

Anatomy of the spleen

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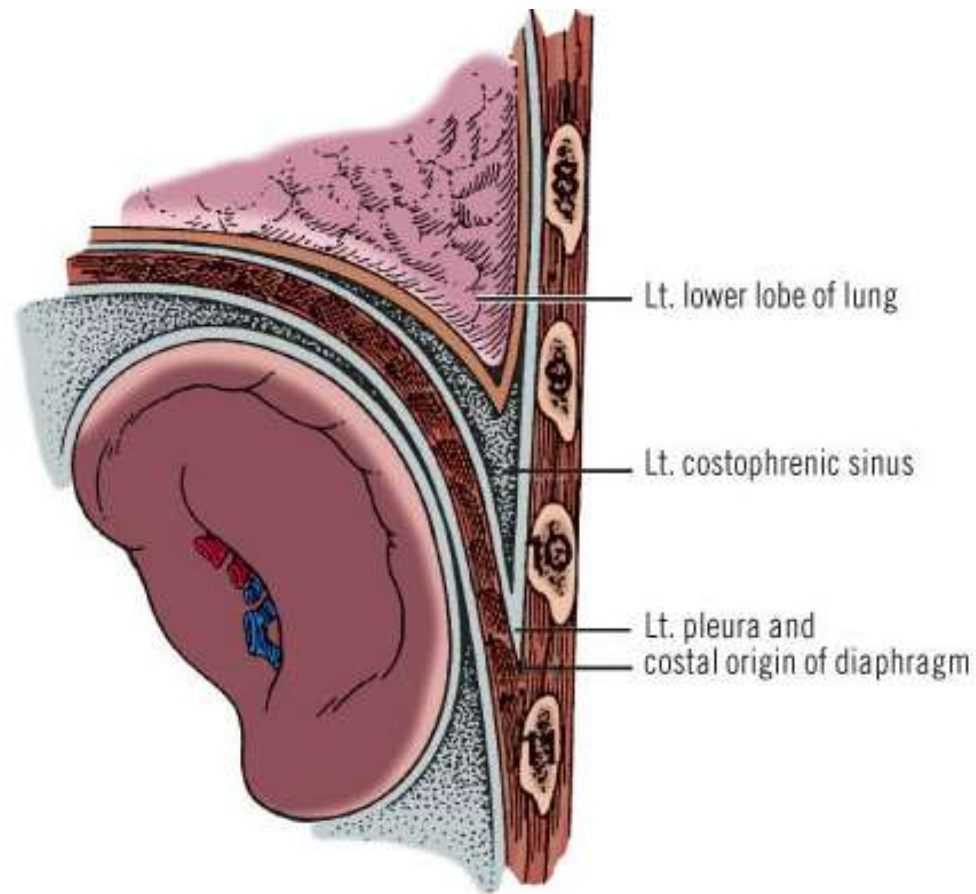
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Introduction

- The spleen is an ovoid, usually purplish, pulpy mass about the size and shape of one's fist.
- It is the largest lymphoid tissue in the body
- It is located in the left upper quadrant of the abdomen (the left hypochondrium)
- Position also varies with respiration
- It is intraperitoneal

Size, shape and position

- It is related to the left ninth, tenth, and eleventh ribs from which it is separated by the diaphragm and the costodiaphragmatic recess
- The spleen runs parallel to the 10th Rib
- It averages about 220 grams
- Enlarged spleen is called splenomegaly



Size, shape and position

- Harris's odd numbers **1, 3, 5, 7, 9, and 11** is useful for remembering certain average dimensions of the spleen:
- The spleen measures **1 x 3 x 5** inches (2.5 x 7.5 x 12.5 cm)
- The spleen weighs **7** oz (220 g)
- The spleen relates to left ribs **9** through **11**

