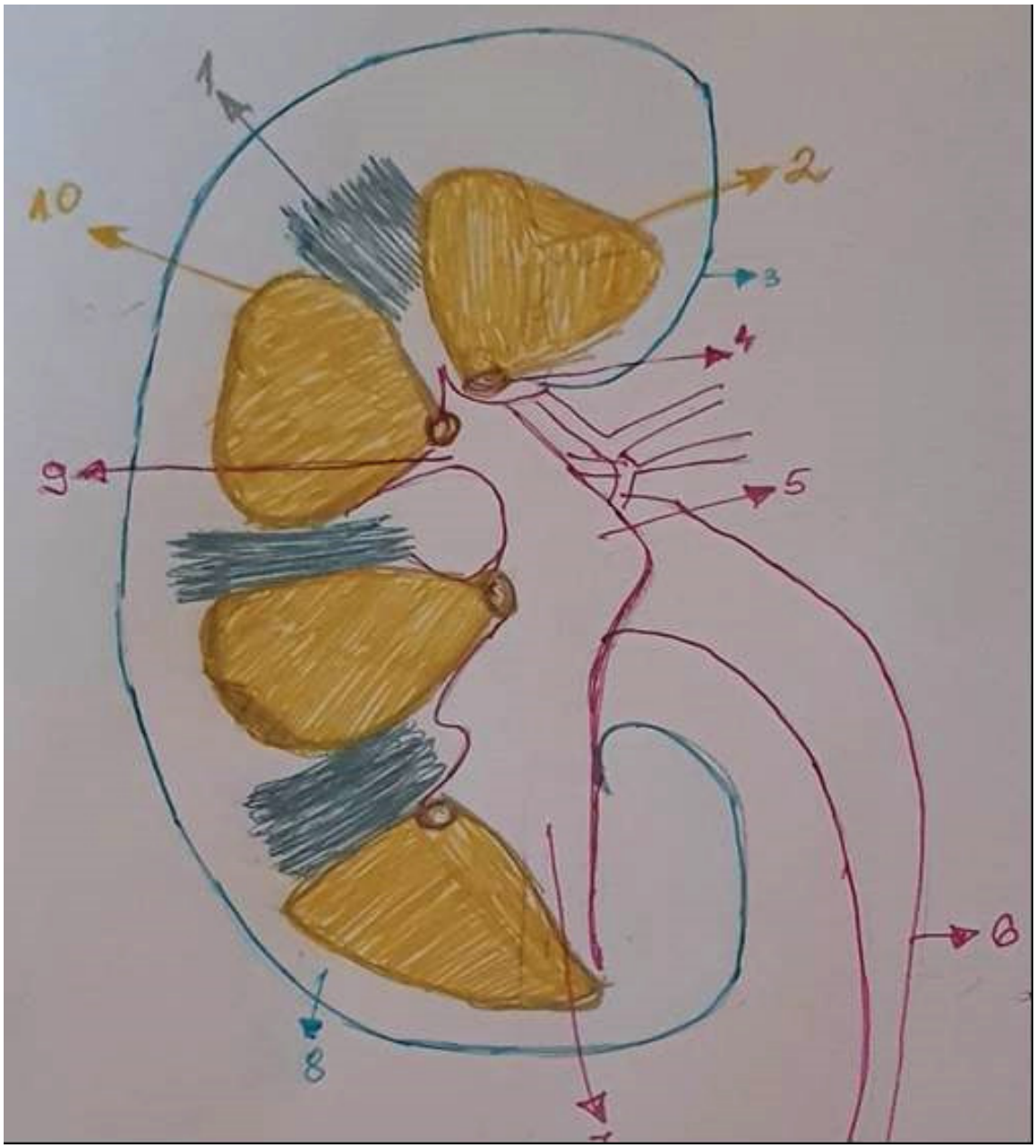

Figure 52: Kidney, divisions: 1. Renal column; 2. Renal pyramid; 3. Renal capsule; 4. Renal papilla; 5. Renal pelvis; 6. Ureter; 7. Major renal calyx; 8. Renal cortex; 9. Minor renal calyx; 10. Renal medulla

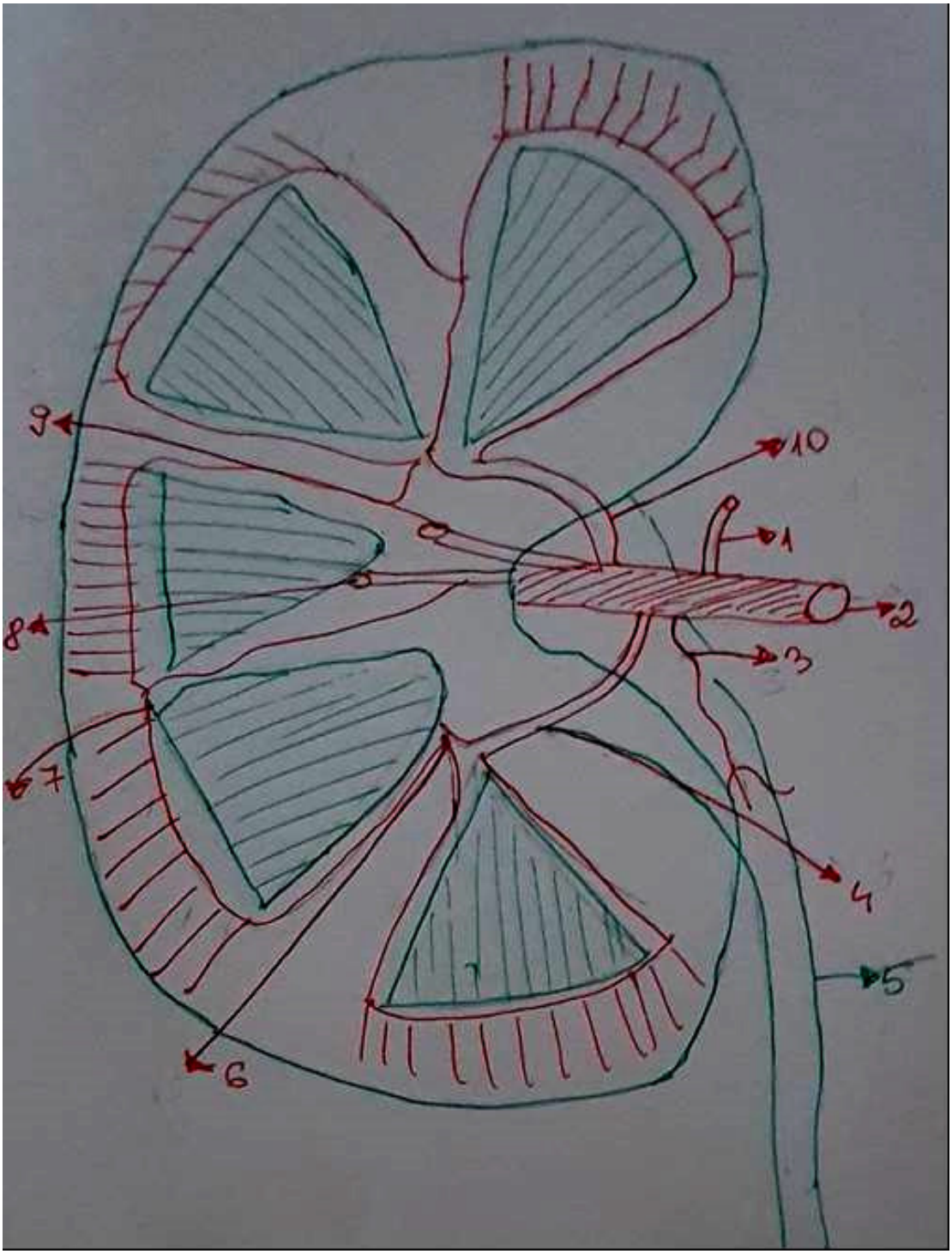

Figure 53: Kidney, arterial blood supply: 1. Inferior suprarenal artery; 2. Renal artery; 3. Ureteric branch of the renal artery; 4. Inferior segmental artery; 5. Ureter; 6. Inter lobar arteries; 7. Arcuate arteries; 8. Anterior inferior segmental artery; 9. Anterior superior segmental artery; 10. Superior segmental artery.

The Ureters *(Ureter)*

The ureters are the two tubes which convey the urine from the kidneys to the urinary bladder.

Each begins in the renal sinus by short cup-shaped tubes, termed calyces, which encircle the renal *papilla.*

The minor calyces join to form major calicyx. These unite to form a funnel-shaped dilatation, the renal pelvis, which is situated inside and outside the renal sinus.

The **Ureter proper** has:

- an abdominal part *(pars abdominalis*)
- a pelvic part *(pars pelvina*)

Structure

The ureter is composed of:

- The fibrous coat *(tunica adventitia*);
- The muscular coat *(tunica muscularis)* consists of two layers, longitudinal and circular;
- The mucous coat *(tunica mucosa*) .

Vessels and nerves

The arteries supplying the ureter are branches from:

- The renal artery,
- The internal spermatic artery,
- The hypogastric artery,
- The inferior vesical artery.

The nerves are derived from:

- The inferior mesenteric plexus,
- The spermatic plexus,
- The pelvic plexus.

