

THORACIC DUCT & THE SPLEEN

Dr. Aiman Q. Afar
Surgical Anatomist

College of Medicine / University of Mutah
2022-2023

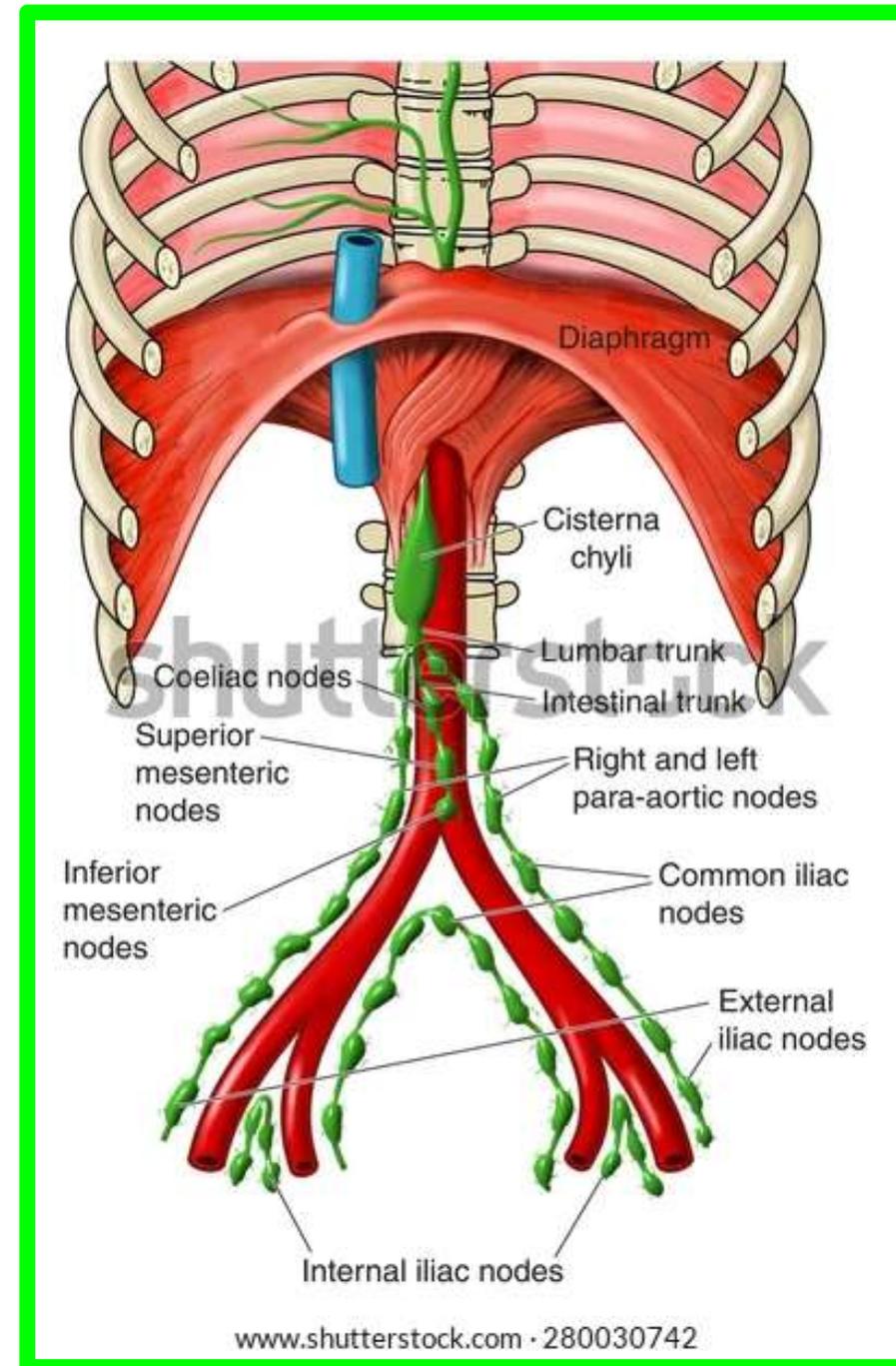
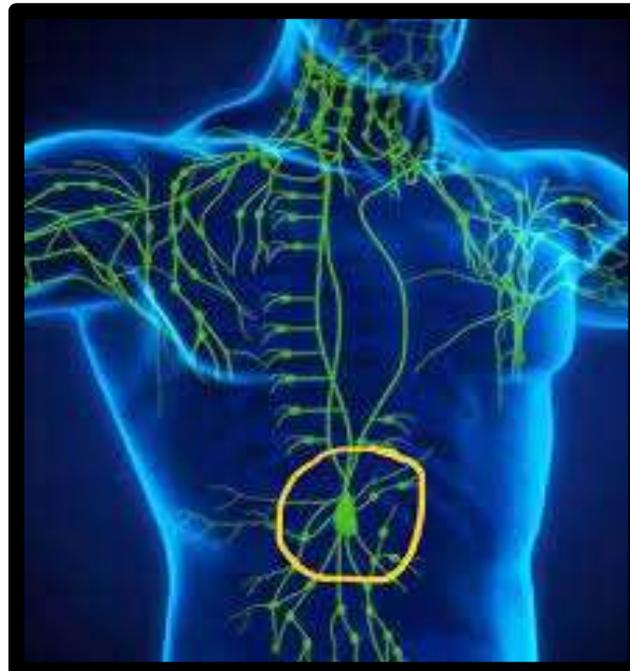
Tuesday 28 March 2023

Thoracic Duct

- It is the largest lymphatic vessels in the body.

**** Beginning:** from the upper end of **the cisterna chyli**.
(Lies anterior to bodies of L1,L2 vertebrae between the right crus of the diaphragm and the aorta)

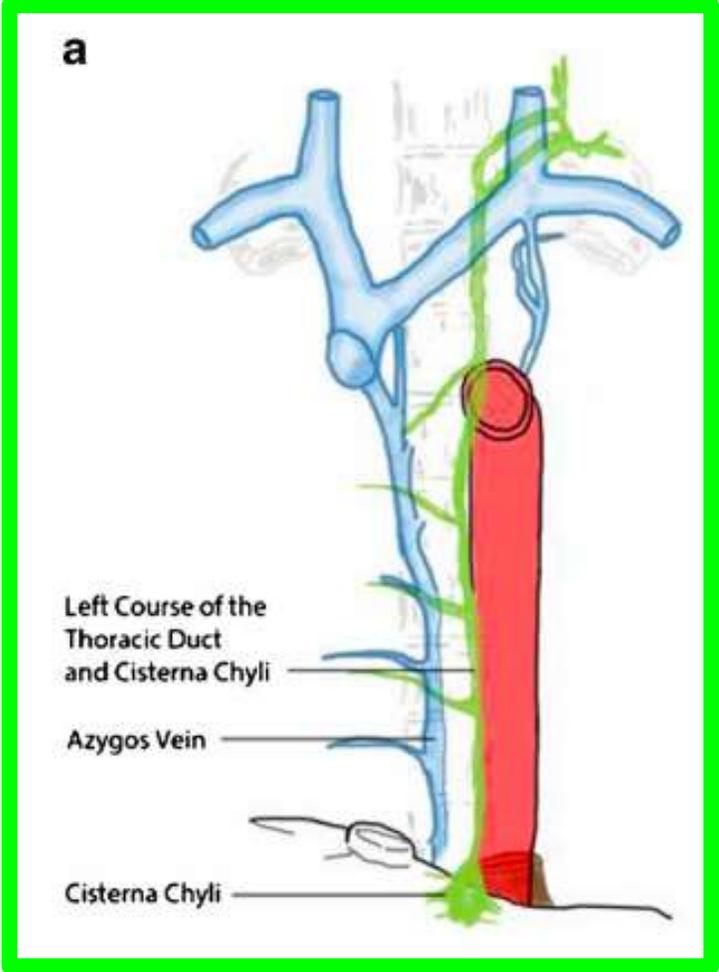
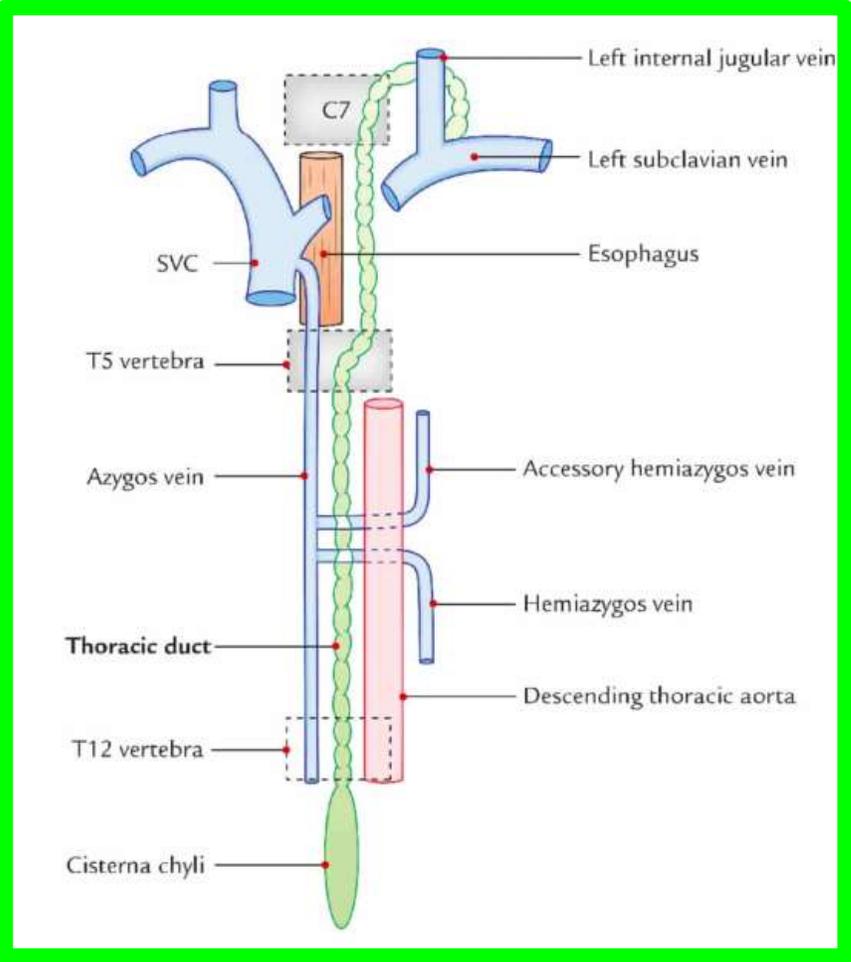
**** Shape:** It is a thin-walled vessel which **has a beaded appearance** due to presence of many valves.



Thoracic Duct

** Course and relations:

1- It enters the thorax through **the aortic opening** of the diaphragm between **the aorta** (on the left) and **azygos vein** (on the right).

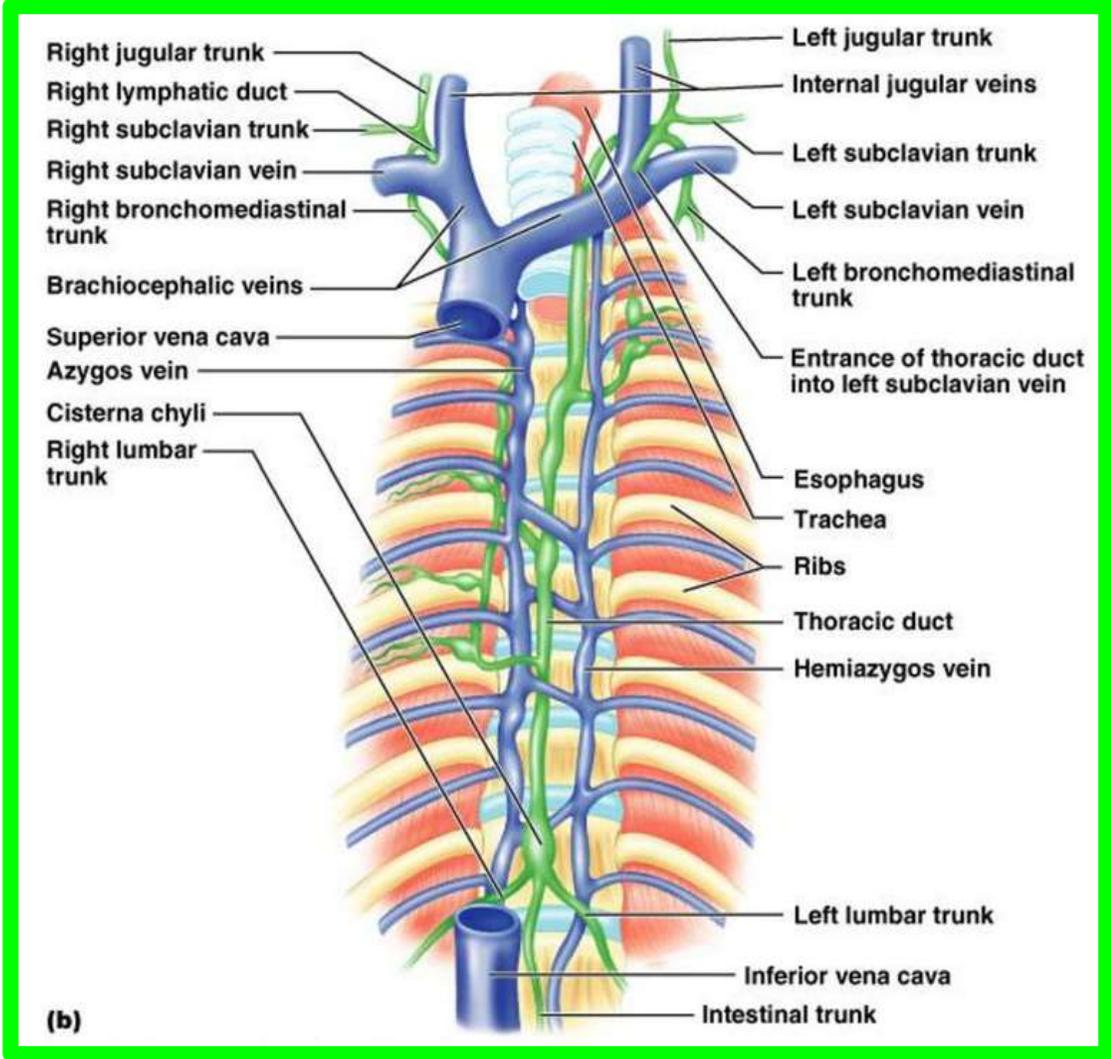


Thoracic Duct

** Course and relations:

2- In the posterior mediastinum, it ascends:

- Between **the aorta** (on the left) and **azygos vein** (on the right).
- Behind **right border of esophagus**.
- In front of the **vertebral column**, posterior intercostal arteries, and hemiazygos veins.