Surfaces

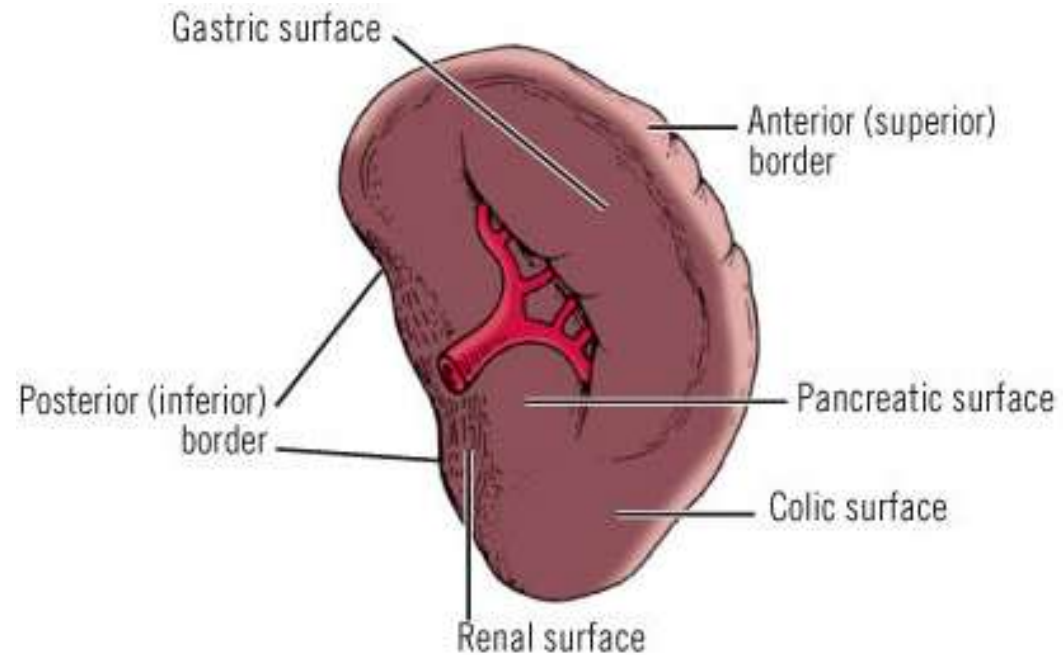
Two surfaces:

- i. Parietal and
- ii. Visceral

The parietal surface is convex related to the diaphragm

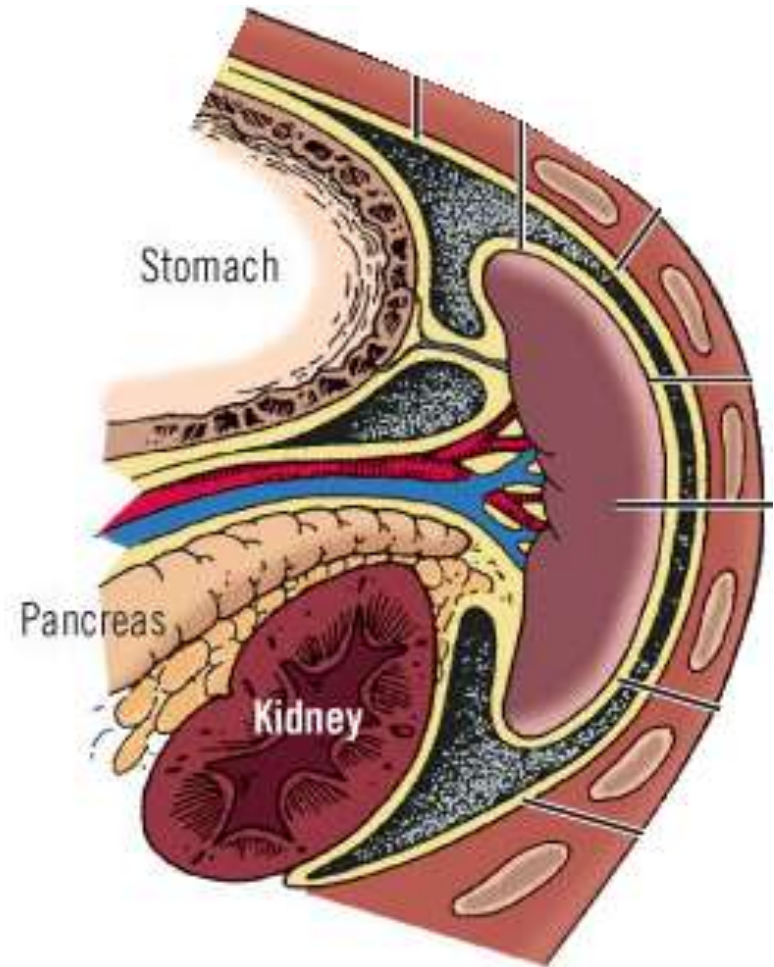
Surfaces : Visceral surface

- Concave
- Related to the following organs:
- Stomach
- Kidney
- Colon,
- Tail of the pancreas.