IV. The abdominal cavity blood supply (Laura Octavia Grigoriță)

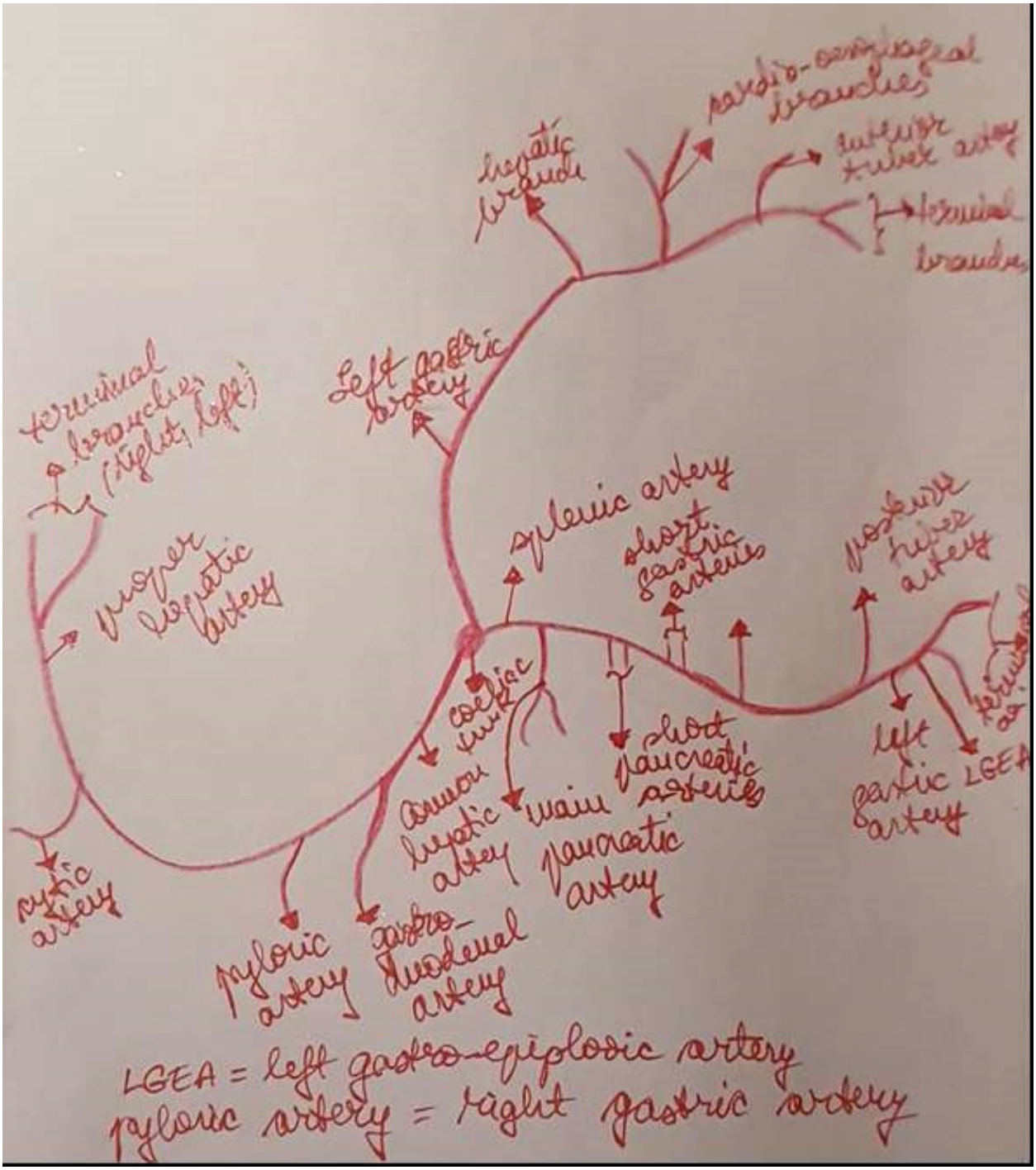

Figure 54: Coeliac trunk, branches

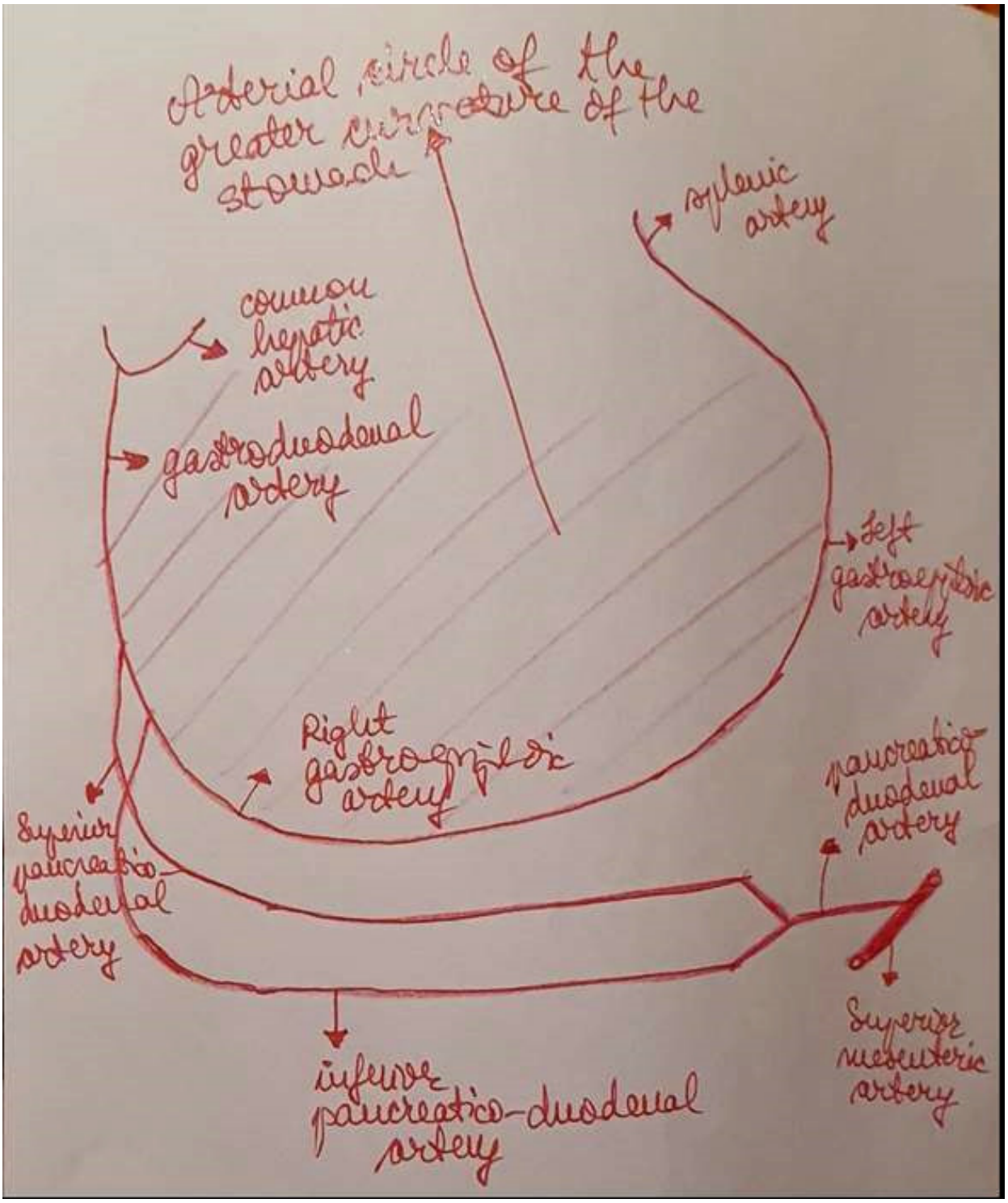

Figure 55: Arterial circle of the greater curvature of the stomach.

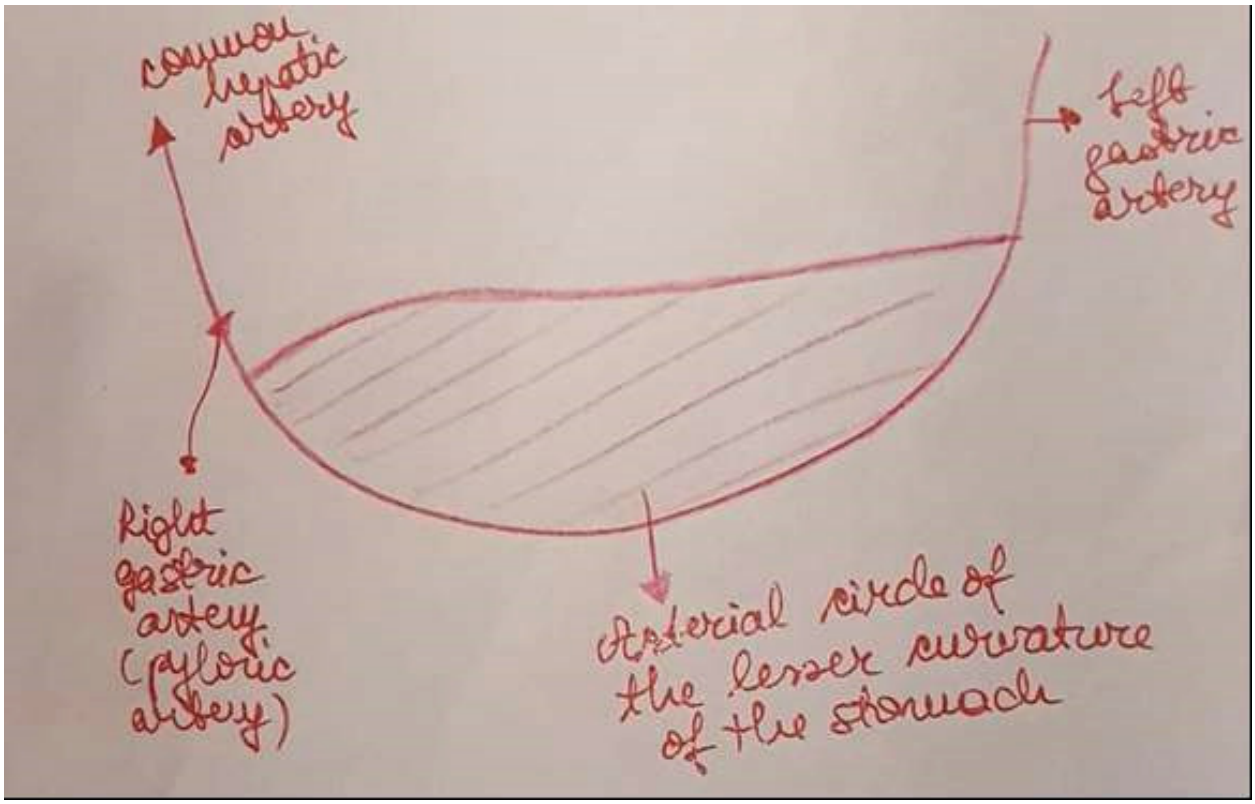

Figure 56: Arterial circle of the lesser curvature of the stomach.

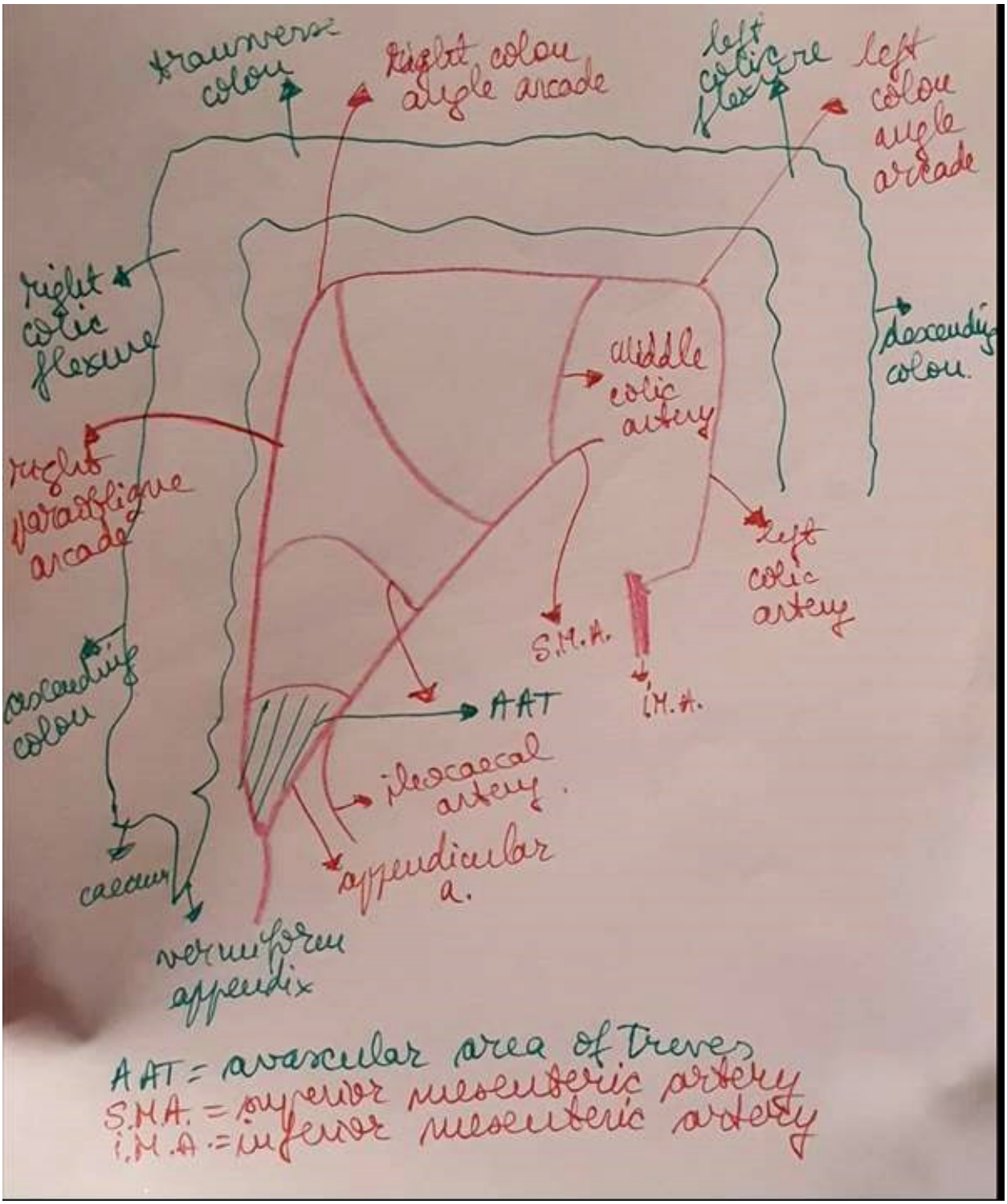

Figure 57: Superior mesenteric artery, branches.