Thoracic Duct

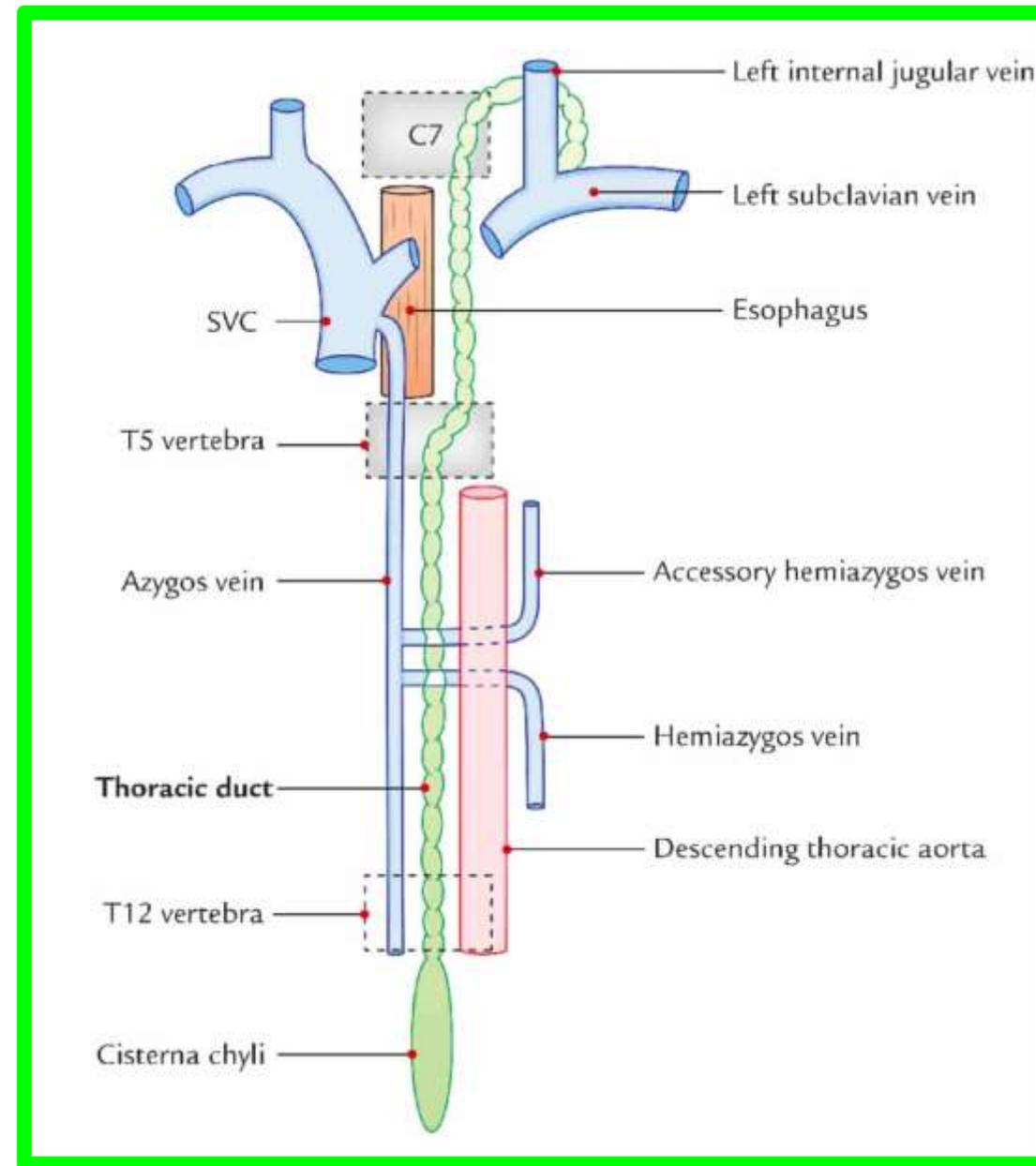
** Course and relations:

3- At the level of T5:

- It crosses the median plane from right to left behind the esophagus.

4- In the superior mediastinum:

- It ascends behind left border of esophagus.



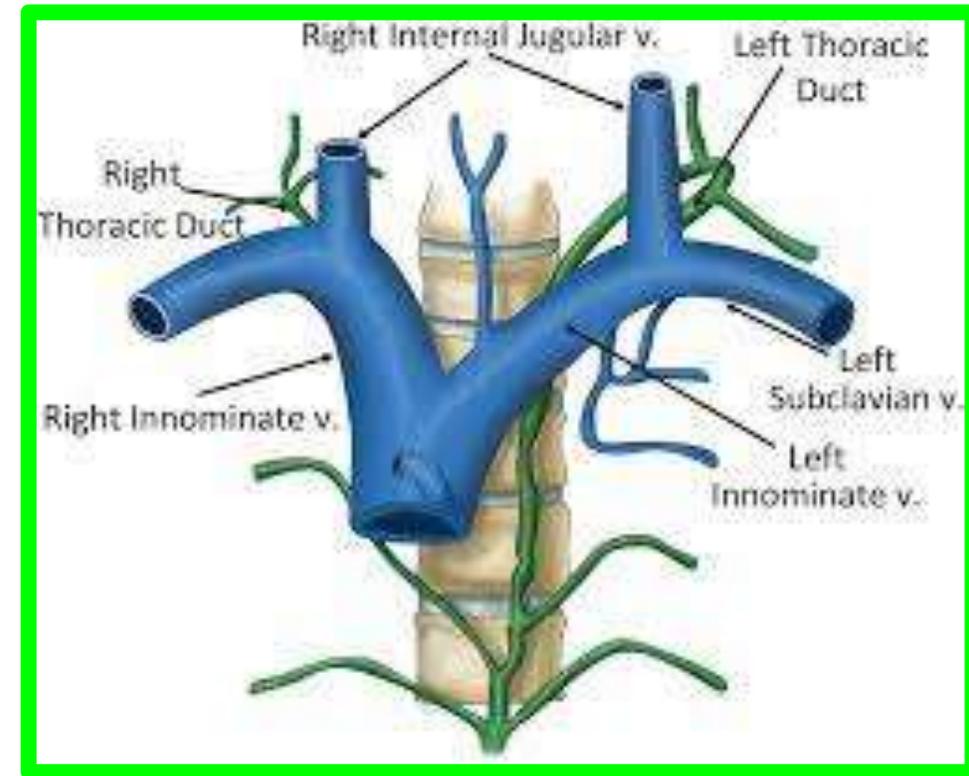
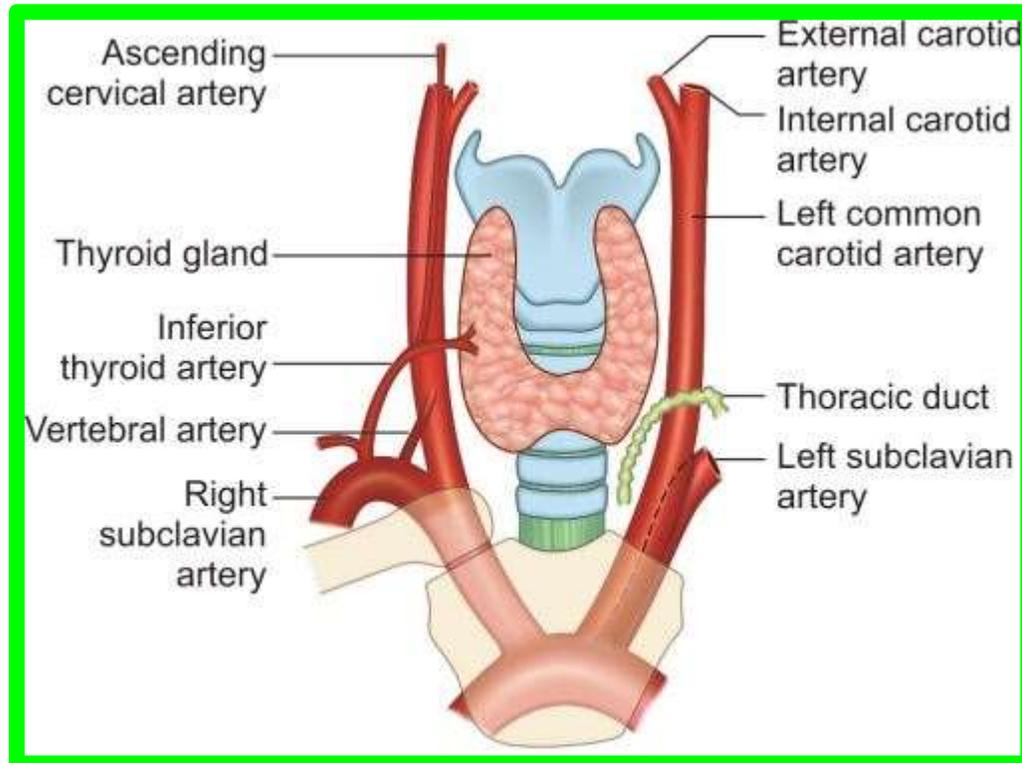
Thoracic Duct

** Course and relations:

5- In the neck, at the level of the C6, it curved behind the carotid sheath.

6- Finally, it descends to end into the junction of the left subclavian and left internal jugular veins.

N.B; At the end of the duct there are 2 valves to prevent regurgitation of the blood.



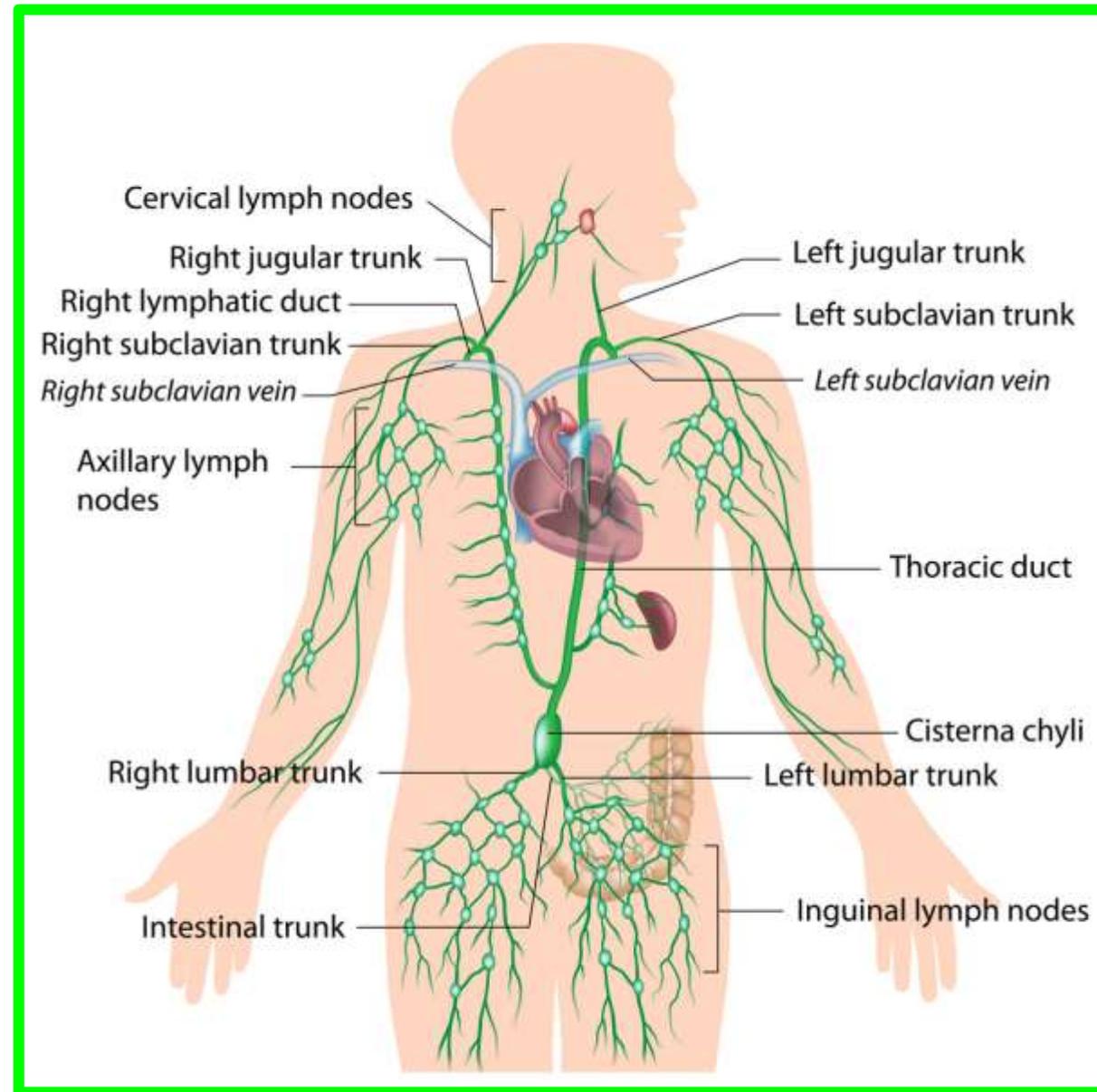
Thoracic Duct

** Tributaries:

1) **Cisterna chyli**, receives lymphatic from the lower part of the body through;

A- Intestinal lymph trunk
(from abdomen and pelvis).