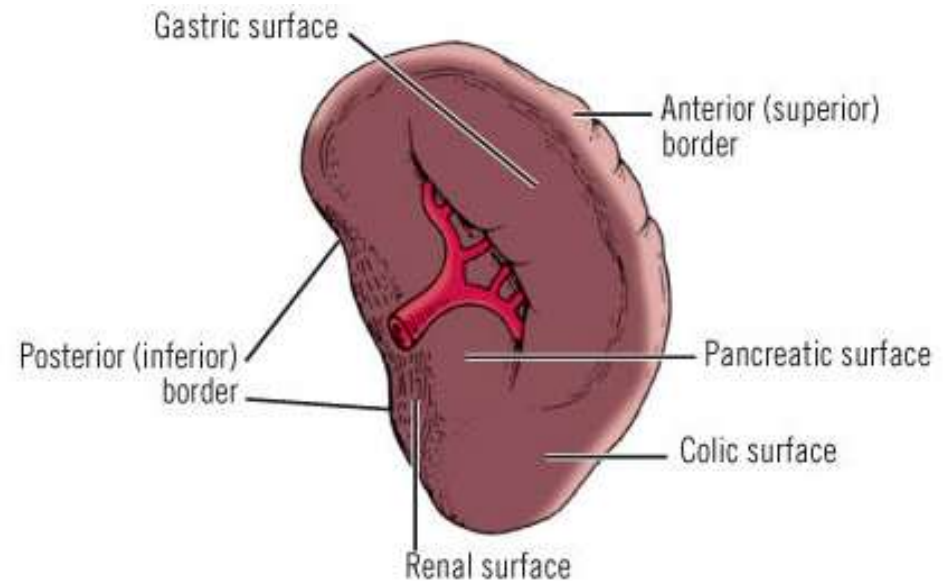
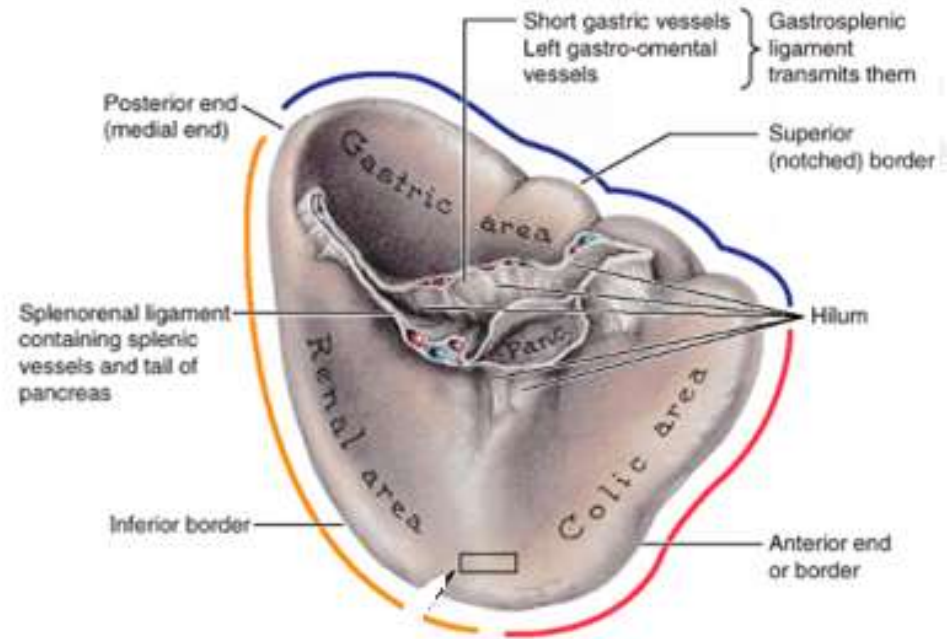
Surfaces : Visceral surface