Branches of the superior mesenteric artery

1. Inferior pancreaticoduodenal artery
2. Jejunal arteries
3. Ileal arteries
4. Middle colic artery
5. Right colic artery
6. Ileocolic artery

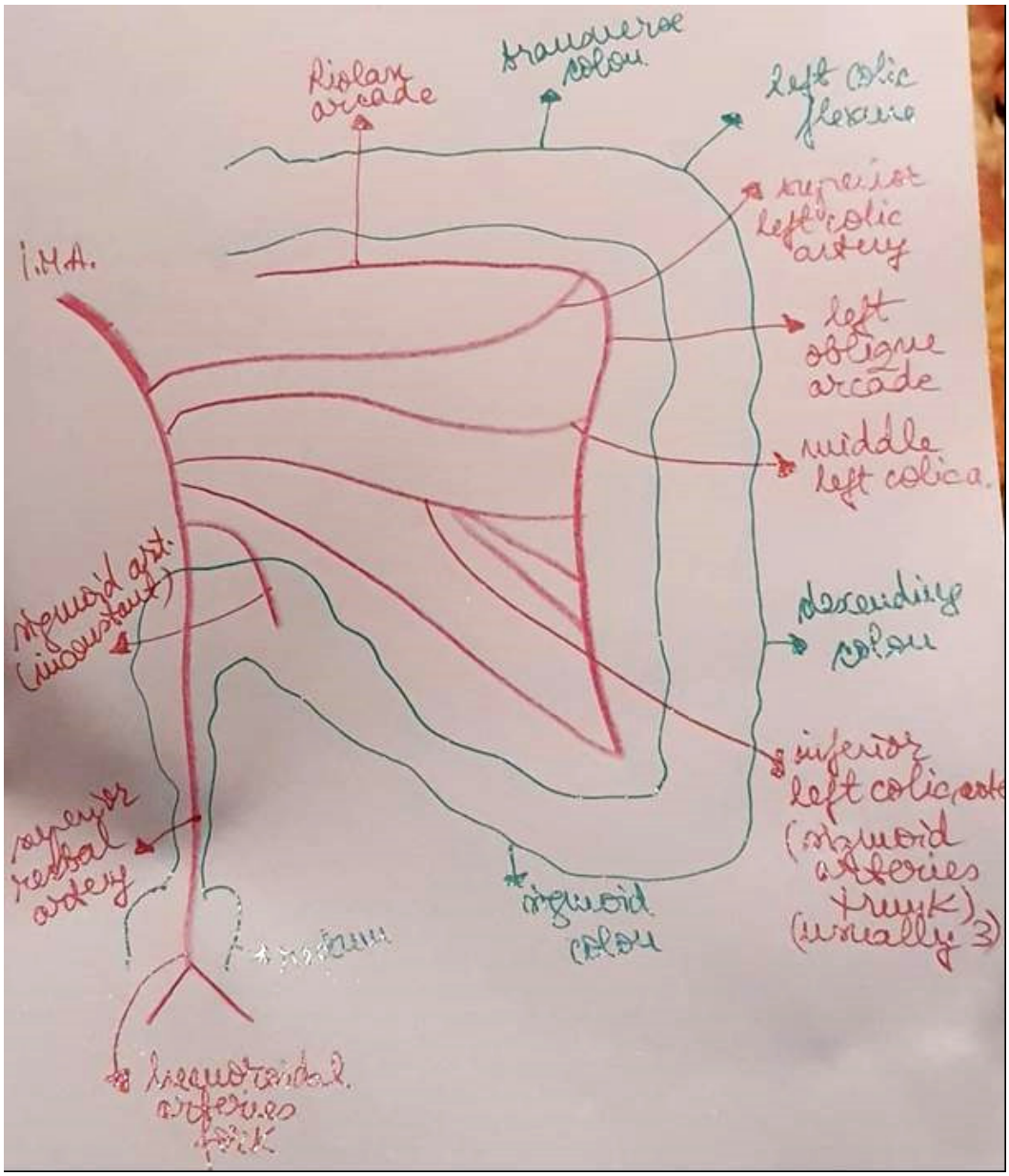

Figure 58: Inferior mesenteric artery, branches

Branches of the inferior mesenteric artery

1. Left colic artery
2. Sigmoid arteries, 3-5
3. Superior rectal artery

V. The abdominal organs projection on to the anterior abdominal wall