B- Right and left lumbar lymph trunks
(from 2 lower limbs).



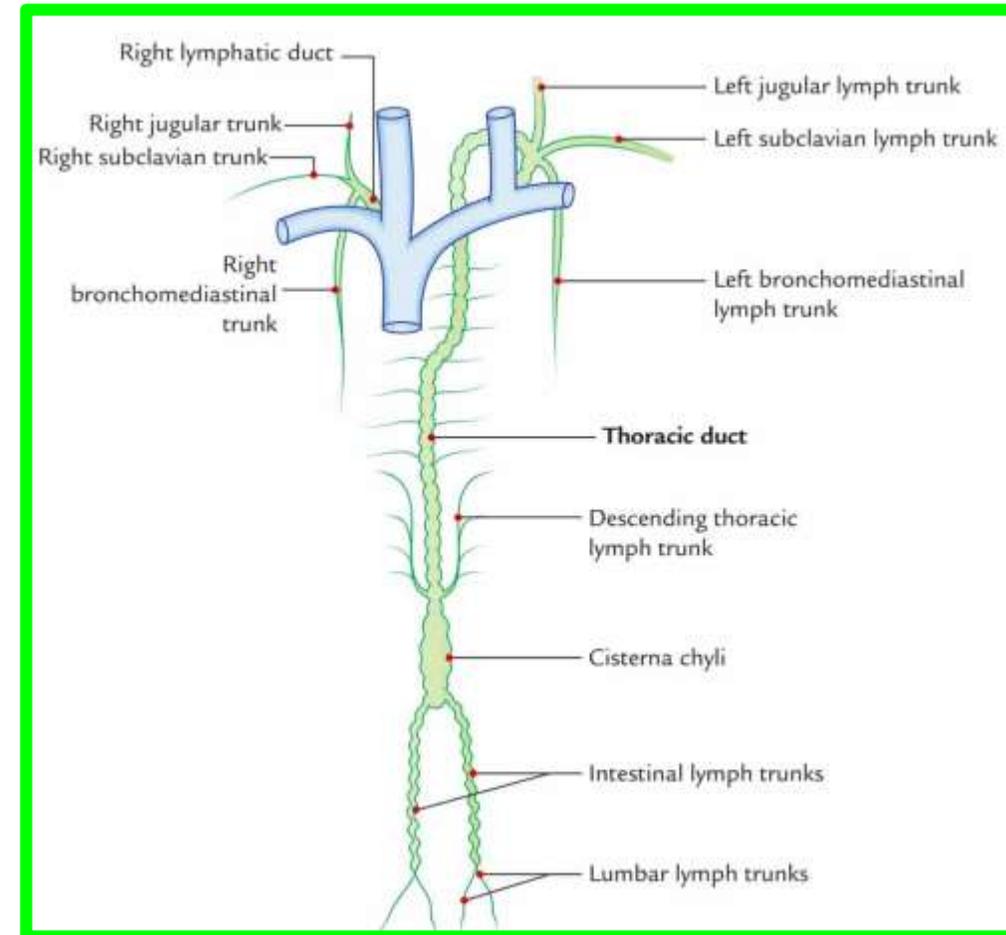
Thoracic Duct

** Tributaries:

2) Left broncho-mediastinal lymph trunk: drains the left 1/2 of the thoracic cavity.

3) Left subclavian trunk: drains the left upper limb.

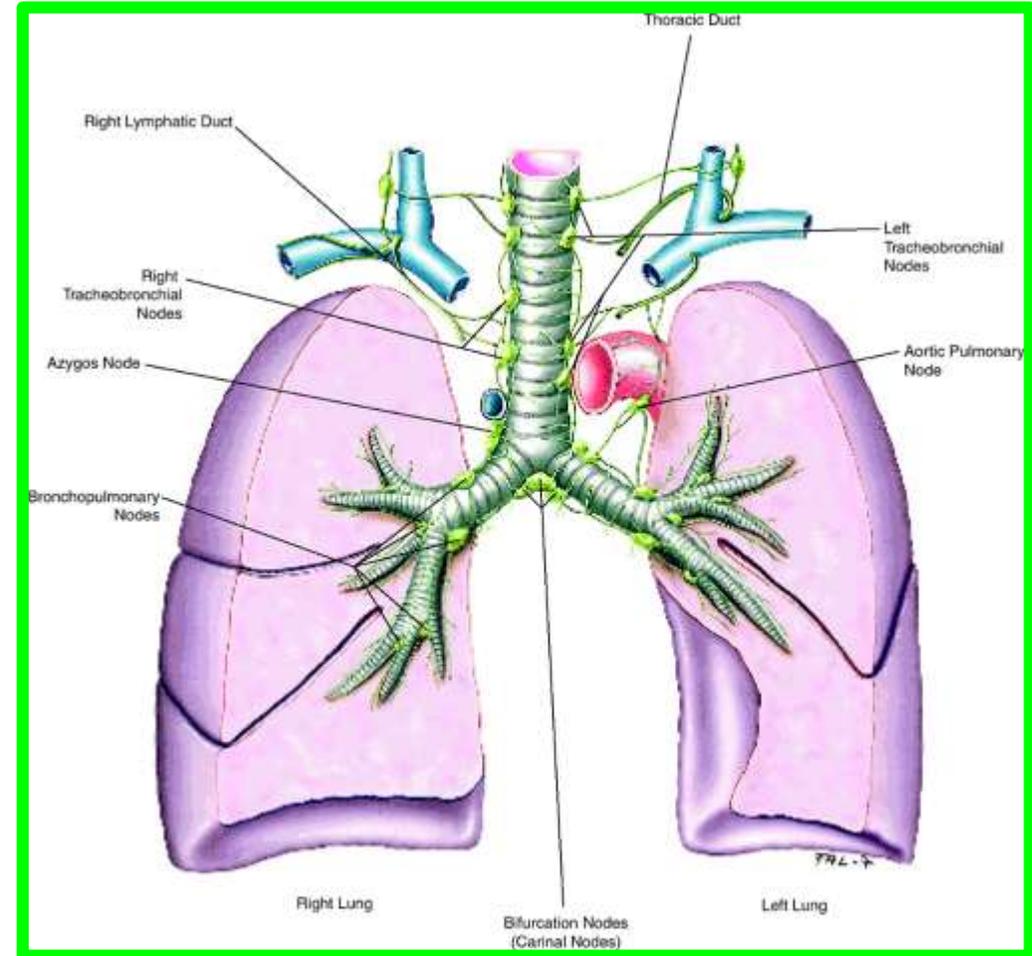
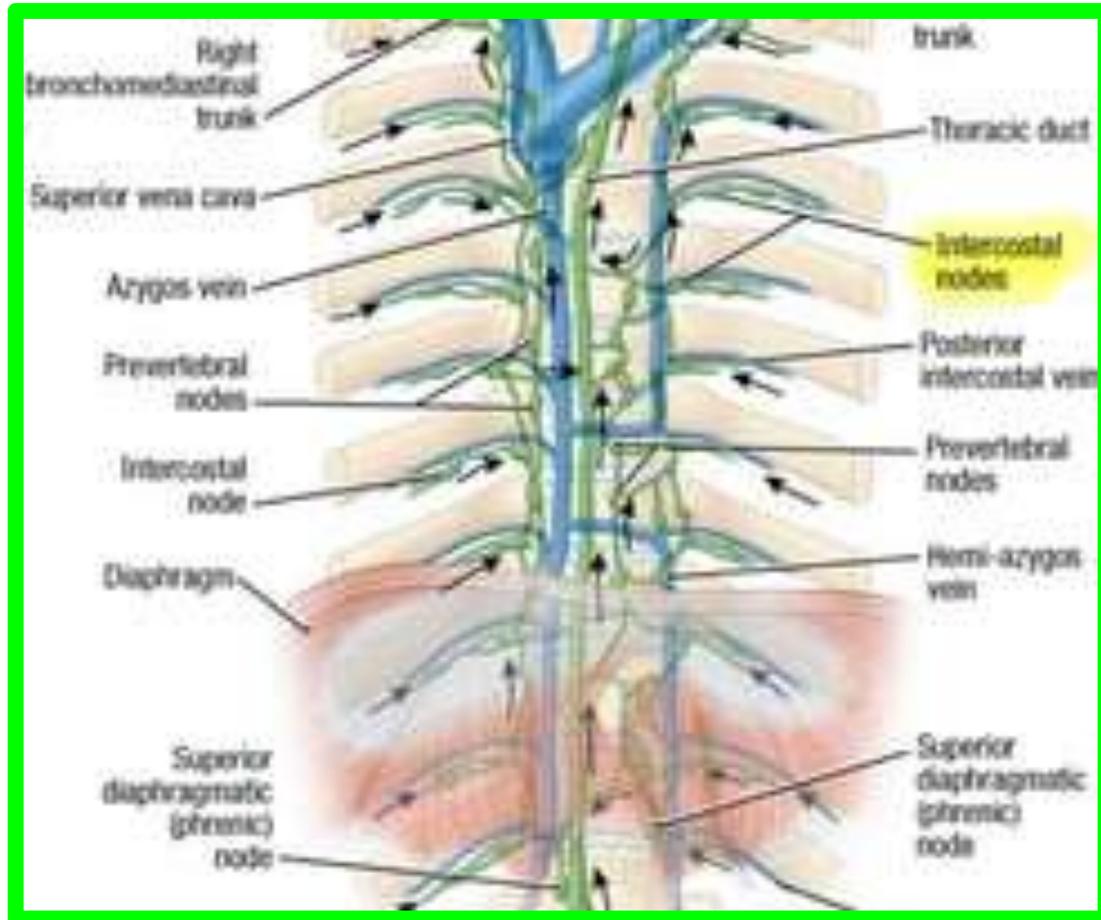
4) Left jugular lymph trunk: drains the left 1/2 of the head and neck.



Thoracic Duct

** Tributaries:

- 5) Efferent from the posterior mediastinal lymph nodes.
- 6) Efferent from the posterior intercostal lymph nodes.



Spleen

- It is a **lymphatic organ** connected to the vascular system.