- The hilum is the entrance and exit of the splenic vessels at the splenic porta
- In most specimens, this forms the letter S



Spleen : Borders

- Two to three borders:
 - i. The superior (anterior)
Note: This border is sometimes separated into separate anterior and superior borders
 - ii. The inferior (posterior)
- The superior border separates the gastric and colic area from the diaphragmatic area and is sometimes notched.
- In an enlarged spleen, it is the superior (anterior) border that is palpated.
- The inferior border separates the renal area from the diaphragmatic area.



Relations of the spleen

- **Medially:** The stomach (anteromedial). The tail of the pancreas is also related to the splenic hilum.
- **Posteriorly:** left kidney and left adrenal gland (posteromedial),
- **Laterally:** the phrenicocolic ligament below, and the chest wall (the ninth to eleventh left ribs).
- The spleen is concealed at the left hypochondrium: It is not palpable under normal conditions

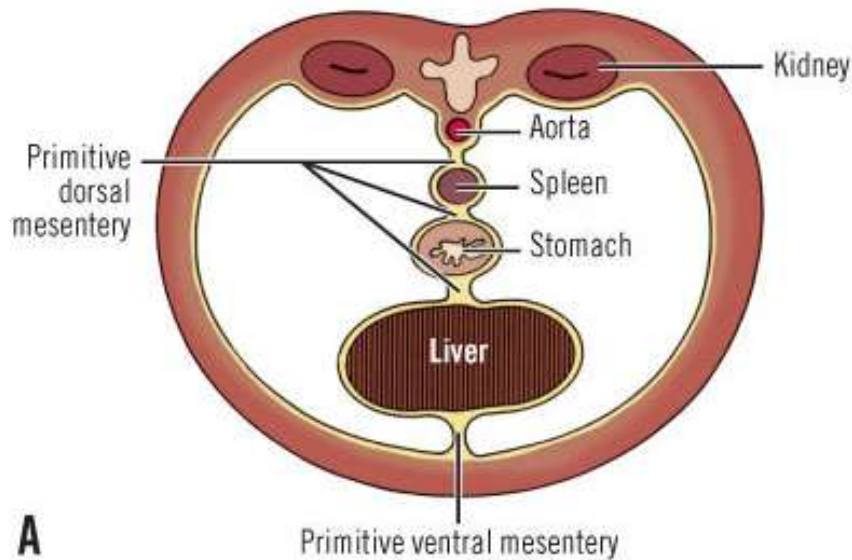
Surgical Application

- A patient with fractures of the left ninth to eleventh ribs should be observed closely.
- Such a patient is a candidate for an underlying splenic rupture.
- In a child, however, the spleen may rupture without rib fractures.