(Codruța Ileana Petrescu)

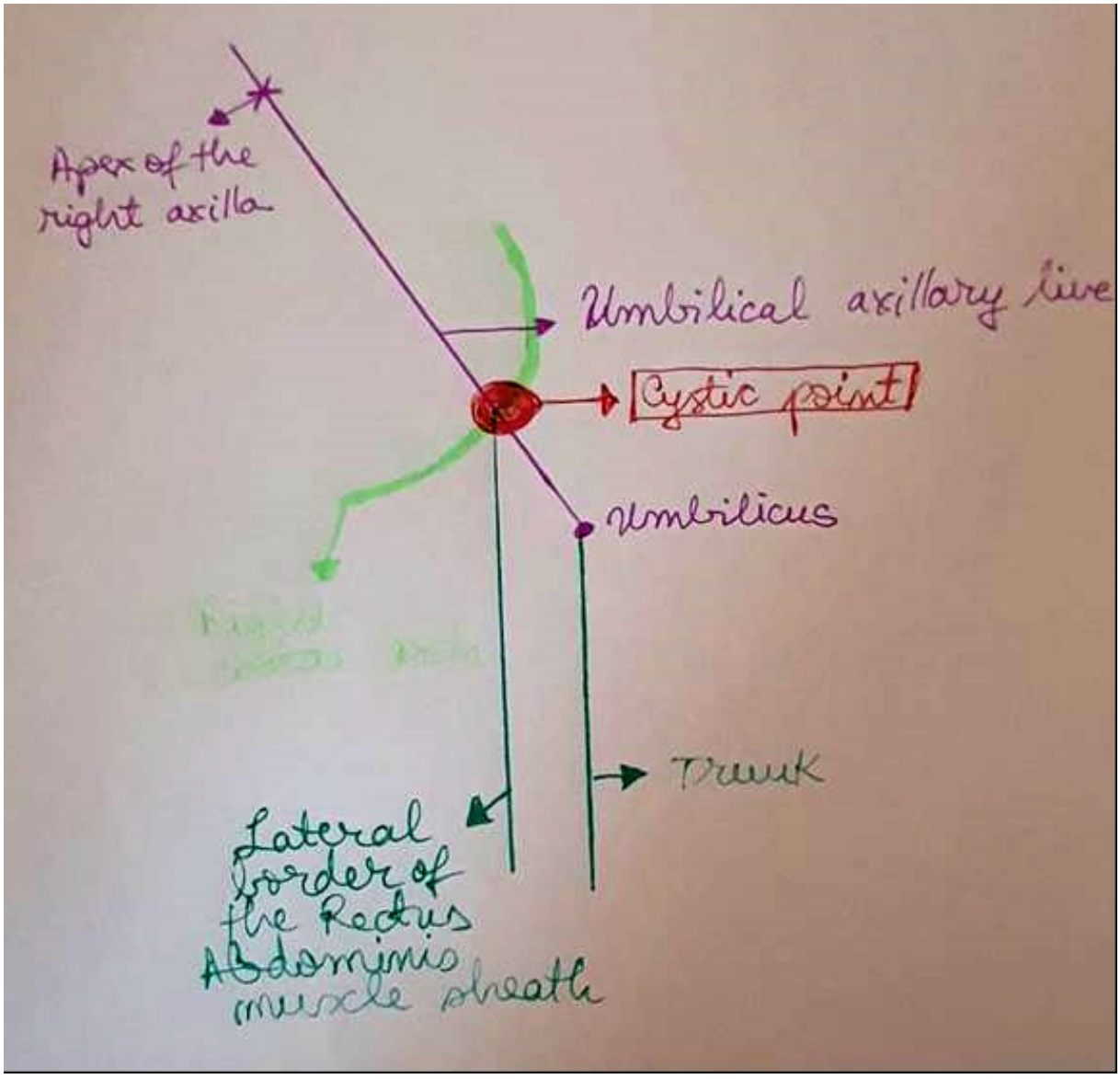

Figure 59: Cystic point

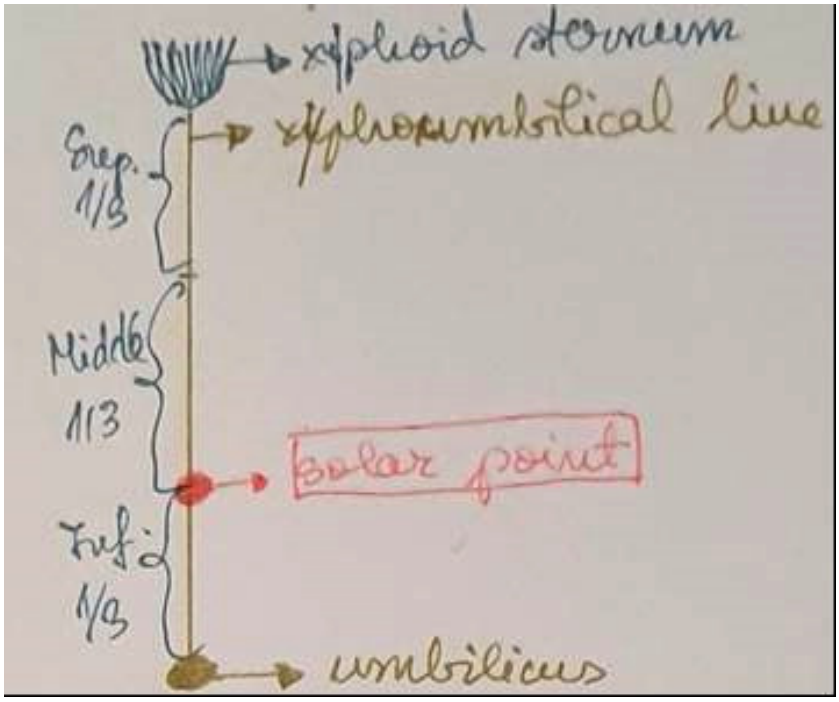

Figure 60: Solar point

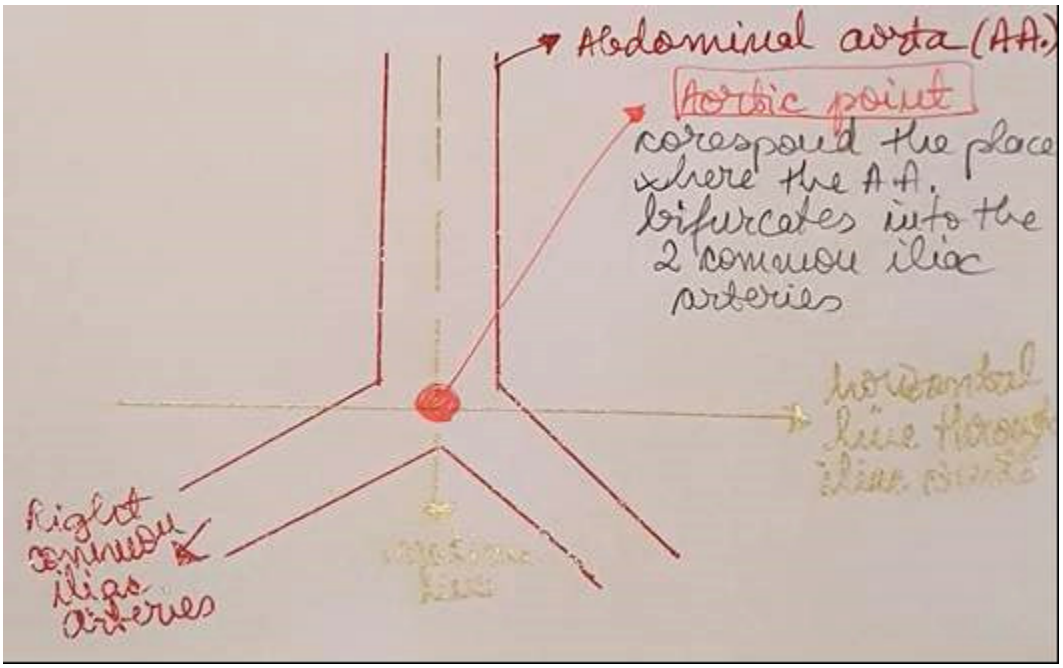

Figure 61: Aortic point

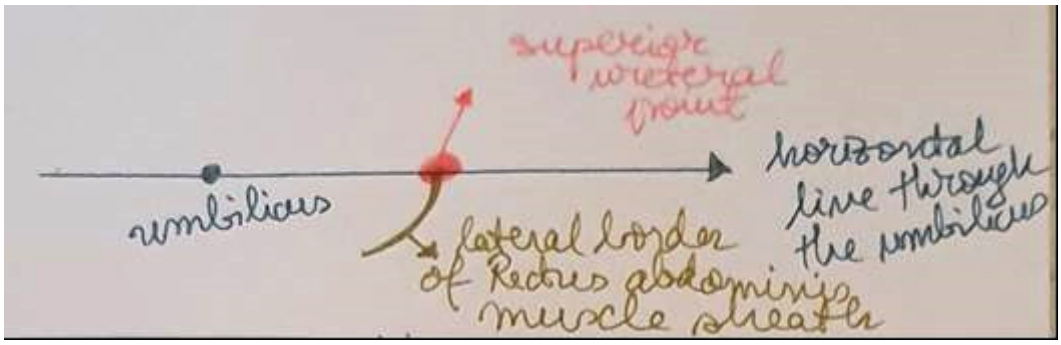

Figure 62: Superior ureteral point

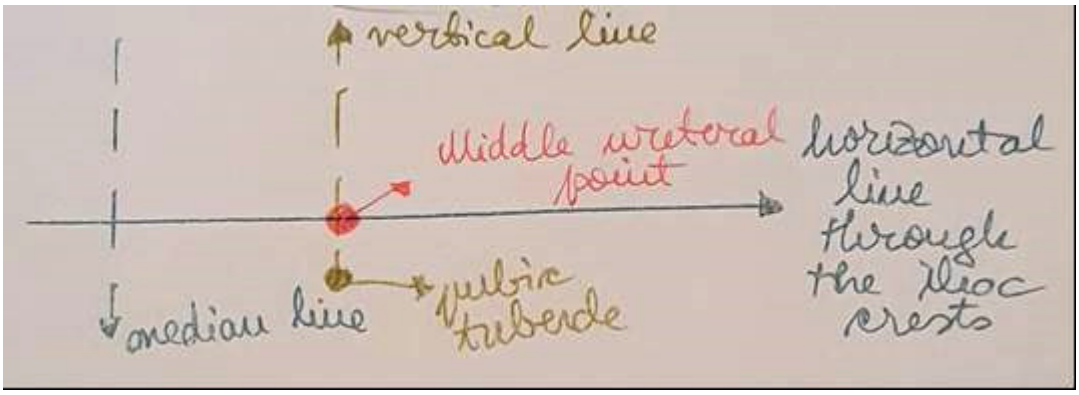

Figure 63: Middle ureteral point

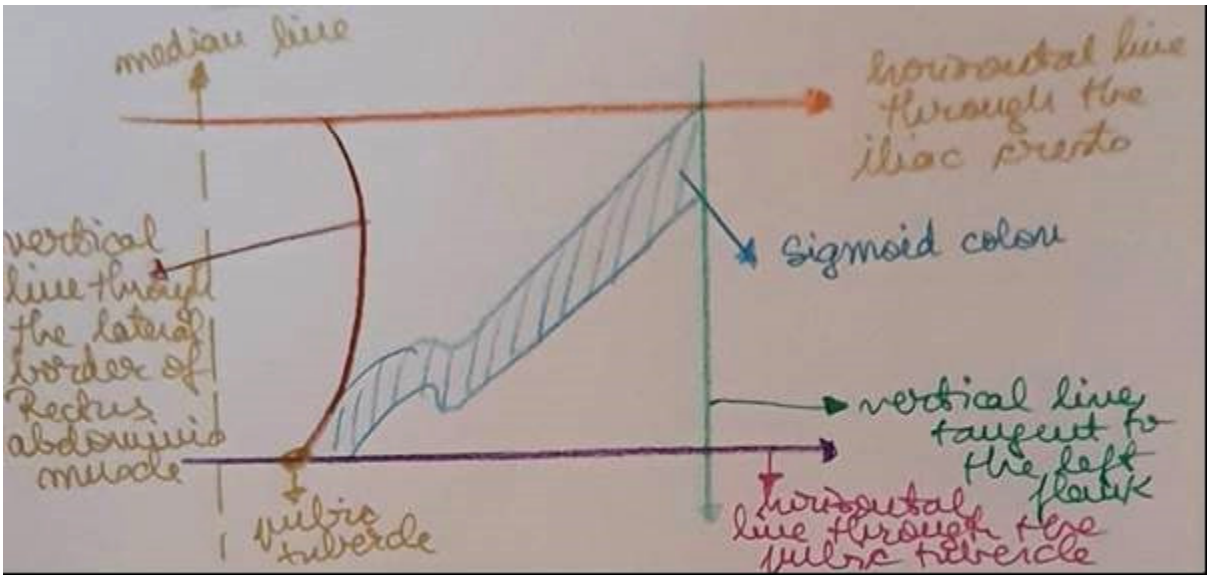

Figure 64: Sigmoid colon projection