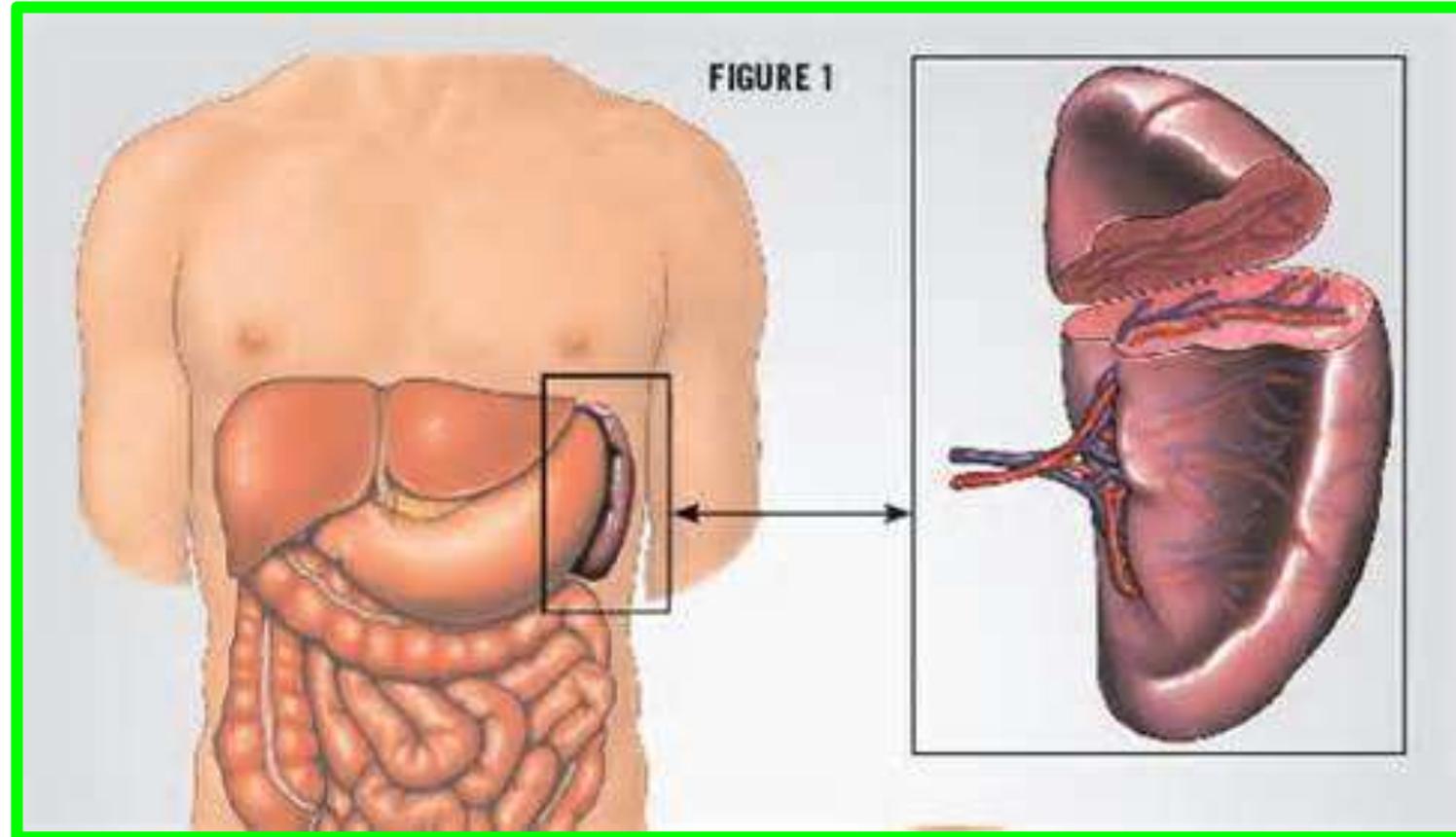
**** Position:** It lies in the **left hypochondrium**

N.B.; - always remember the odd numbers **1, 3, 5, 7, 9,** and **11.**

1 inch thick, 3 inch broad, 5 inch long, 7 ounces (200 gm) weight & lies between 9 & 11 ribs.

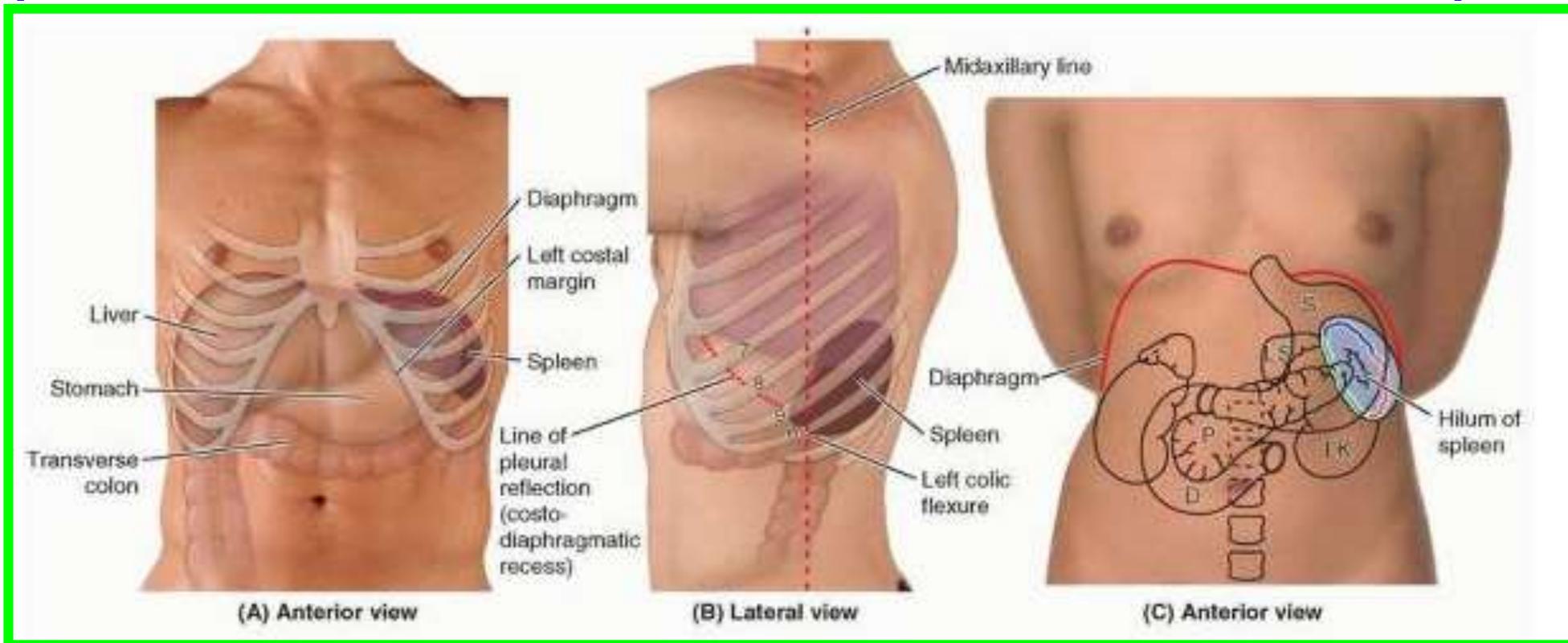
**** Functions:**

- 1- Storage of blood.
- 2- Destruction of old RBCs.



** Surface anatomy:

- ❖ The long axis of the spleen lies along the long axis of the 10th rib.
- ❖ Its upper border is parallel to the superior border of the 9th rib.
- ❖ Its lower border is parallel to the inferior border of the 11th rib.
- ❖ The anterior end normally lies just behind the left midaxillary line.
- ❖ The posterior end lies **one and half inches** lateral to the 10th thoracic spine.



Spleen

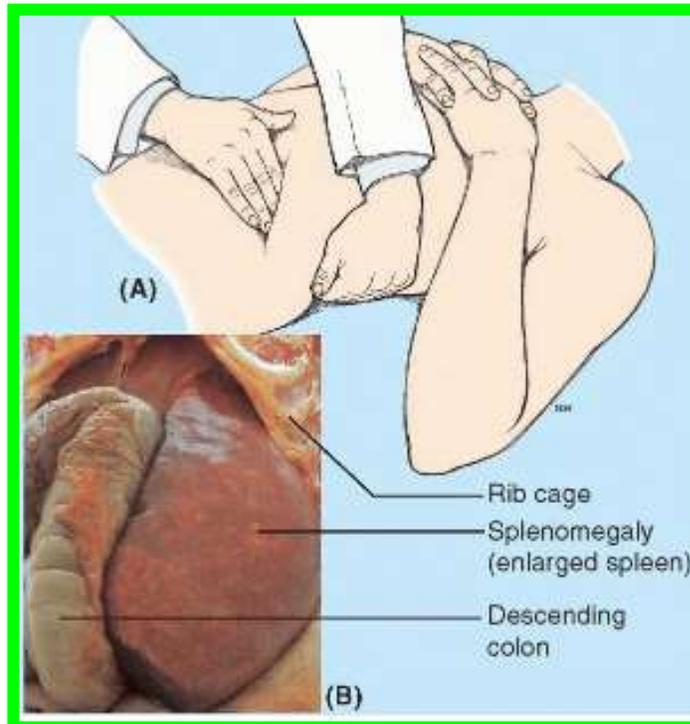
N.B; the normal spleen is not palpable.

- If the spleen is **felt below the costal margin**, it is **enlarged at least 3 times** of its normal size.

**** How to place the spleen in the correct anatomical position**

1- Hold the spleen in your left hand with **its convex surface** applied to **the palm**, the **round posterior end** towards **the wrist**, the **broad anterior end** towards the **tips of fingers** and the **notched upper border** applied **to the thumb**.

2- Put your hand behind the left midaxillary line with an angle 45 degrees with the horizontal.

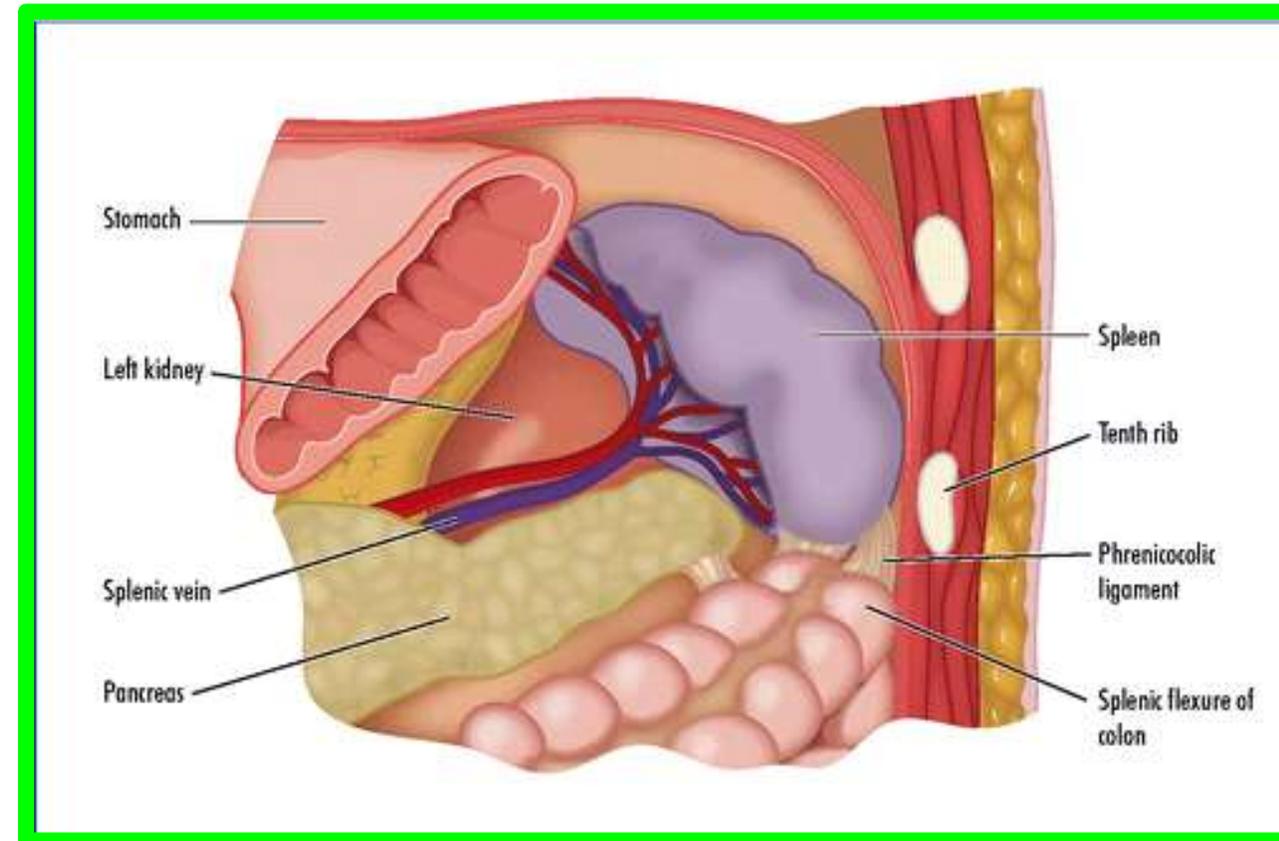
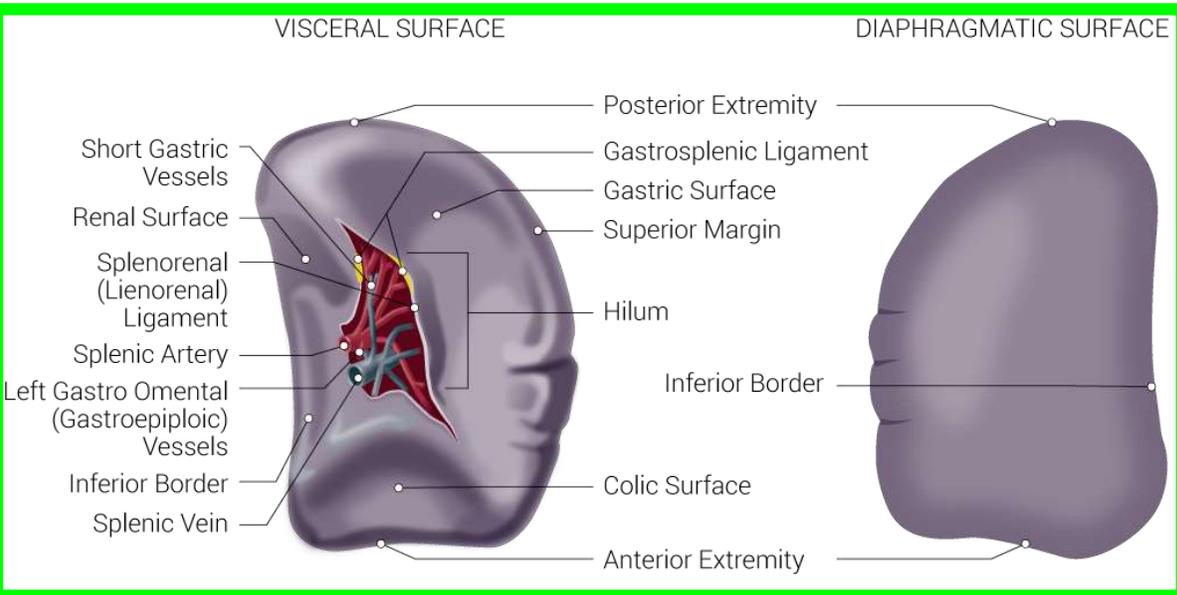


** Features of the spleen

The spleen has;

A- 2 Ends

- 1- **Posterior end (tapering)** directed upwards, backwards and medially.
- 2- **Anterior end (broad)** directed downwards, forwards and laterally.