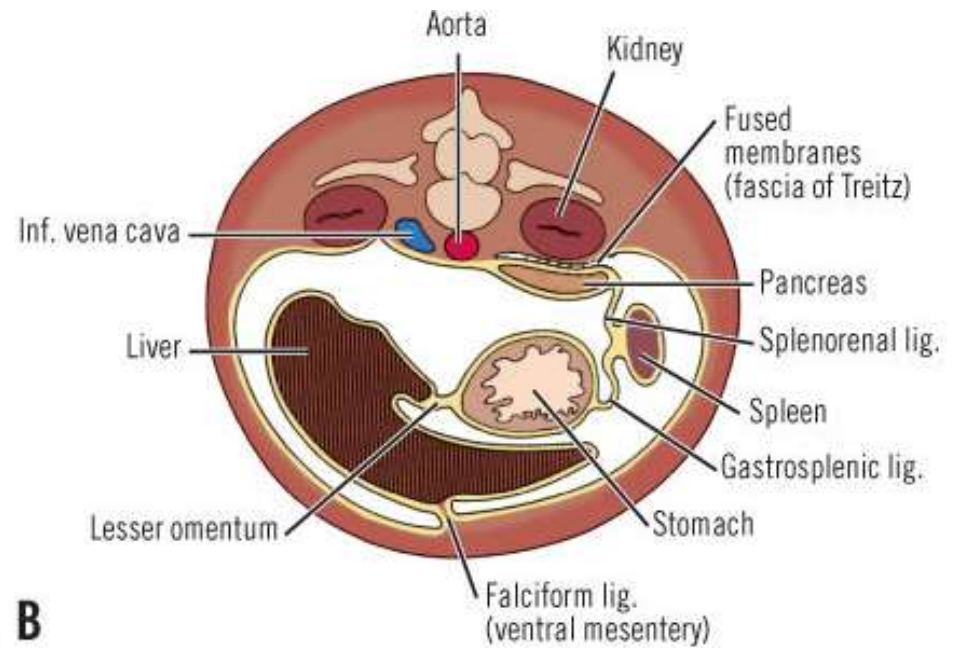
Peritoneum and Ligaments of the Spleen

- The right and left layers of the greater omentum separate to enclose the spleen almost completely, except at the hilum.
- It forms the capsule of the spleen
- The two layers form the two chief ligaments of the spleen: the gastrosplenic ligament and the splenorenal ligament