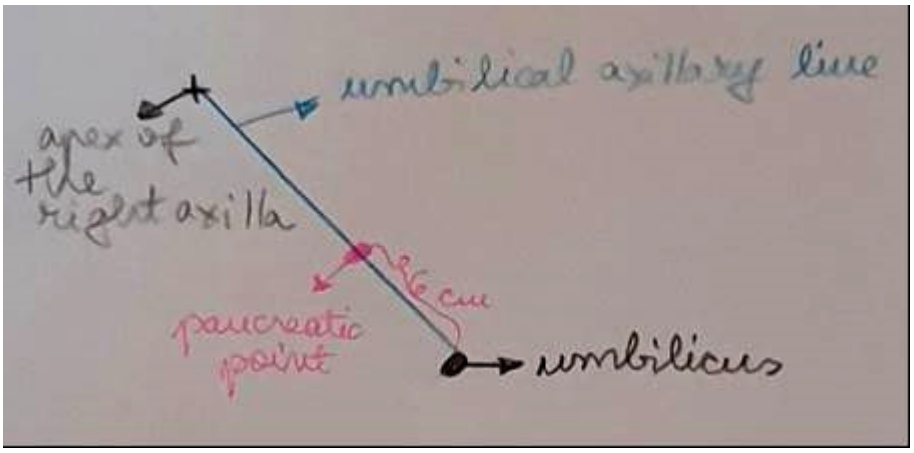

Figure 65: Pancreatic point

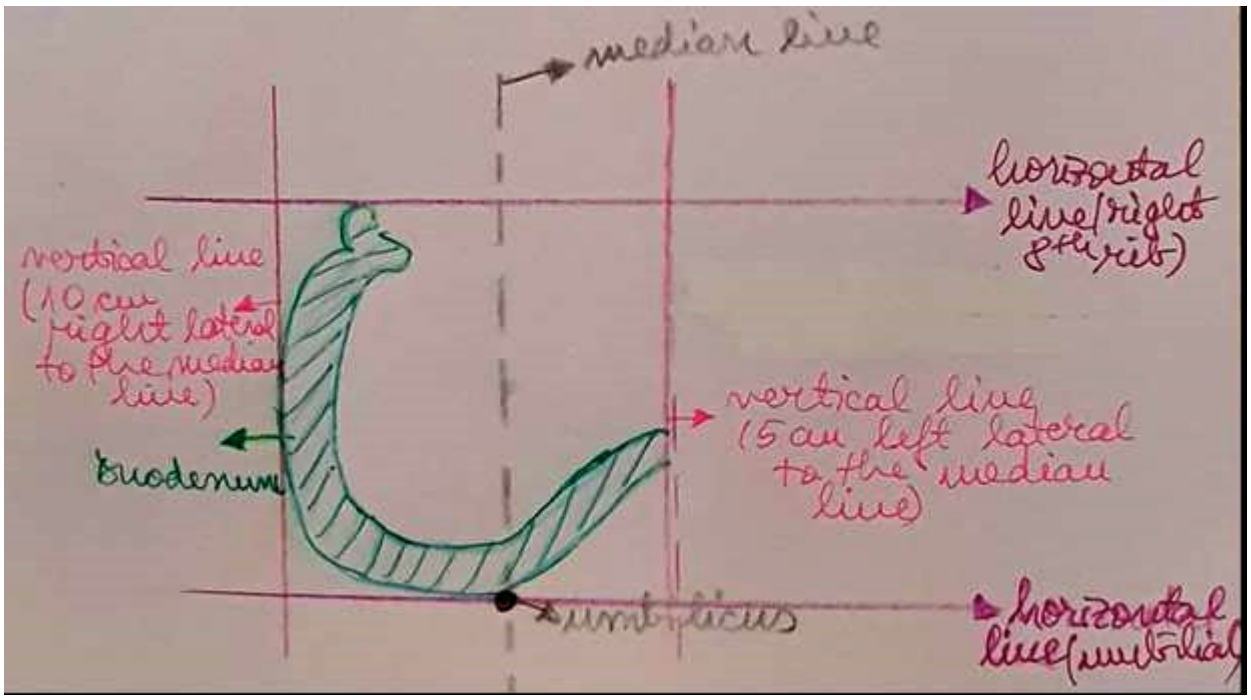

Figure 66: Duodenum projection

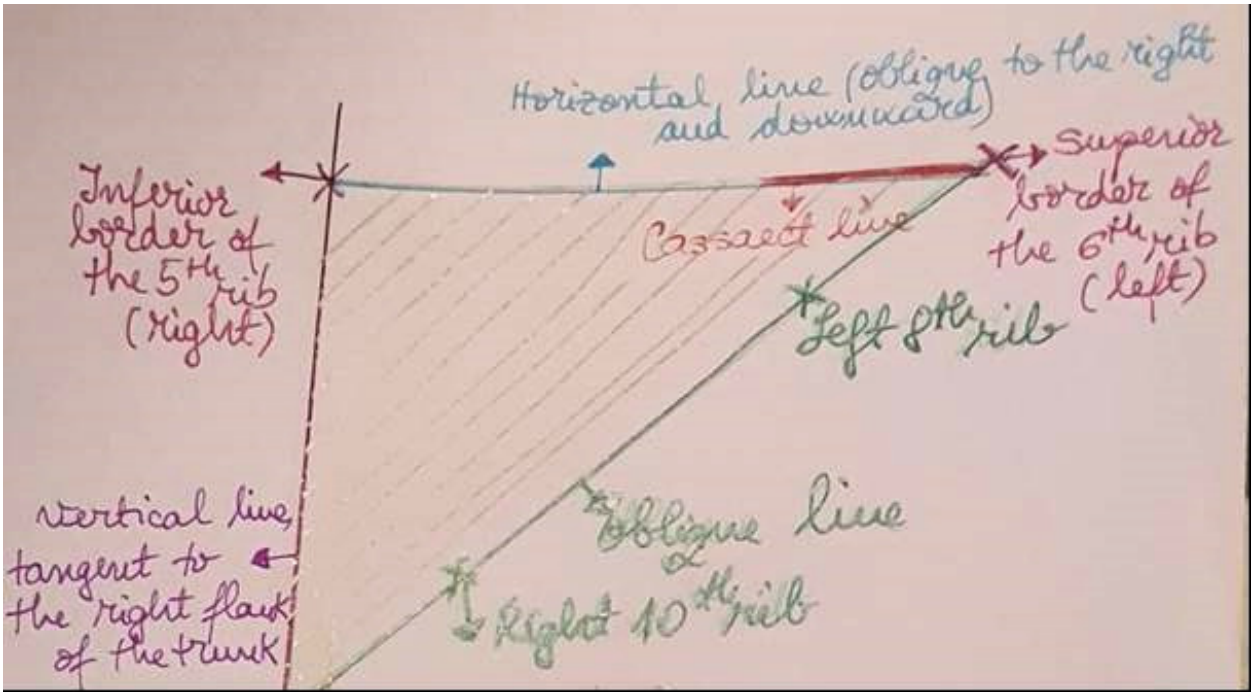

Figure 67: Liver projection

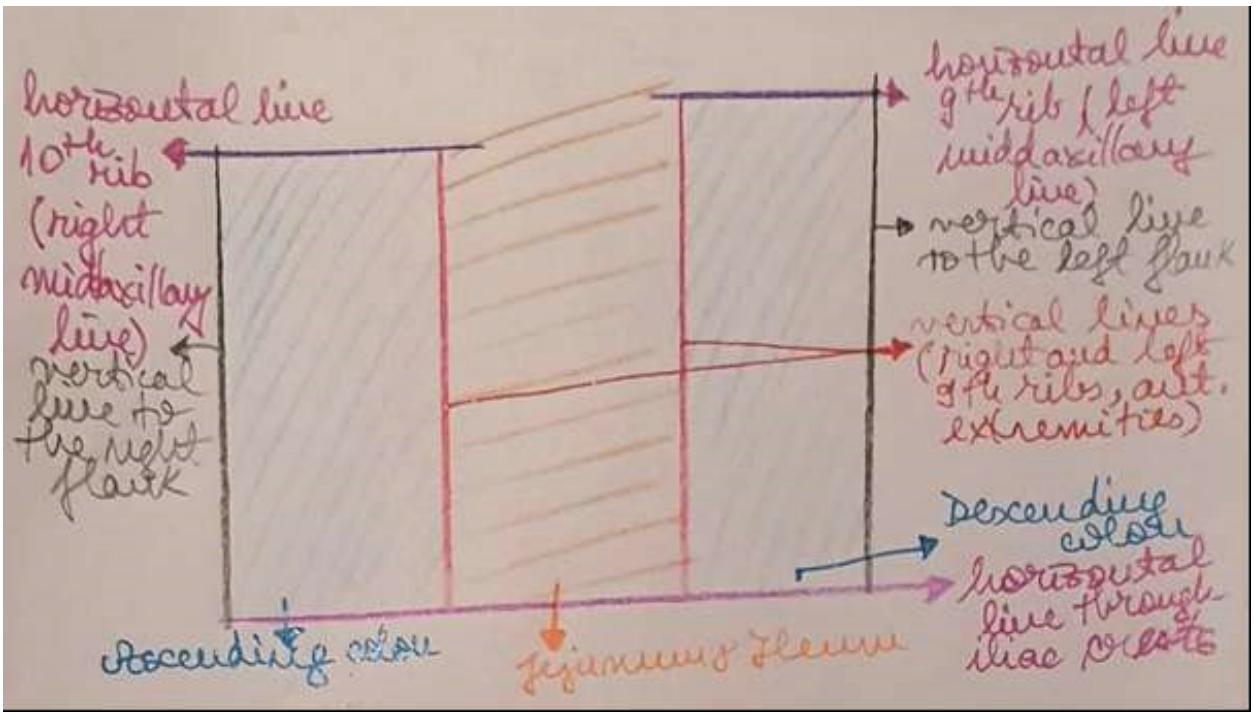

Figure 68: Jejunum, ileum, ascending colon, descending colon projections

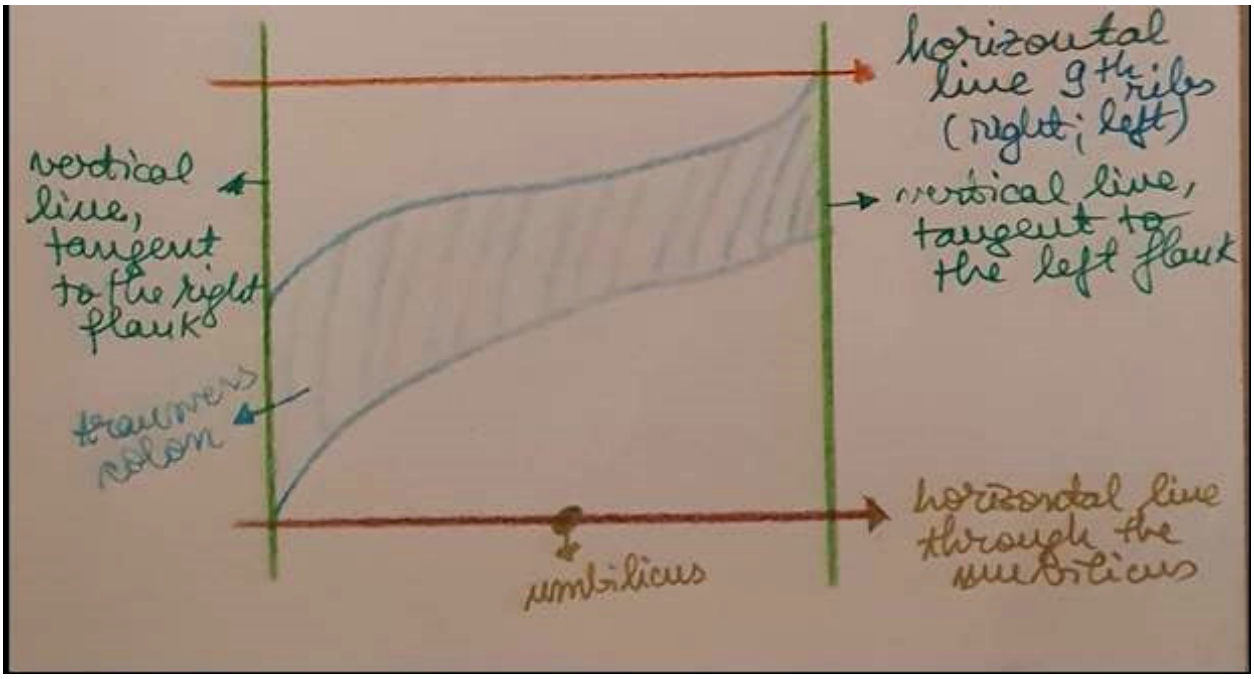

Figure 69: Transverse colon projection

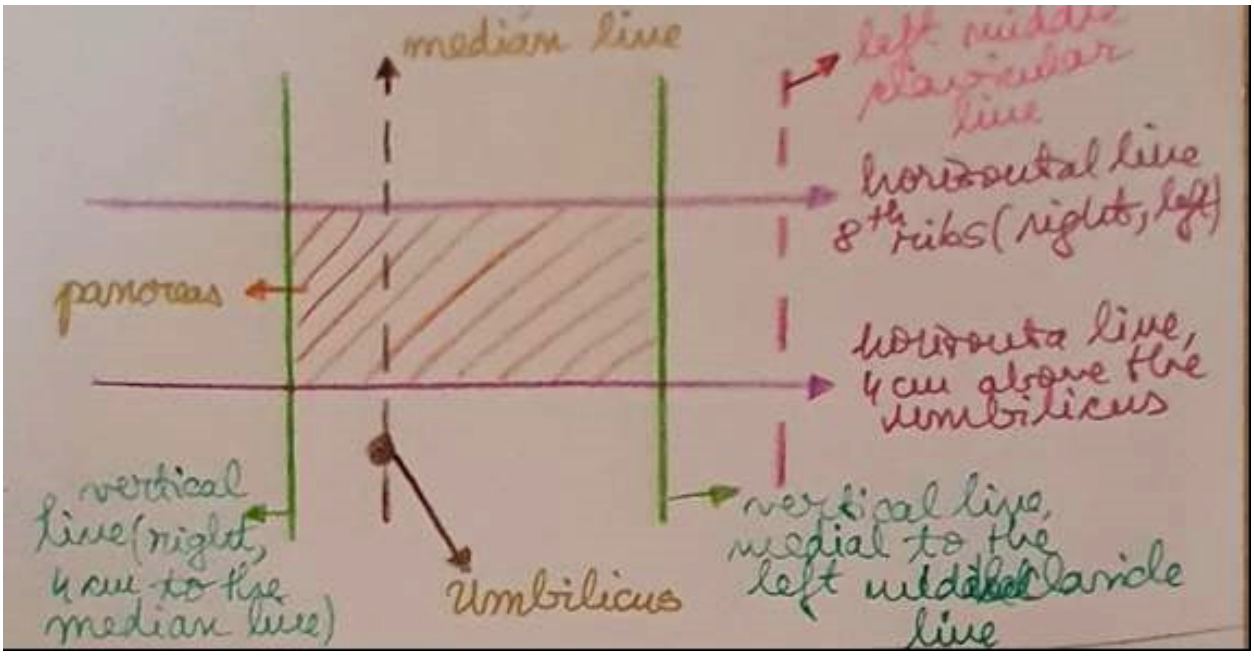