B- 2 Borders

1- Upper border: sharp.

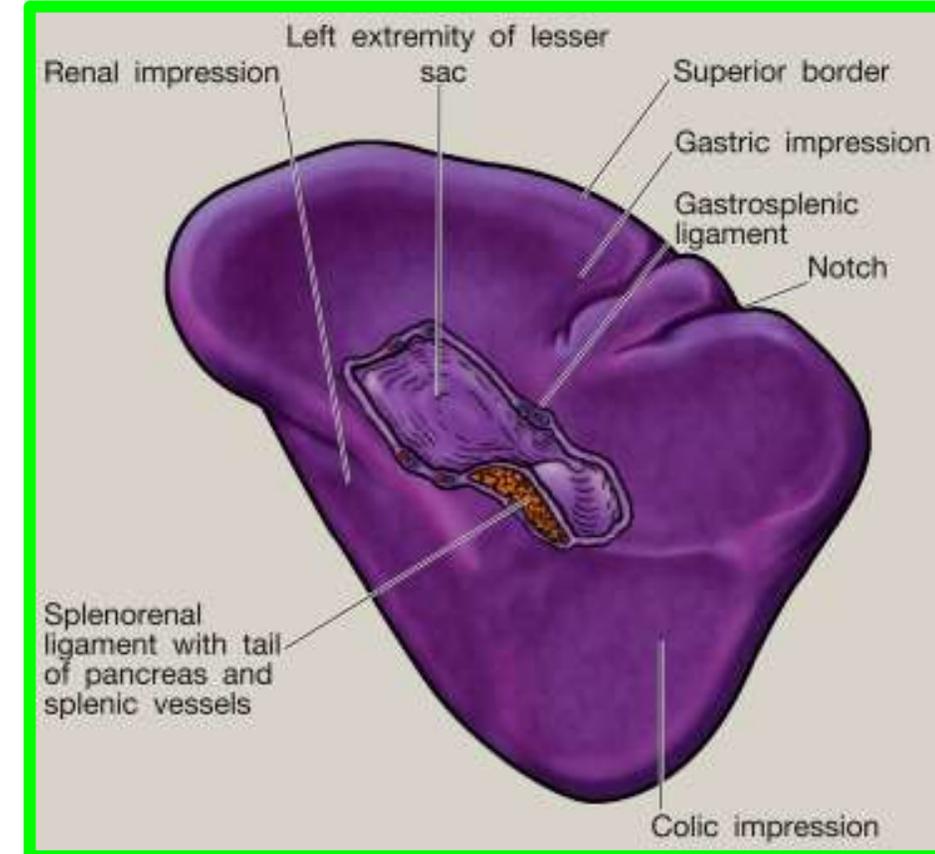
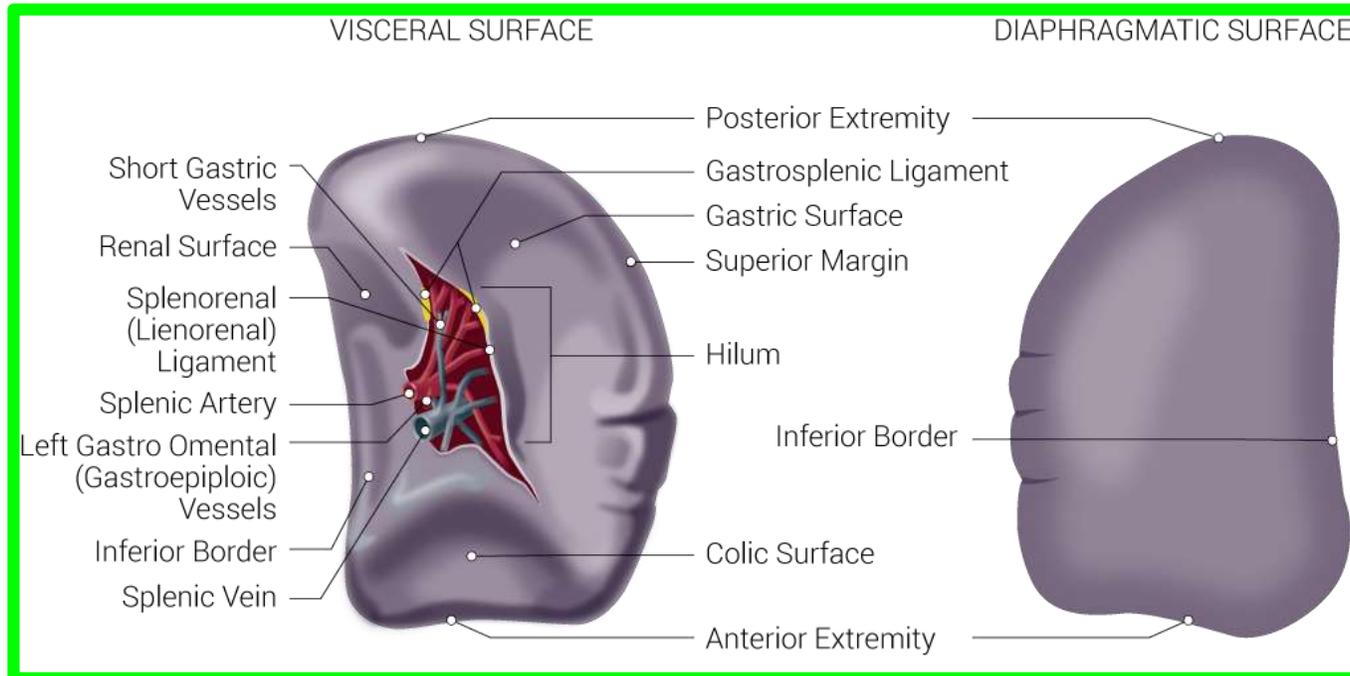
✓ It shows **one or more notches** near its anterior (lateral) end.

✓ It meets the anterior end in the angle of the spleen.

N.B; Notching of the upper border is an indication of foetal lobulation.

2- Lower border: thick and round.

C- 2 Surfaces: diaphragmatic and visceral



Spleen

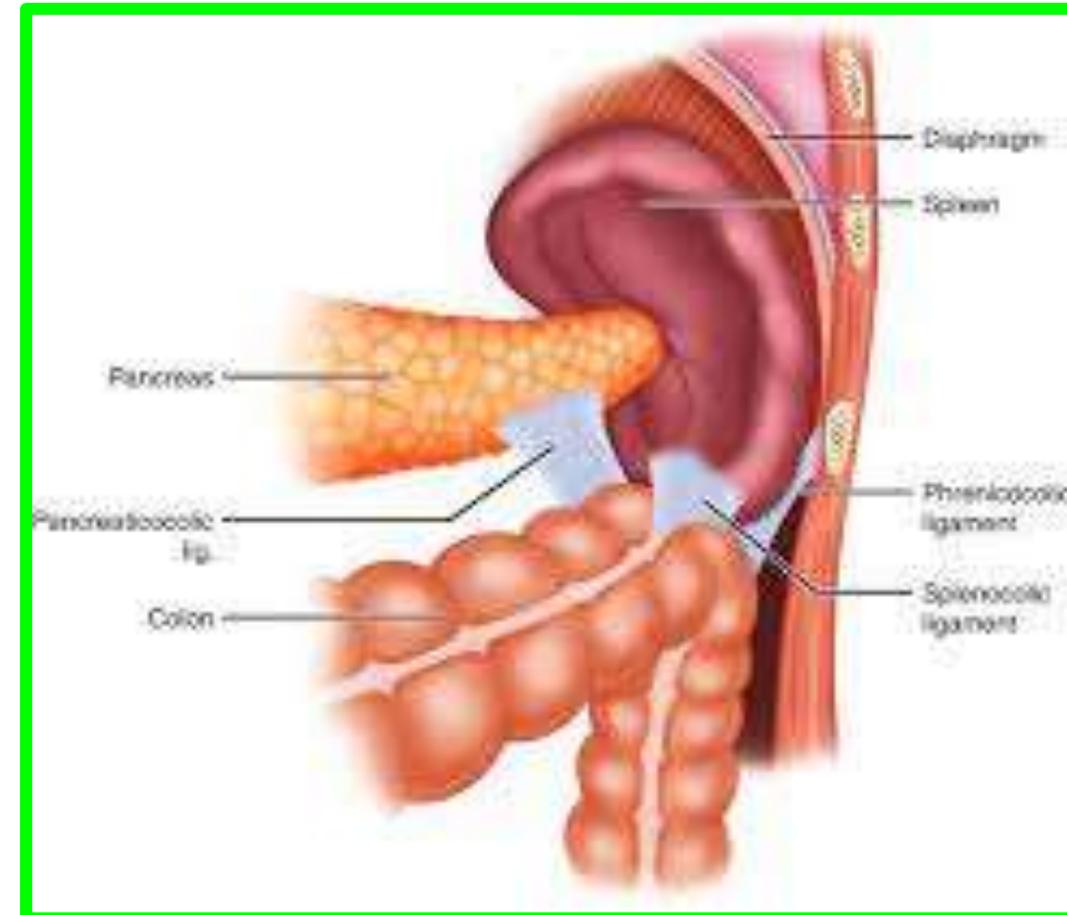
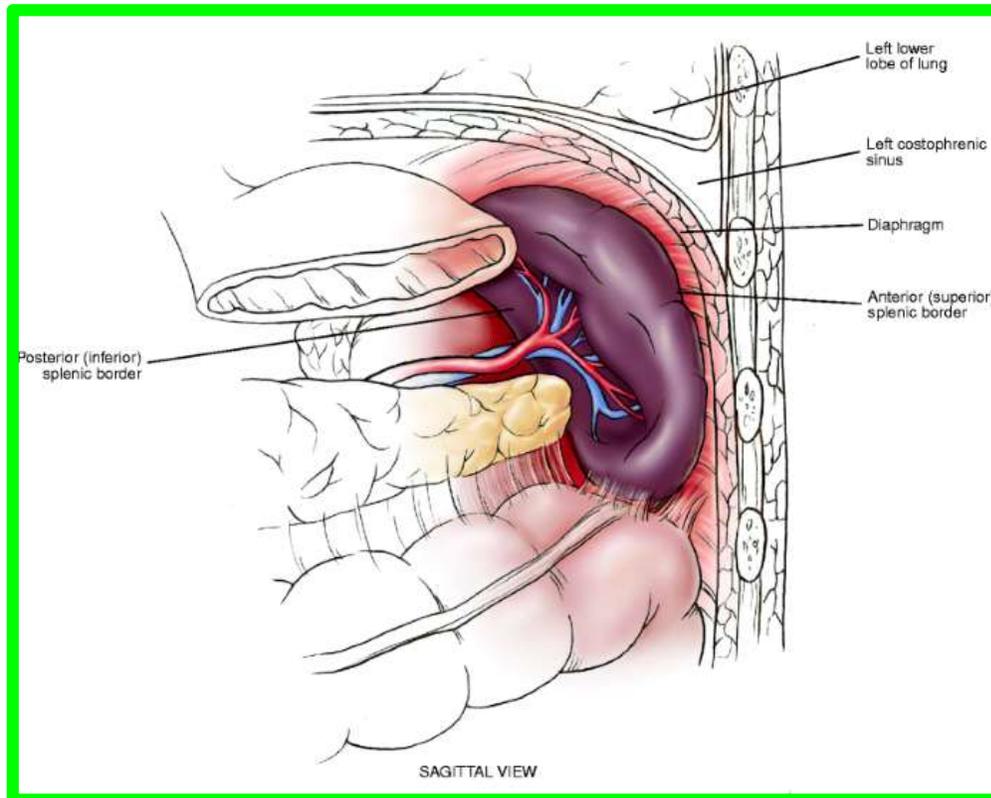
- **Relations of the spleen**

1- **Diaphragmatic surface:** the outer smooth and convex surface.

- It is related to the diaphragm which separates it from

a- The **9th, 10th and 11th ribs** and the intercostal structures.

b- **Left pleura** and the **left lung**.



Spleen

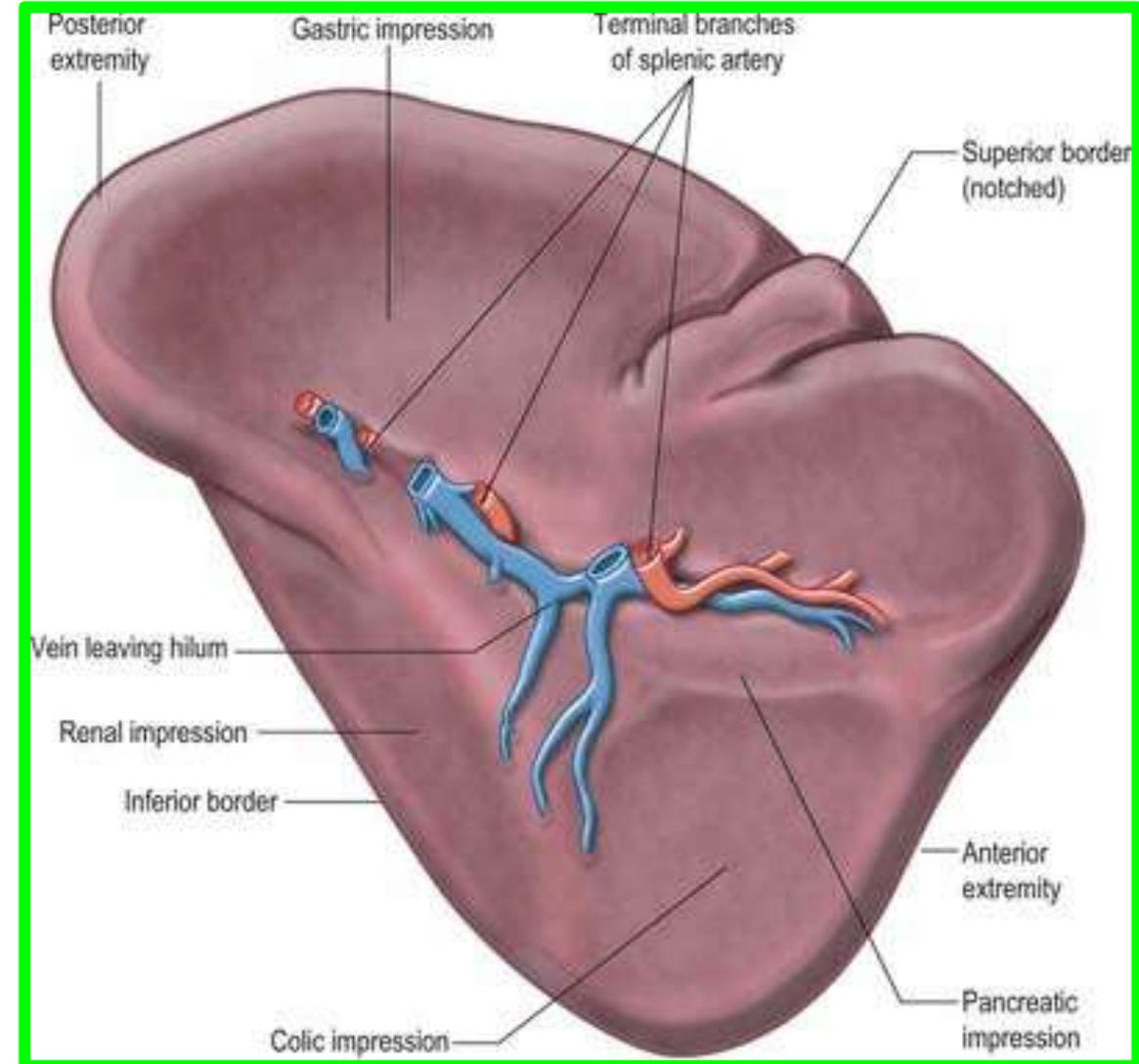
2- Visceral surface: the inner surface of the spleen.

- It contains the hilum of the spleen.
- It is irregular as it carries 4 impressions

a- **Gastric impression:**

between the upper border and the hilum.

- It is related to the posterior surface of the stomach.



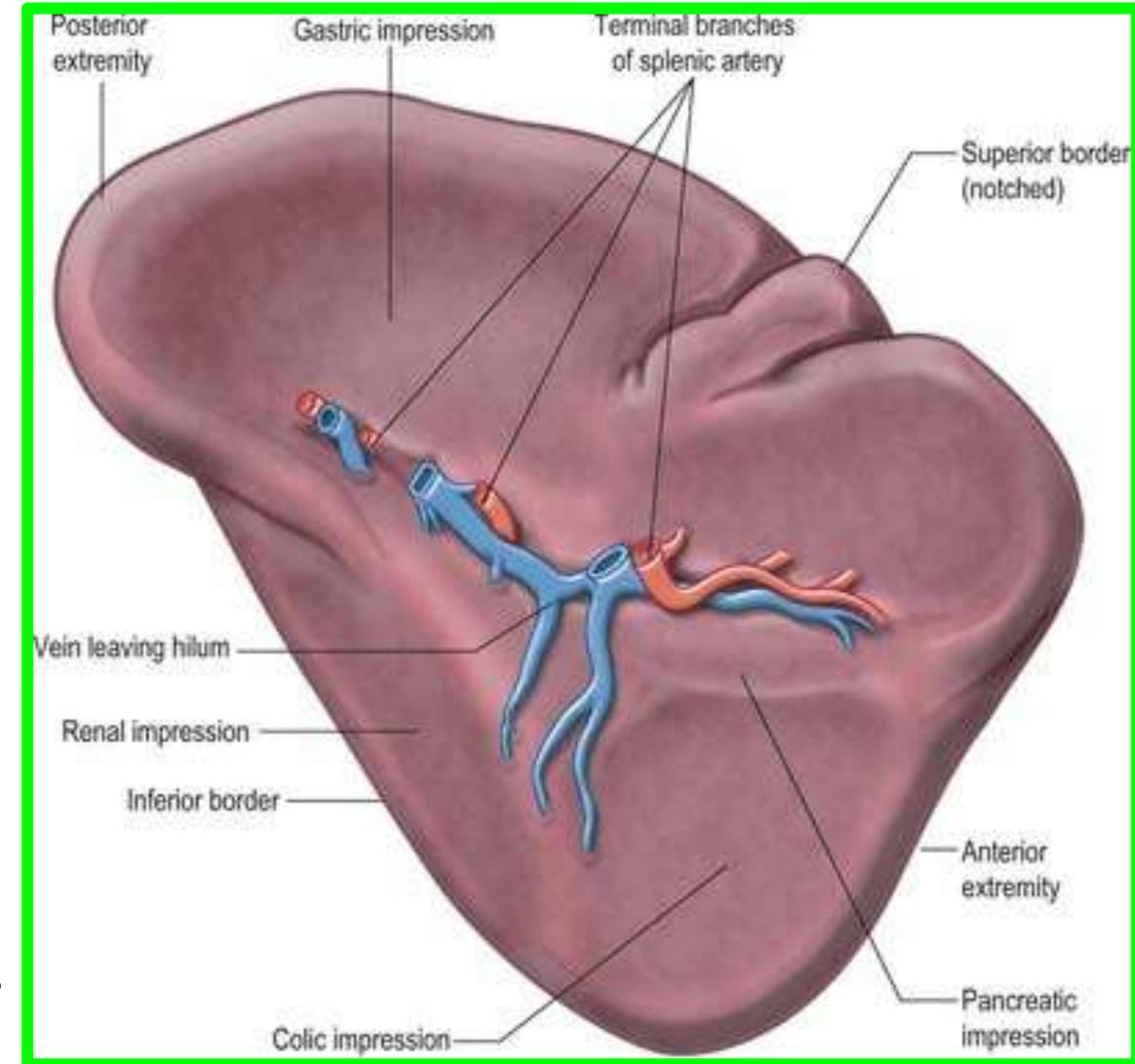
Spleen

b- Renal Impression: between the hilum and lower borders. It is related to **the anterior surface of the left kidney.**

N.B; **intermediate margin** is the ridge between gastric and renal impressions.

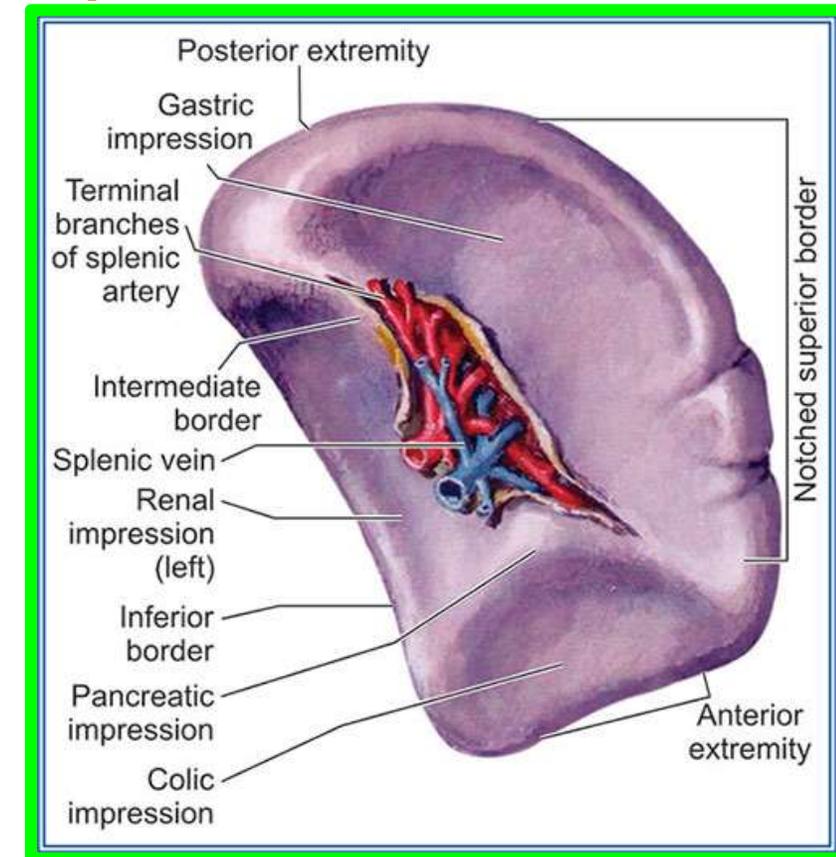
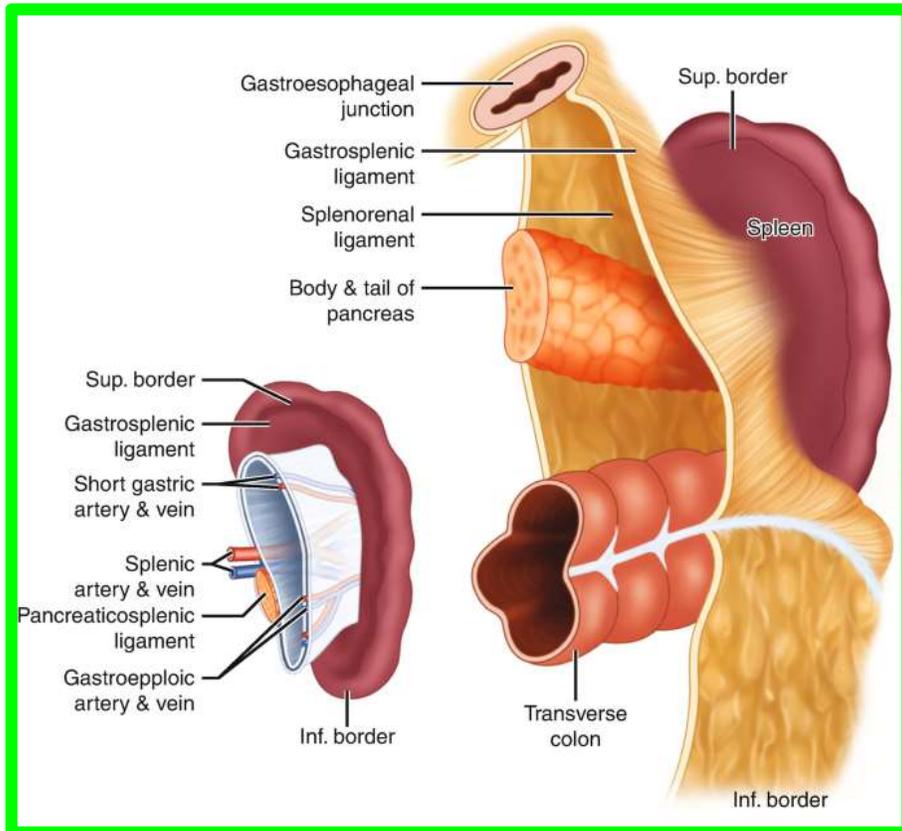
c- Colic impression: lies close to the anterior (lateral) end of the spleen. It is related to **the left colic flexure.**

d- Pancreatic impression: below the lateral end of the hilum. It is related to **the tail of pancreas.**



e- Hilum of the spleen: between the gastric and renal impression.

- It transmits
 - 1- Terminal branches of the **splenic artery (5-6 branches)**.
 - 2- Tributaries of **the splenic vein**.
 - 3- **Autonomic nerves and lymphatic**.
- It gives attachment to **2 ligaments; lienorenal and gastro-splenic**.



Spleen

** Ligaments (Peritoneal folds) of the spleen:

- The spleen is almost completely surrounded by peritoneum except at the hilum.