Figure 70: Pancreas projection

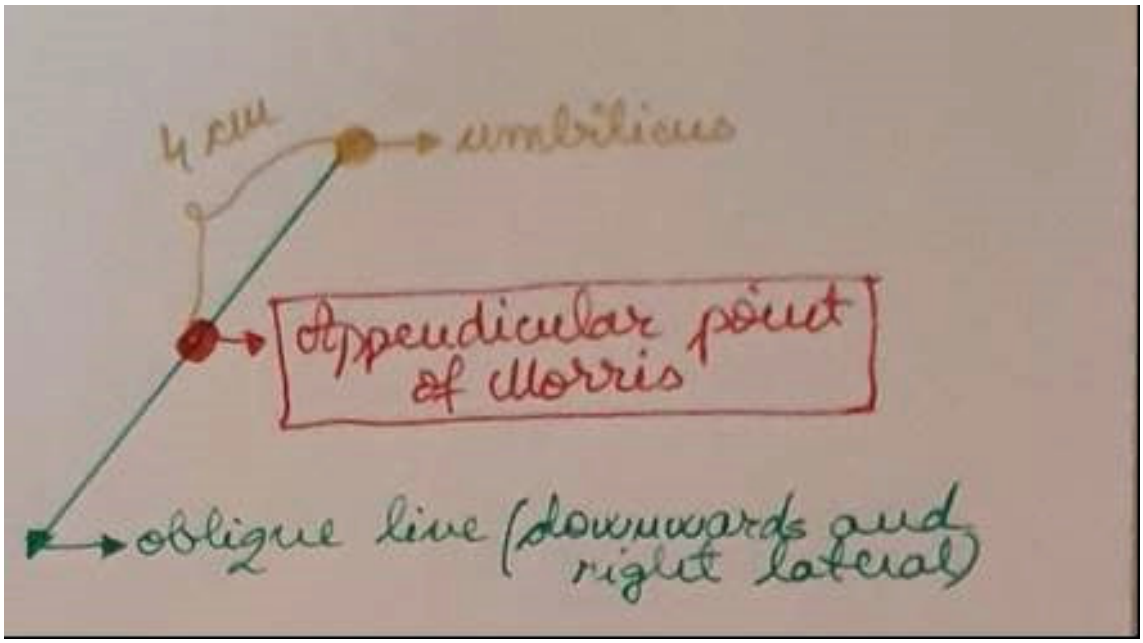

Figure 71: Appendicular point of Morris

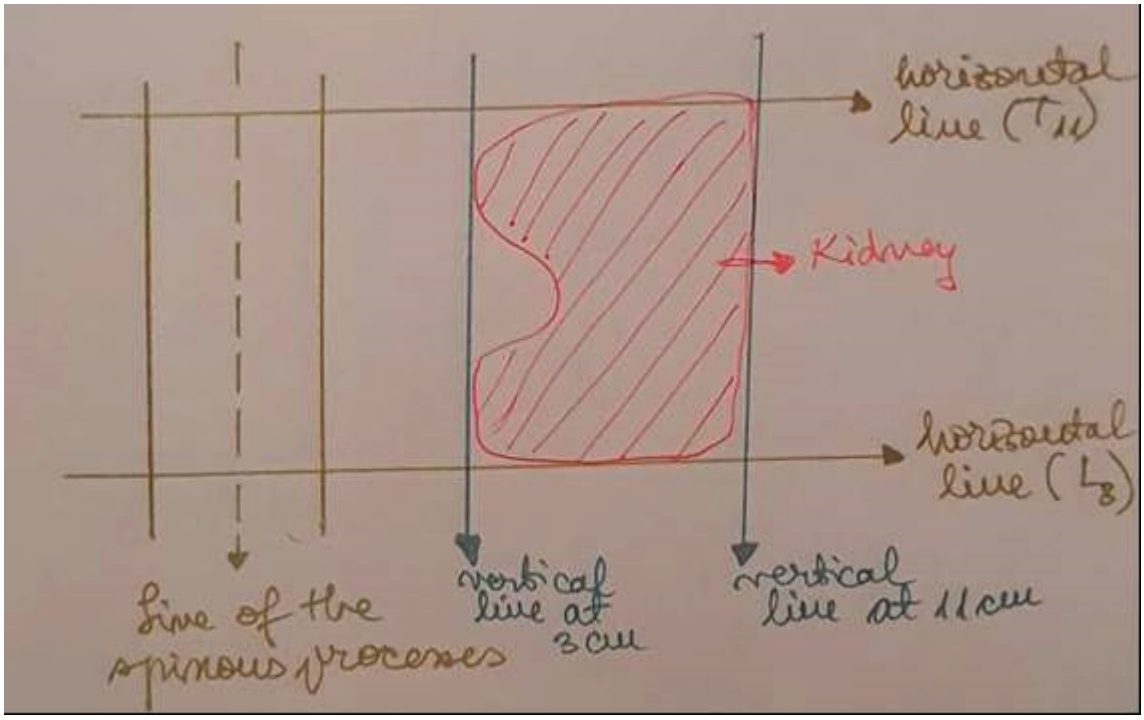

Figure 72: Kidney projection

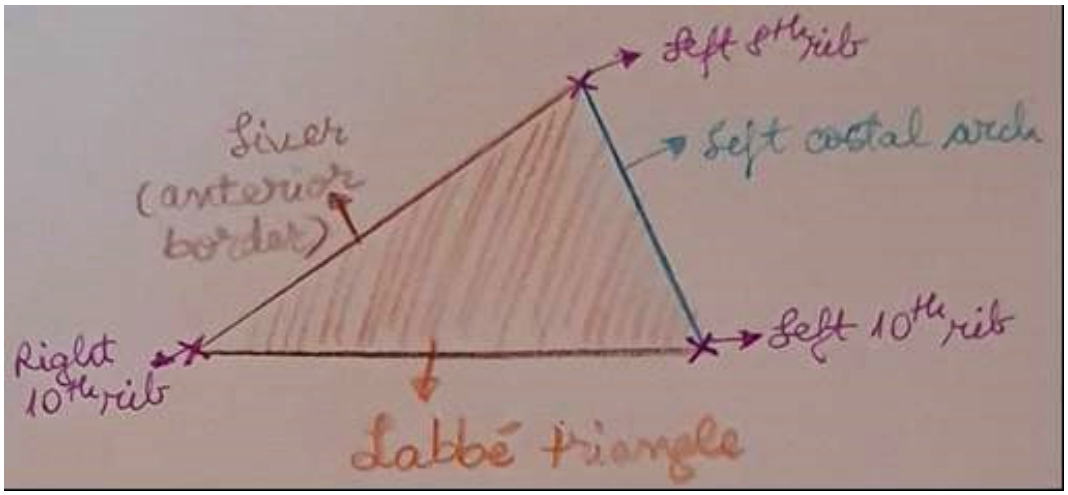

Figure 73: Stomach projection on the anterior abdominal wall

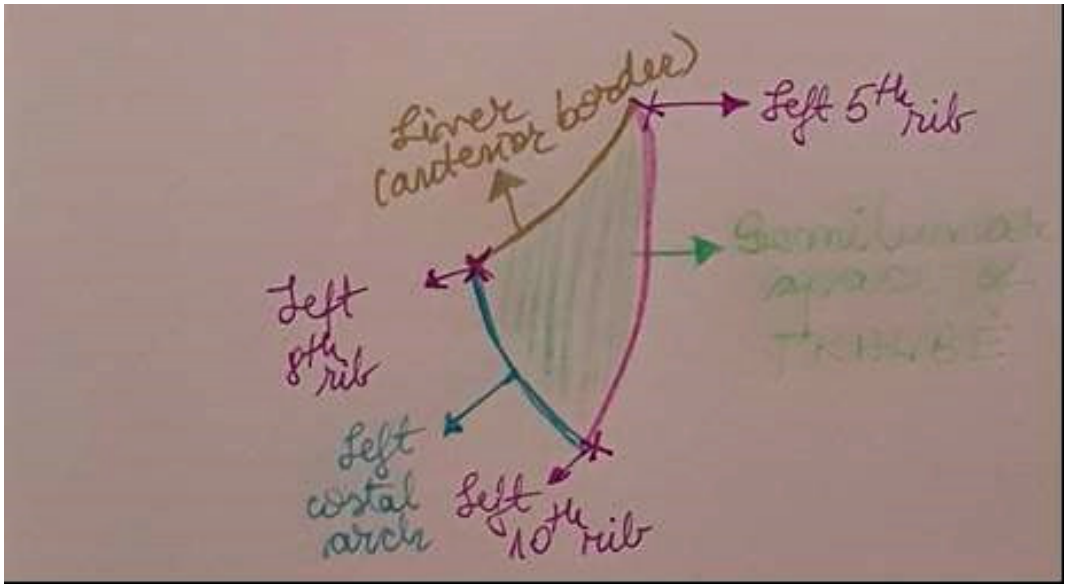

Figure 74: Stomach projection on the thoracic wall

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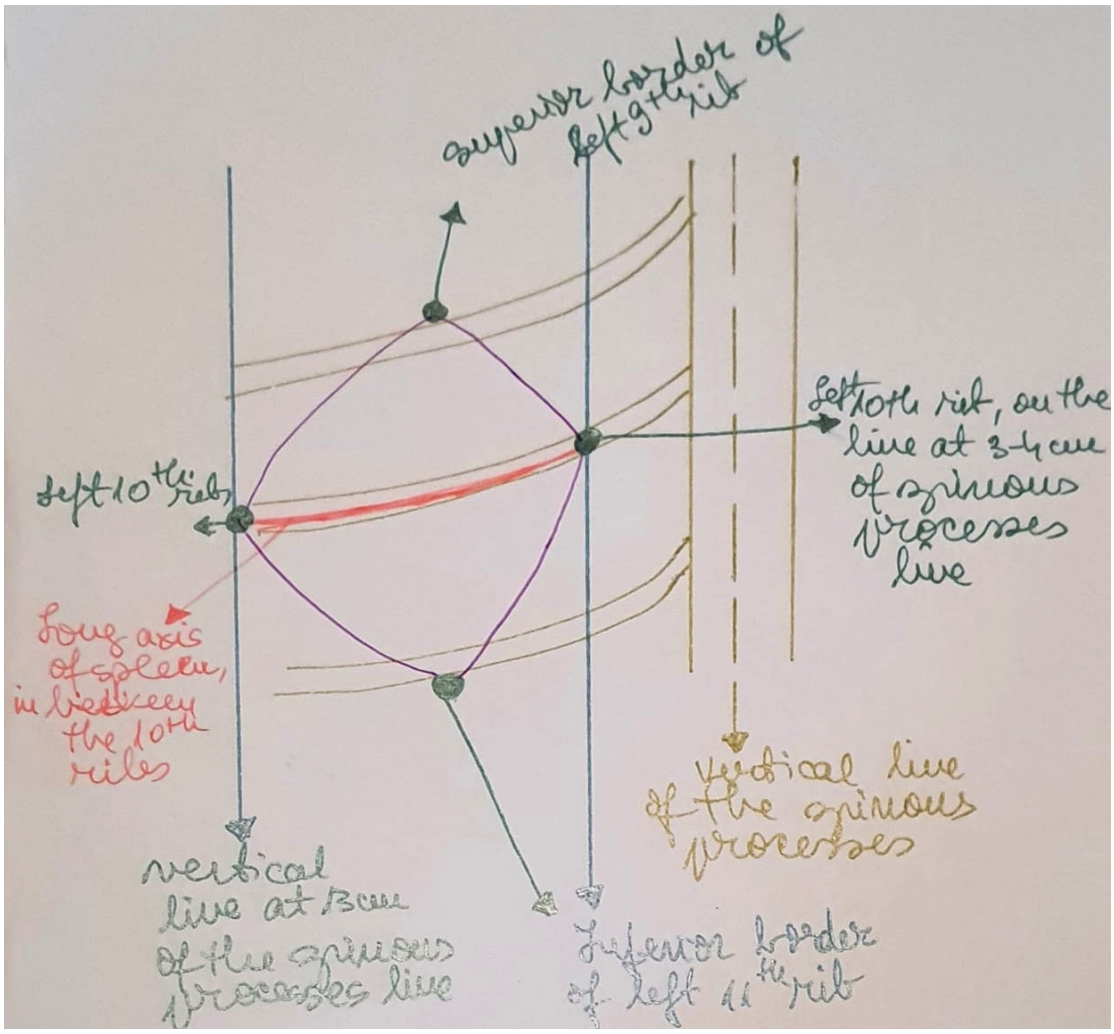

Figure 75: Spleen projection

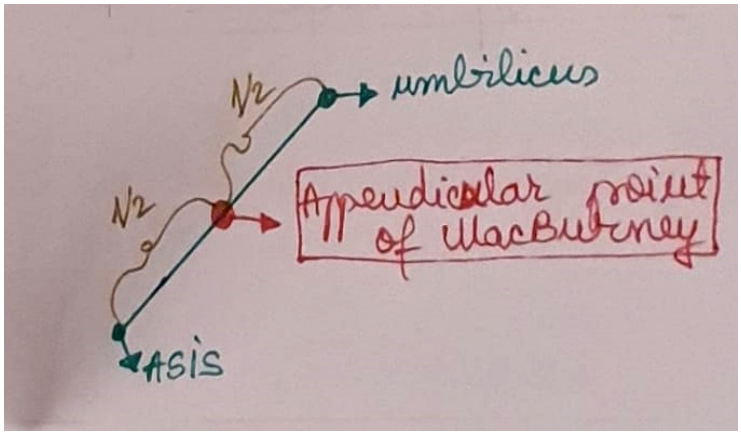

Figure 76: Appendicular point

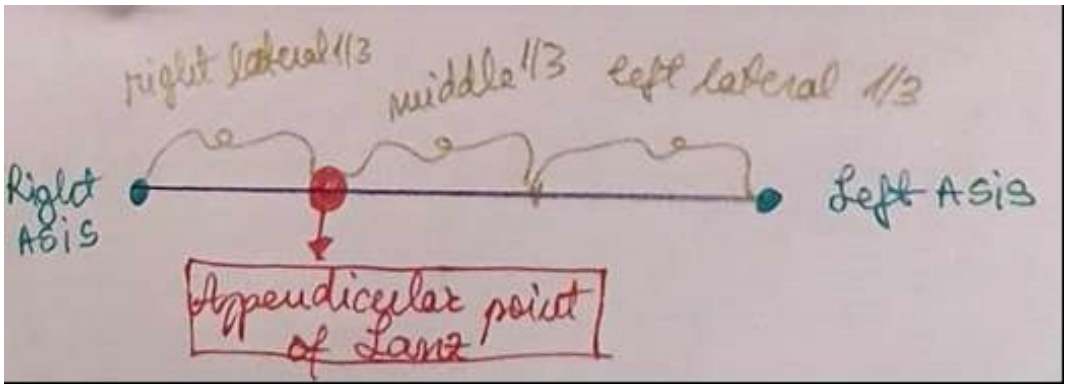

Figure 77: Appendicular point

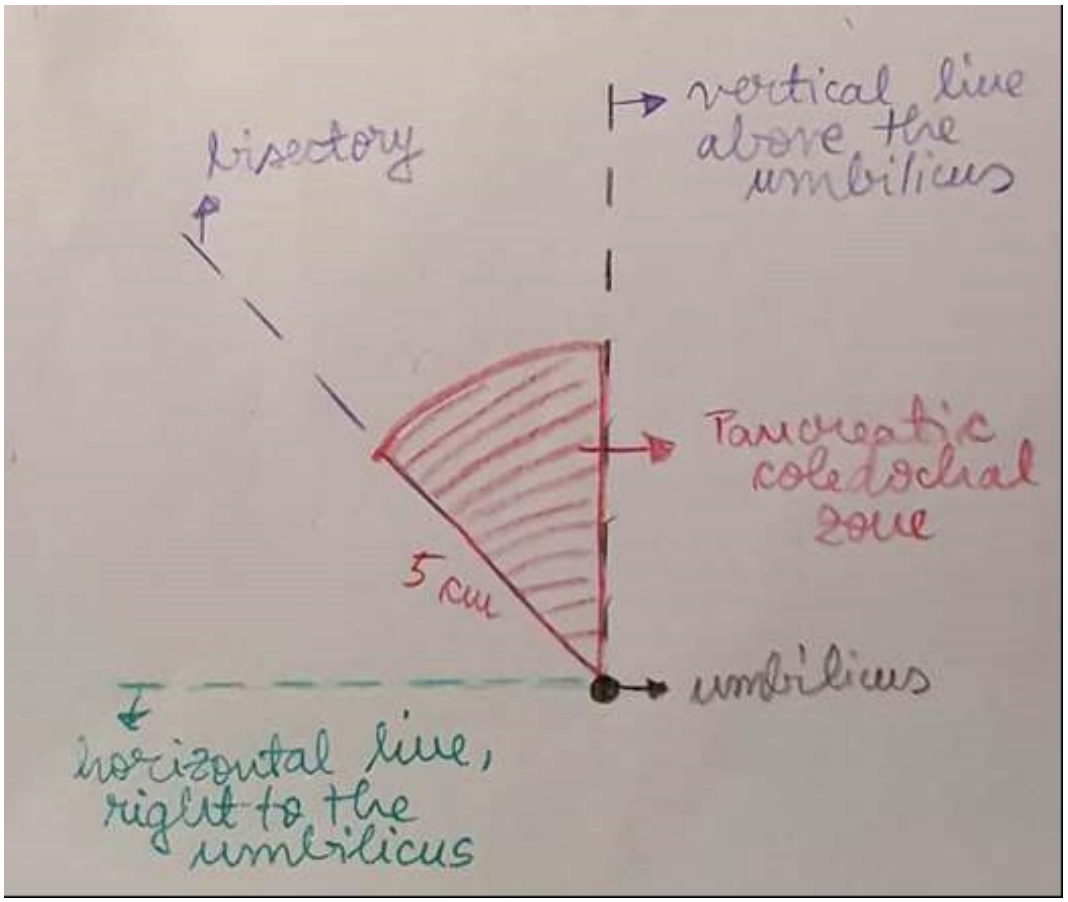

Figure 78: Pancreatic coledochal zone

VI. Nomina Anatomica translated into English (Alina Maria Șișu)

INTESTINUM TENUE=small intestine

Tunica serosa= serous coat

Tela subsserosa= suserous coat

Tunica muscularis=muscular coat

Stratum longitudinale=longitudinal layer

Stratum circulare=circular layer

Tela submucosa=submucous layer

Tunica mucosa=mucous layer

Lamina muscularis mucosae=muscular layer of mucous coat

Plicae circulares=circular folds

Villi intestinalis= intestinal villi

Gl. Intestinalis=intestinal glands

Folliculi lymphatici solitarii=solitary lymphatic follicles

Fo*lliculi lymphatici aggregate*=aggregate lymphatic follicle

Duodenum=duodenum

Pars superior=superior part

Pars descendens=descending part

Pars horizontalis inferior=inferior horizontal part

Pars ascendens=ascending part

Flexura duodeni superior=superior duodenal flexure

Flexura duodeni inferior=inferior duodenal flexure

Paries anterior=anterior wall

Paries posterior=posterior wall

Curvatura ventriculi major=greater curvature of the stomach

Curvatura ventriculi minor=lesser curvature of the stomach

Incisura angularis=angular incisure

Pars cardiac=cardiac part

Ostium cardiacum=cardiac orifice

Fundus ventriculi=fundus of the stomach

Incisura cardiac=cardiac incisure

Corpus ventriculi=body of the stomach

Pars pylorica= pyloric part

Antrum pyloricum=pyloric enlargement

Canalis pyloricus=pyloric canal

Pylorus=pylorus

Ostium pyloricum=pyloric orifice

Tunica serosa=serous coat

Tela subserosa=subserous coat

Tunica muscularis=muscular coat

Stratum longitudinale=longitudinal layer

Stratum circulare=circular layer

M. sphincter pylori=pyloric sphincter muscle

Fibrae obliquae=oblique fibres

Colon ascendens=ascending colon

Flexura coli dextra=right colic flexure

Colon transversum=transverse colon

Flexura coli sinistra=left colic flexure

Colon descendens=descending colon

Colon sigmoideum=sigmoid colon

Picae semilunares coli=colic semilunar folds

Haustra coli= colic pockets

Tunica serosa=serous coat

Tela subserosa= subserous coat

Appendices epiploicae=epiploic appendages

Tunica muscularis=muscular coat

Stratum longitudinale=longitudinal layer

Teniae coli=colic stripped muscle

Tenia mesocolica=mesocolic longitudinal fibres

Tenia omentalis=omental muscular fibres

Tenia libera=free muscular band

Stratum circulare=circular layer

Tela submucosa=submucous layer

Tunica mucosa=mucous layer

Lamina muscularis mucosae=muscle of mucous coat

Glandulae intestinalis=intestinal glands

Folliculi lymphatici solitarii=solitary lymphatic follicles

Jejunum =jejunum

Ileum=ileum

INTESTINUM GRASSUM=large intestine

Cecum =caecum

Valva ileocecalis=ileocaecal valve

Ostium ileocecale=ileocaecal orifice

Frenulum valvae ileocecalis=break of the ileocaecal valve

Appendix vermiformis=vermiform appendage

Ostium appendix vermiformis=orifice of the vermiform appendage

Folliculi lymphatici aggregate=aggregate lymphatic follicles

Apendicis vermiformis= vermiform appendage

Corpus pancreatic=body of pancreas

Facies anterior=anterior surface

Facies posterior=posterior surface

Facies inferior=inferior surface

Margo superior=superior border

Margo anterior=anterior border

Margo inferior=inferior border

Tuber omentale = omental tuberosity of liver

Cauda pancreatic=tail of pancreas

Ductus pancreaticus=pancreatic duct

Ductus pancreaticus accessories=accessory pancreatic duct

Pancreas accessorium=accessory pancreas

Hepar =liver

Tunica serosa=serous coat

Tela subserosa=subserous coat

Tunica fibrosa=fibrous coat

Facies diaphragmatica=diaphragmatic surface

Pars superior=superior part

Impressio cardiac=cardiac impression

Pars anterior=anterior part

Pars dextra=left part

Pars posterior=posterior part

Area nuda=bare area

Sulcus venae cavae=groove for vena cava

Fissure lig. venosi=venous ligament fissure

Facies visceralis=visceral surface

Margo inferior=inferior border

Incisura lig. teretis=notch for round ligament of liver

Fossa vesicae felleae=fossa for gallbladder

Fissura lig. teretis=round ligament fissure

Sulcus venae umbilicalis=umbilical veins grooves

Fossa ductus venosi=fossa of venous duct

Lig. teres hepatis=round ligament of liver

Lig. venosum=venous ligament

Porta hepatis=hepatic hilum, door

Lobus hepatis dexter=left hepatic lobe

Lobus quadratus=square hepatic lobe

Lobus caudatus=caudate hepatic lobe

Processus papillaris=papillary process

Processus caudatus=caudate process

Lobus hepatis sinister=left hepatic lobe

Tuber omentale=omental tuberosity

Impression esophagea=oesophageal impression

Impression gastrica=gastric impression

Impression duodenalis=duodenal impression

Impression colica=colic impression

Impression renalis=renal impression

Impression suprarenalis=adrenal gland impression

Lobuli hepatis=hepatic lobules

Capsula fibrosa perivascularis=perivascular fibrous capsule

Arteriae interlobulares=interlobular arteries

PANCREAS =pancreas

Caput pancreatic=head of pancreas

Processus uncinatus=uncinated process

Incisura pancreatic=pancreatic incisure

Venae interlobulares=interlobular veins

Venae centrales =central veins

Ductuli biliferi=biliary ducts

Ductus hepaticus communis=common hepatic duct

Ductus hepaticus dexter=right hepatic duct

Ductus hepaticus sinister=left hepatic duct

Vesica fellea=gallbladder

Tunica serosa=serous coat

Tela subserosa=subserous coat

Tunica muscularis=muscular coat

Tunica mucosa=mucous coat

Plicae tunicae mucosae vesica felleae=mucous folds of gallbladder

Fundus vesica felleae=fundus gallbladder

Corpus vesica felleae=body of gallbladder

Collum vesica felleae=neck of gallbladder

Ductus cysticus=cystic duct

Plica spiralis=spiral fold

Ductus choledochus=main bile duct

M. sphincter ductus choledochi=sphincter muscle of main bile duct

Ampula hepatopancreatica=hepatopancreatic ampulla

M. sphincter ampullae hepatopancreaticae=sphincter muscle of hepatopancreatic ampulla

Gl. mucosae biliosae=biliary mucous glands

REN=kidney

Margo lateralis=lateral border

Margo medialis=medial border

Hilus renalis=renal hilum

Sinus renalis=renal sinus

Facies anterior=anterior surface

Facies posterior=posterior surface

Extremitas superior=superior extremity

Extremitas inferior=inferior extremity

Capsula adipose=adipose capsule

Capsula fibrosa=fibrous capsule

Tubuli renales=renal tubules

Tubuli renales contorti =convolutes renal tubules

Tubuli renales recti=straight renal tubules

Cortex renis=renal cortex

Medulla renis=renal medulla

Lobi renales=renal lobules

Pyramides renales=renal pyramids

Basis pyramidis=base of pyramids

Papillae renales=renal papilla

Area cribrosa=pierced area

Foramina papillaria=papillary openings

Columnnae renales=renal columns

Lobuli corticales=cortical lobules

Pars radiate=radiate part

Pars convolute=convolute part

Corpuscula renis=renal corpuscle

Glomeruli =glomerulus

Capsula glomeruli=capsule of glomerulus

Pelvis renalis=renal pelvis

Calices renales=renal calyx

Calices renales majors=greater renal calyx

Calices renales minors=lesser renal calyx

Arteriae renis=renal arteries

Arteriae interlobares renis=interlobular renal arteries

Venae renis=renal veins

Venae interlobares=interlobar veins

Venae arcuatae=arcuate veins

Venae interlobulares=interlobular veins