1- **Gastrosplenic ligament:** between hilum of the spleen and the stomach.

* Contents:

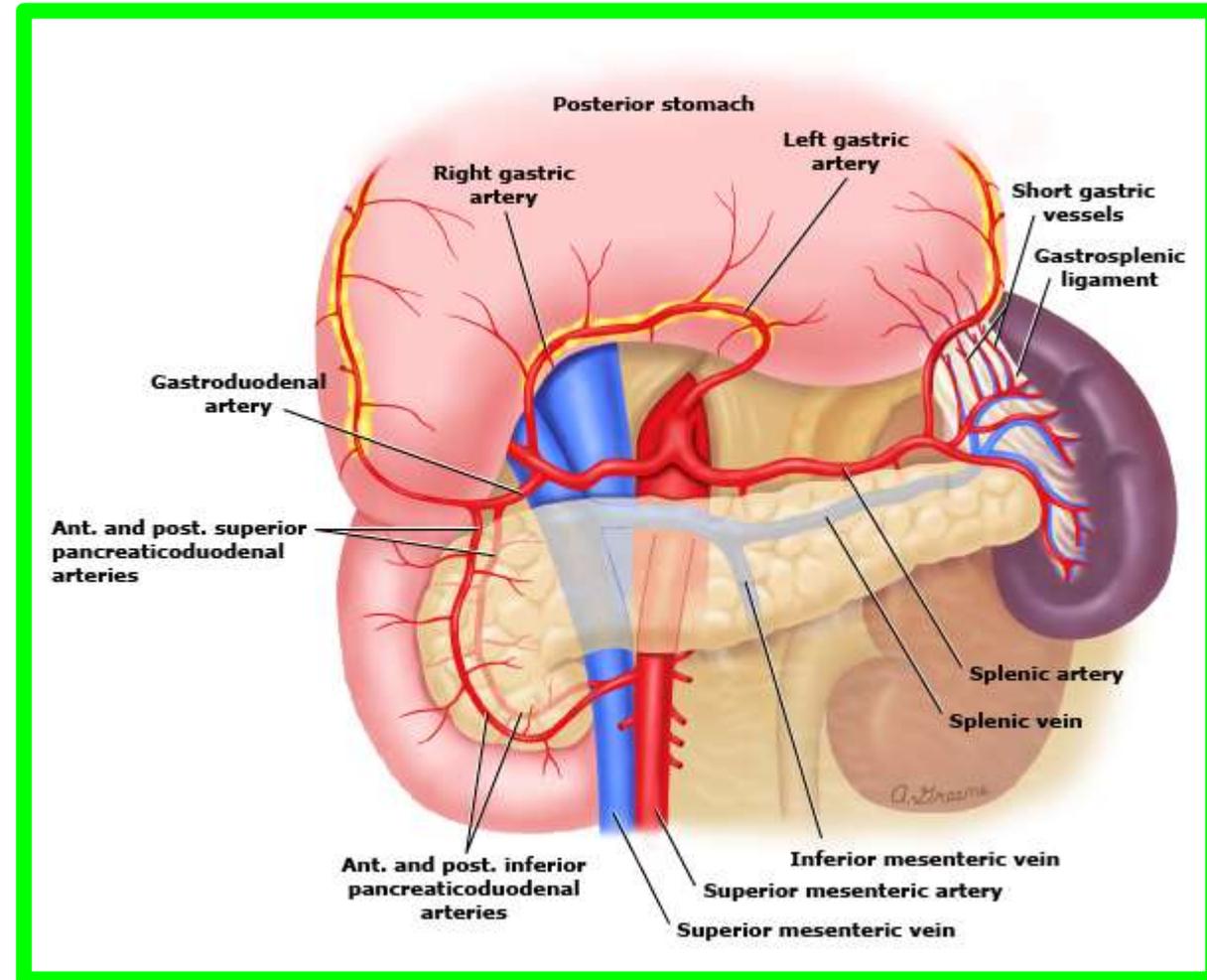
1- Short gastric vessels.

2- Left gastro-epiploic vessels.

3- Sympathetic plexus around the arteries.

4- Pancreatico-splenic lymph nodes.

5- Extraperitoneal fatty tissue.

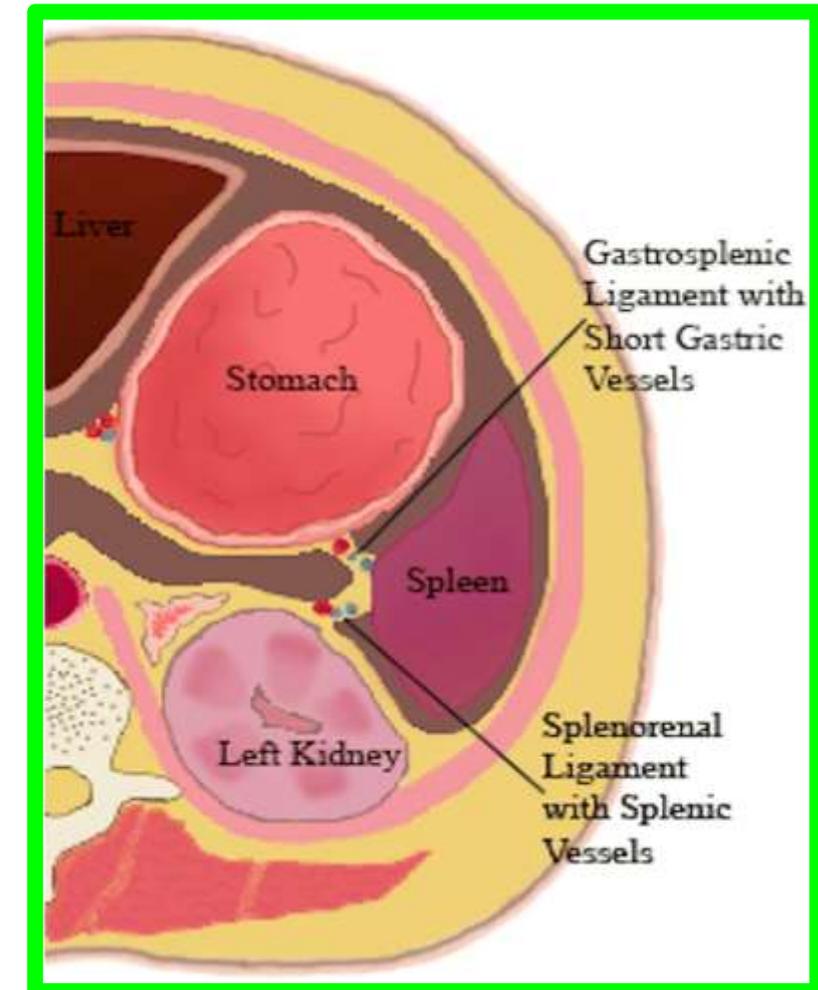
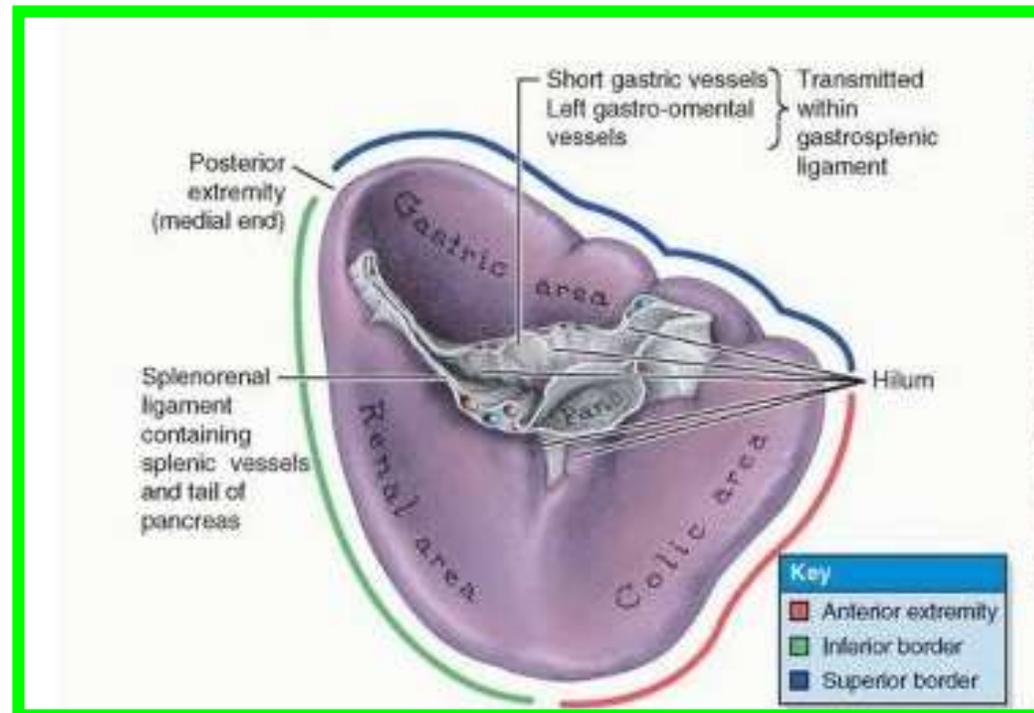


Spleen

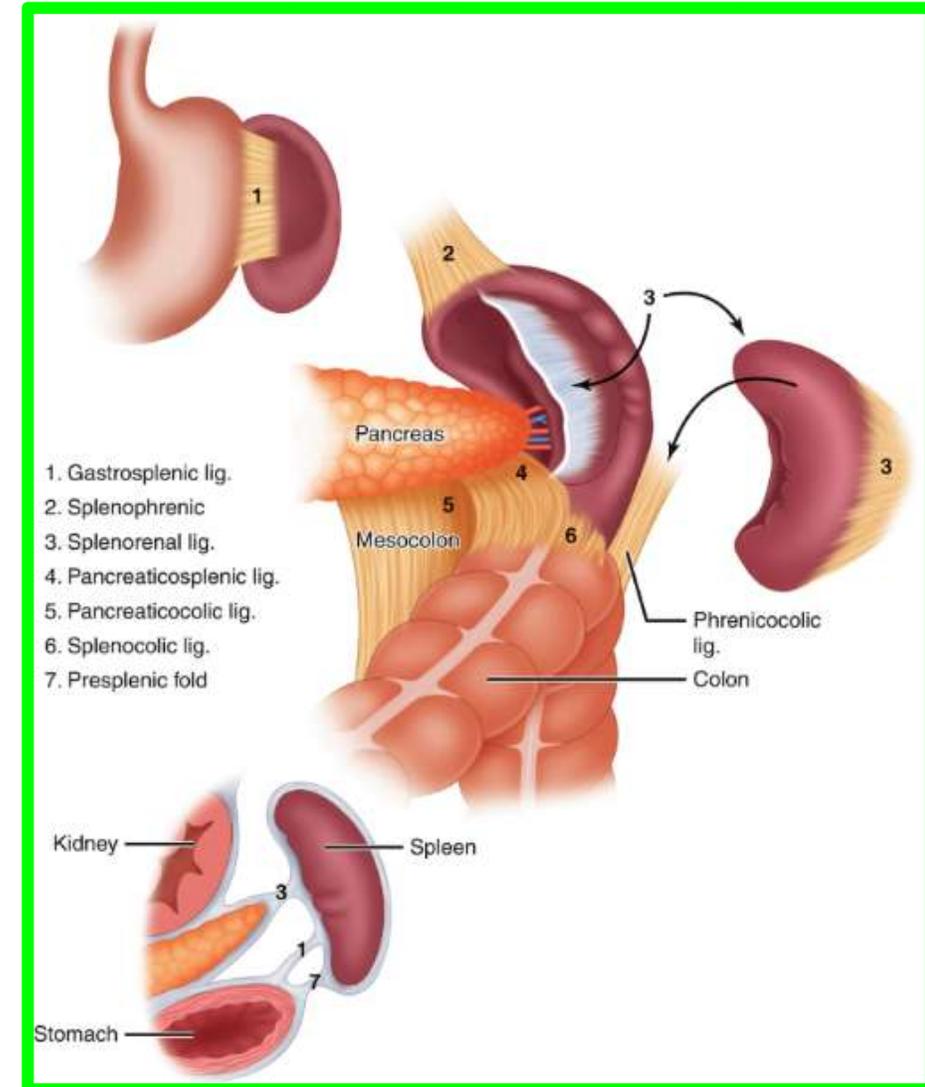
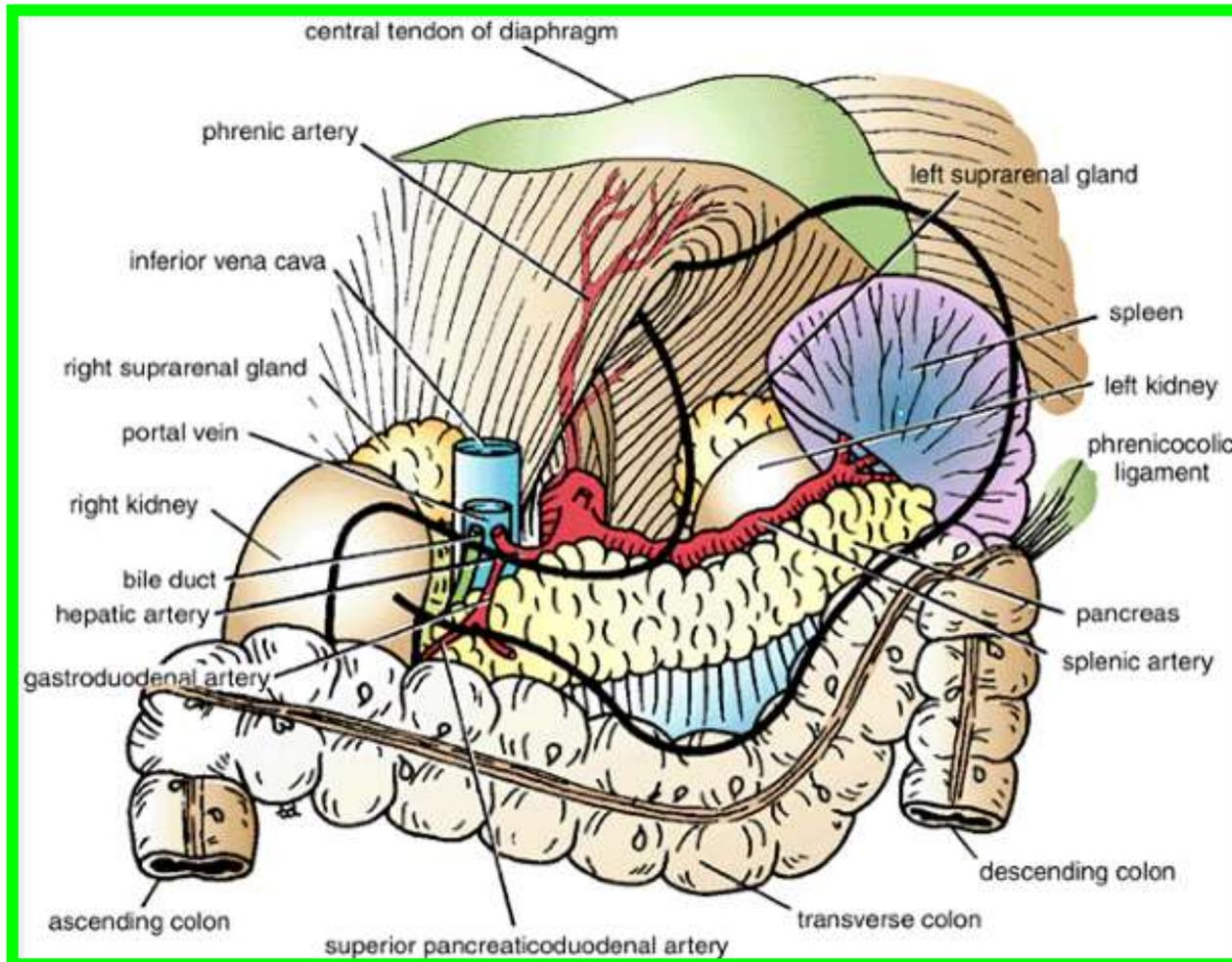
2- **Lienorenal ligament**, between the hilum of the spleen and left kidney.