Venulae rectae=straight venules

Venulae steliatae=star veins

Ureter =ureter

Pars abdominalis=abdominal part

Pars pelvina=pelvic part

Tunica adventica=adventitial coat

Tunica muscularis=muscular coat

Tunica mucosa=mucous coat

Vesica urinaria=urinary bladder

Apex vesicae=tip of urinary bladder

Corpus vesicae=body of urinary bladder

Fundus vesicae=fundus of urinary bladder

Cervix vesicae=neck of urinary bladder

Lig. umbilicale medianum=median umbilical ligament

Urachus=urachus

Tunica serosa=serous coat

Tela subserosa=subserous coat

Tunica muscularis=muscular coat

PERITONEUM= peritoneum

Peritoneum parietale=parietal peritoneum

Tunica serosa=serous peritoneum

Tela subserosa=subserous coat

Peritoneum viscerale=visceral peritoneum

Tunica serosa=serous tunic

Tela subserosa= subserous tunic

Cavum peritonei=peritoneal recesses

Recessus subphrenici=subphrenic recess

Recessus subhepatici=subhepatic recess

Recessus hepatorenalis=hepatorenal recess

Plica umbilicalis mediana=median umbilical fold

Fossa supravesicalis=supravesical fossa

Plica umbilicalis medialis=medial umbilical fold

Fossa inguinalis medialis=medial inguinal fossa

Trigonum inguinale=inguinal trigone

Plica umbilicalis lateralis=lateral umbilical fold

Fossa inguinalis lateralis=lateral inguinal fossa

Plica vesicalis transversa=transversal vesical fold

Mesorohium =mesohorium

Processus vaginalis peritonei=peritoneal vaginal process

Lig. latum uteri=large ligament of uterus

Mesometrium=mesometrium

Mesosalpings=mesosalpinx

Mesovarium=mesoovarium

Lig. suspensorium ovary= suspensory ligament of the ovary

Plica rectouterina=recto uterine fold

Excavatio rectouterina=recto uterine recess

Excavatio vesicouterina=vesico uterine recess

Excavatio rectovesicalis=recto vesical recess

Spatium retroperitoneale=retro peritoneal space

Fascia subperitonealis=sub peritoneal fascia

AORTA DESCENDENS=descending aorta

A. ileocolica= ileocolic artery

A.appendicularis=appendicular artery

A.colica dextra=right colic artery

A.colica media=middle colic artery

A. mesenterica inferior=inferior mesenteric artery

A. colica sinistra= left colic artery

Aa.sigmoideae=sigmoid arteries

A.rectalis superior=superior rectal artery

A.suprarenalis media=middle suprarenal artery

A.renalis=renal artery

A.suprarenalis inferior=inferior suprarenal artery

Rami ureterici=ureteric branches

A. testicularis=testicular artery

A.ovarica=ovarian artery

Aa.lumbales=lumbar arteries

Ramus dorsalis=dorsal branch

Ramus spinalis=spinal branch

A.sacralis mediana=median sacral artery

A.lumbalis ima=smallest lumbar artery

Truncus celiacus=coeliac trunk

A.gastrica sinistra=left gastric artery

Rami esophagei=oesophageal branches

A.hepatica communis=common hepatic artery

A.gastrica dextra=right gastric artery

A.hepatica propria=proper hepatic artery

Ramus dexter=right branch

A.cystica=cystic artery

Ramus sinister=left branch

A.gastroduodenalis=gastroduodenal artery

A.pancreaticoduodenalis superior=superior pancreatico duodenal artery

Rami pancreatici=pancreatic branches

Rami duodenales=duodenal branches

A.gastroepiploica dextra=right gastroepiploic artery

Rami epiploici=epiplooic branches

A.lienalis=splenic artery

Rami pancreatici=pancreatic branches

A.gastroepiploica sinistra=left gastroepiplooic artery

Rr.epiploici=epiplooic branches

Aa.gastricae breves=short gastric arteries

Rami lienales=splenic branches

A.mesenterica superior=superior mesenteric artery

A.pancreaticoduodenalis inferior=inferior pancreatico duodenal artery

Aa.jejunales=jejunal arteries

Aa.ilei=ileal arteries

A.rectalis media=middle rectal artery

A.pudenda interna=internal pudendal artery

A.rectalis inferior=inferior rectal artery

A.perinealis=perineal artery

Rami scrotales posteriors=posterior scrotal branches

Rami labiales posteriors=posterior labial branches

A.urethralis=urethral artery

A.bulbi penis=bulbus penis artery

A.bulbi vestibuli vaginae= vaginal bulbus vestibulus artery

A.profunda penis=deep penile artery

A.dorsalis penis=posterior penile artery

A.profunda clitoridis=deep clitoridian artery

A.dorsalis clitoridis=posterior clitoris artery

VENA CAVA INFERIOR=inferior vena cava

Vv.phrenicae inferiors=inferior phrenic veins

Vv.lumbales III et IV=3rd and 4th lumbar veins

Vv.hepaticae=hepatic veins

Vv.renales=renal veins

V.suprarenalis sinistra=left suprarenal veins

V.testicularis sinistra=left testicular vein

V.ovarica sinistra=left ovarian vein

V.suprarenalis dextra=right suprarenal vein

V.dorsalis clitoridis=posterior clitoridian vein

Vv.uterinae=uterine veins

Plexus venosus uterinus=uterine venous plexus

Plexus venosus vaginalis=vaginal venous plexus

V.pudenda interna=internal pudendal vein

Vv.profundae penis=deep penile veins

Vv.profundae clitoridis=deep clitoridian veins

Vv.rectales mediae=middle rectal veins

Vv.rectales inferiors=inferior rectal veins

V.prepylorica=prepyloric vein

V.mesenterica superior=superior mesenteric vein

Vv.jejunales et ilei=jejunal and ileal veins

V.gastroepiploica dextra=right gastroepiplooic vein

Vv.pancreaticae=pancreatic veins

V.ileocolica=ileocolic vein

V.appendicularis=appendicular vein

V.colica dextra=right colic vein

V.colica media=middle colic vein

Vv.pancreaticoduodenales=pancreatico duodenal veins

V.lienalis=splenic vein

Vv.pancreaticae=pancreatic veins

V.gastricae breves=short gastric vein

V.gastroepiploica sinistra=left gastro epiplooic vein

V.mesenterica inferior=inferior mesenteric vein

V.colica sinistra=left colic vein

Vv.sigmoideae=sigmoidian veins

V.rectalis superior=superior rectal vein

V.umbilicalis=umbilical vein

Ductus venosus=venous duct

LIEN=spleen

Facies diaphragmatica=diaphragmatic surface

Facies visceralis=visceral surface

Facies renalis=renal surface

Facies gastrica=gastric surface

Facies colica=colic surface

Extremitas posterior=posterior extremity

Extremitas anterior=anterior extremity

Margo superior=superior border

Margo inferior=inferior border

Hilus lienis=splenic *hilum*

Tunica serosa=serous coat

Tunica fibrosa=fibrous coat

Trabeculae lienis=splenic trabecules

Pulpa lienis=splenic pulp

Sinus lienis=splenic sinus

Rami lienales=splenic branches

Arteriae lienalis =splenic arteries

Folliculi lymphatici lienales= splenic lymphatic follicles

(Lien accessorius)= (accessory spleen)

PARS ABDOMINALIS ET PELVINA SYSTEMATIS AUTONOMICI=abdominal and pelvic part of the autonomic pelvic system

Ganglia lumbalia=lumbar ganglia

Nn.splanchnici lumbales=lumbar splanchnic nerves

Ganglia sacralia=sacral ganglia

Nn.splanchnici sacrales=sacral splanchnic nerves

Ganglion impar=unpaired ganglion

Plexus submucosus=submucous plexus

Plexus iliaci=iliac plexus

Plexus femoralis=femoral plexus

Plexus hypogastricus superior=superior hypogastric plexus

N. presacralis= pre sacral nerve

N.hypogastricus dexter et sinister=right and left hypogastric nerve

Plexus hypogastricus inferior=inferior hypogastric nerve

Plexus pelvinus=pelvic plexus

Ganglia pelvina=pelvic ganglia

Plexus rectales medii=middle rectal plexus

Plexus rectales inferiors=inferior rectal plexus

Plexus prostaticus=prostatic plexus

Plexus deferentialis=deferential plexus

Plexus uterovaginalis=utero vaginal plexus

Nn.vaginales=vaginal nerves

Plexus vesicales=vesical plexus

Nn.cavernosi penis=cavernous nerves of penis

Nn.cavernosi clitoridis=cavernous nerve of clitoris

VII. References

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