* Contents

- 1- Tail of pancreas.
- 2- Splenic vessels.
- 3- Sympathetic plexus around the splenic artery.
- 4- Pancreatico-splenic lymph nodes.
- 5- Extraperitoneal fatty tissue.



3- Phrenico-colic ligament: It extends from the **left colic flexure** to the **diaphragm**. It supports the lateral end of the spleen. As a result of splenomegaly (enlarged spleen) extends towards the umbilicus.



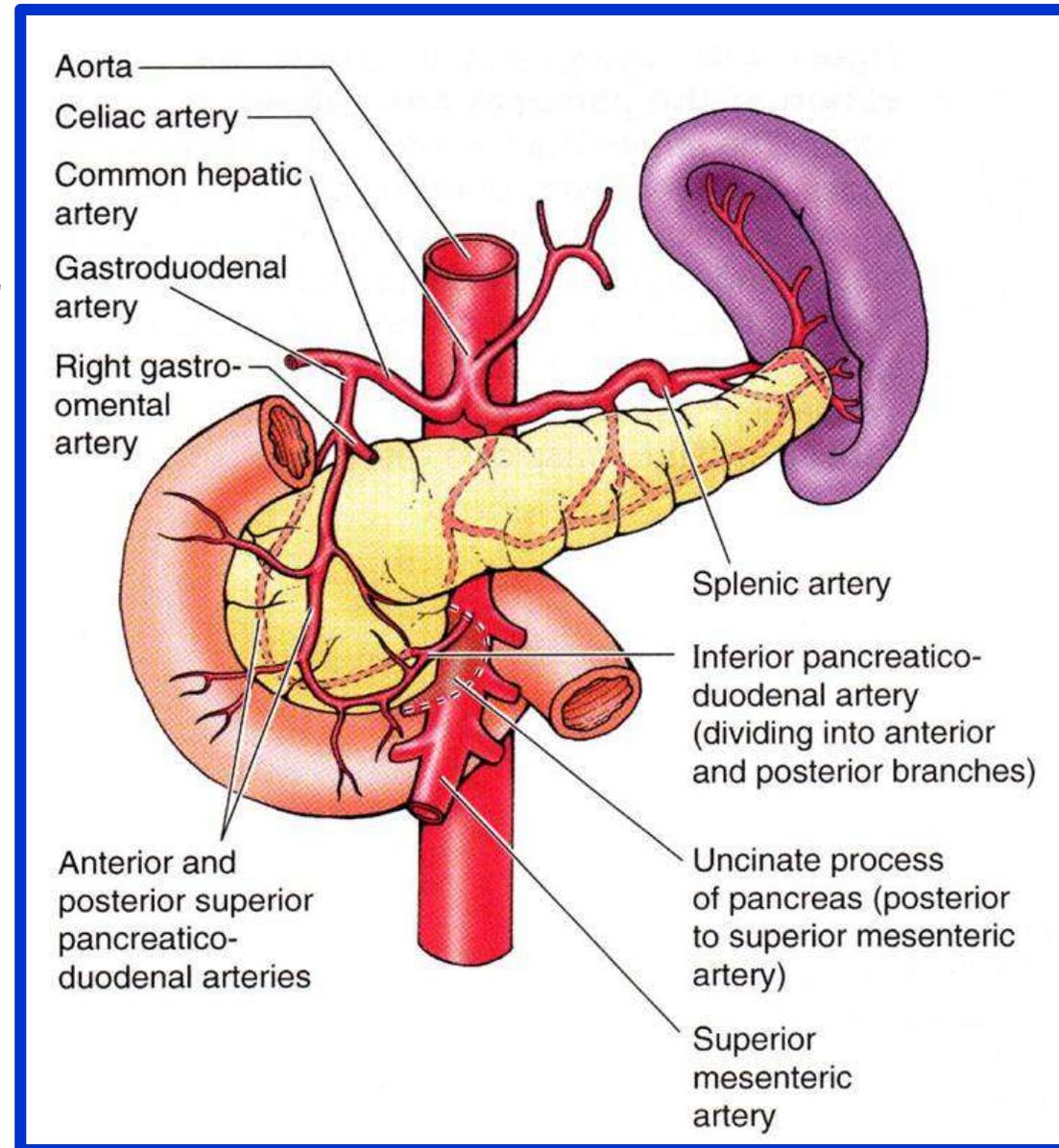
Spleen

- Blood supply

- ** Arterial supply:**

- Splenic artery** is the largest branches of **the coeliac trunk**. It runs as a **tortuous course** along the **upper border of pancreas**.

- It enters **the lienorenal ligament** to reach the hilum and end by dividing into **5-6 branches**. They are end-arteries.



Spleen

** Venous drainage:

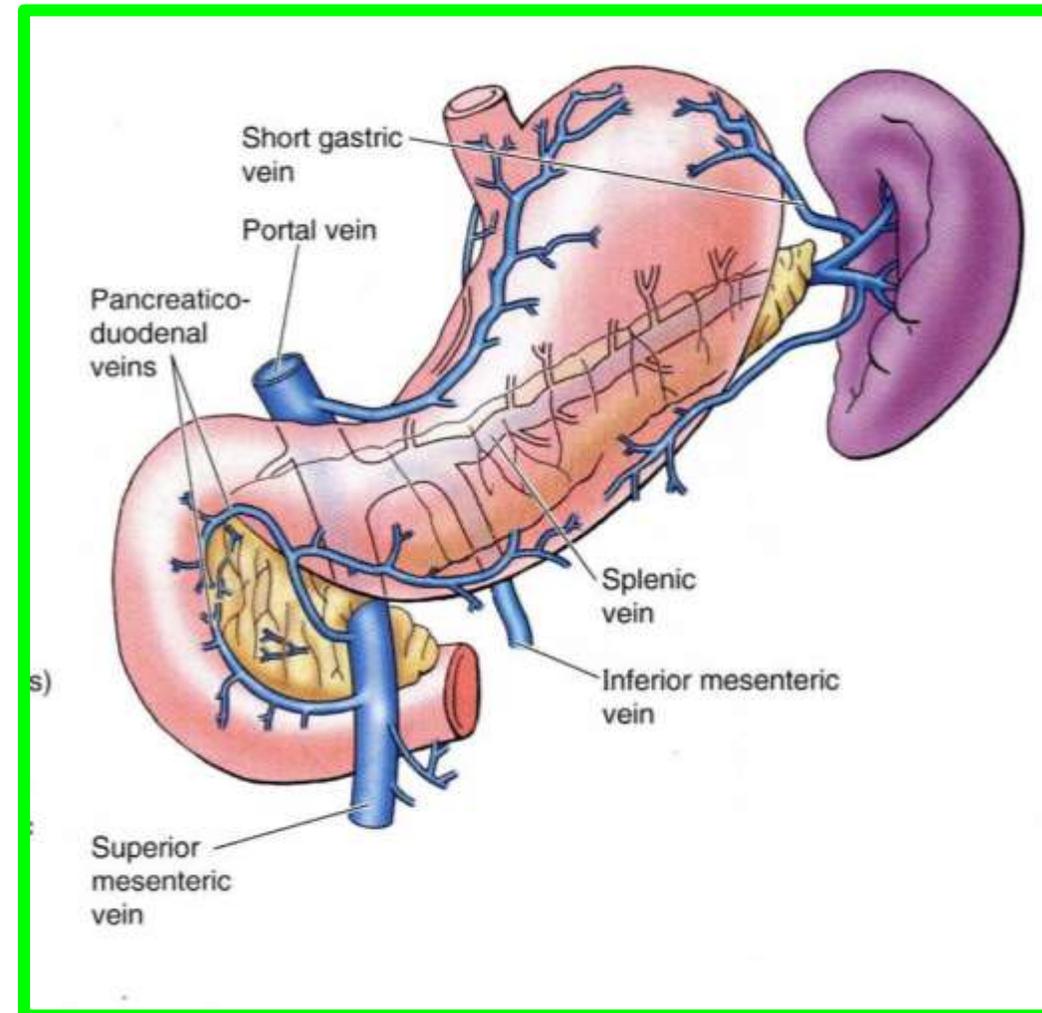
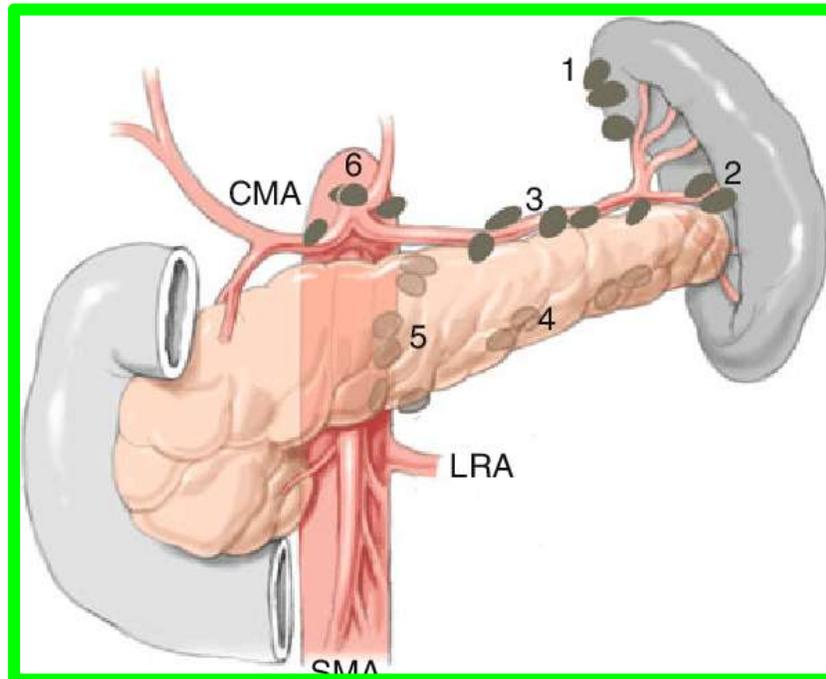
□ Splenic vein runs a straight course behind the pancreas.

- It ends by joining the superior mesenteric vein to form the portal vein.

* Lymphatic drainage:

- To the pancreatico-splenic lymph nodes.

- Red bulb of the spleen has no lymphatic.



Dr. Aiman Al Maathidy
Tuesday 28 March 2023