Peritoneal folds of the spleen

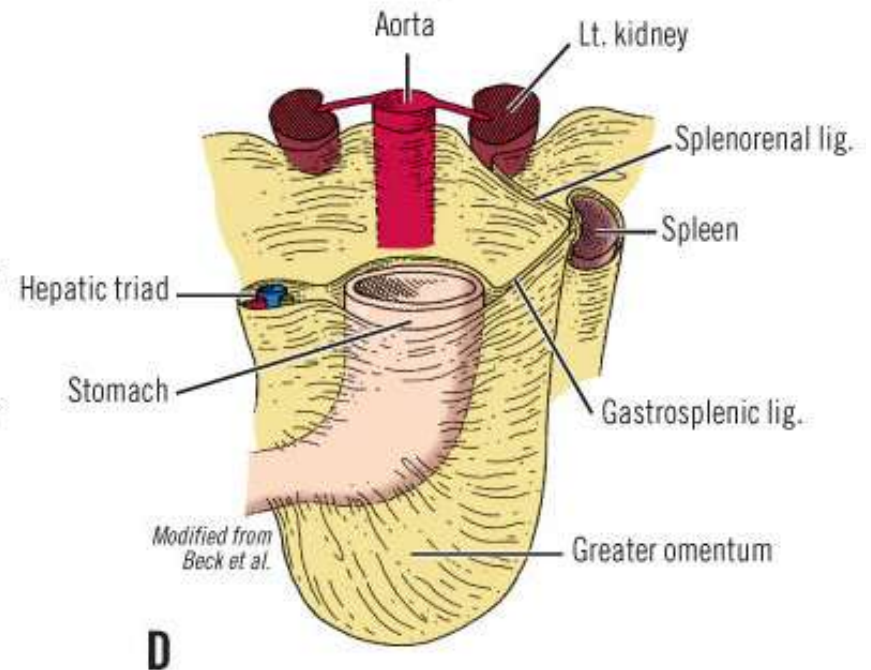
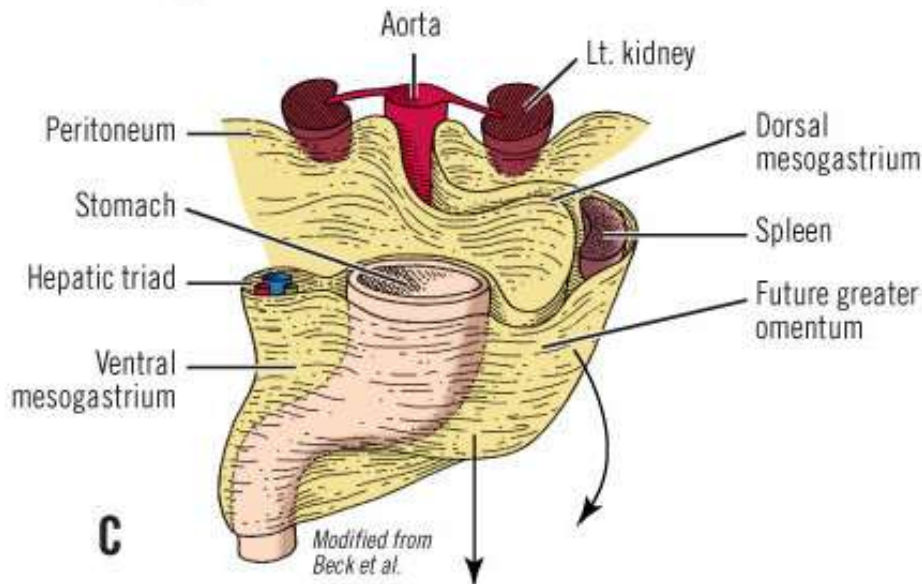
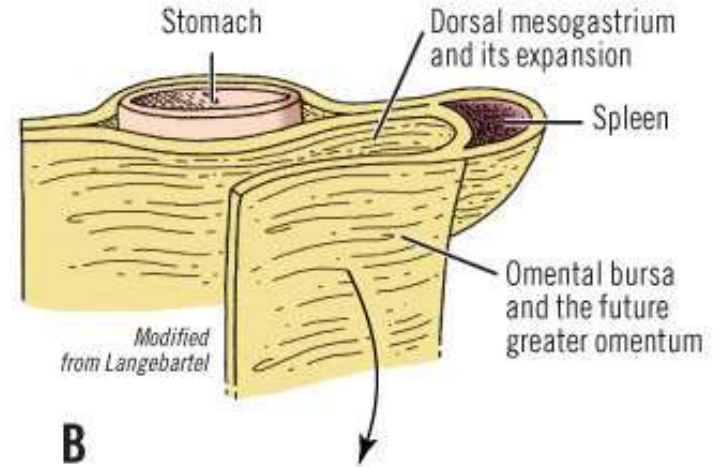
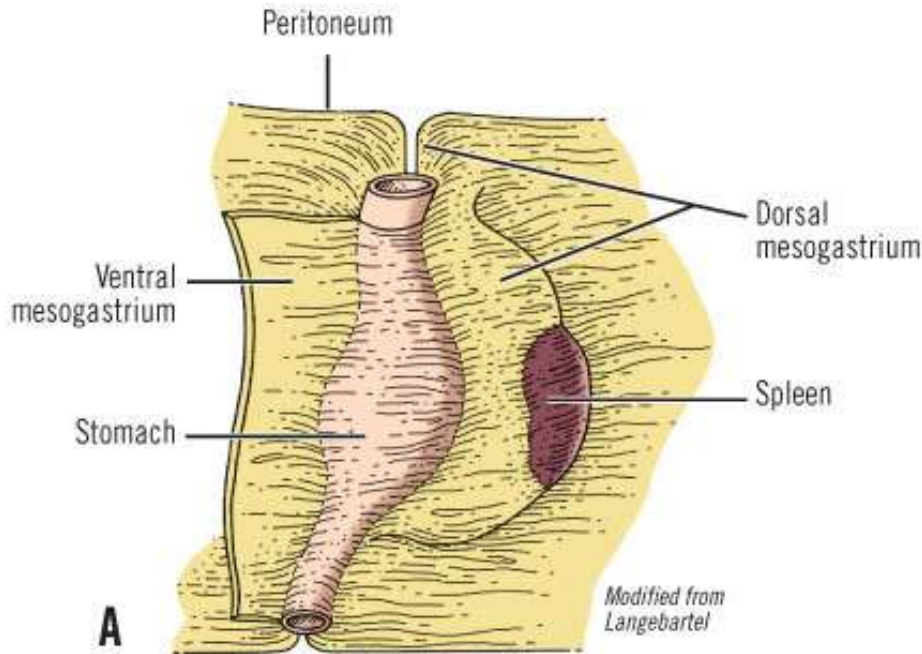


A: Relationships during the primitive embryonic stage



B: Relationships in the adult

Embryology of the splenic peritoneal folds



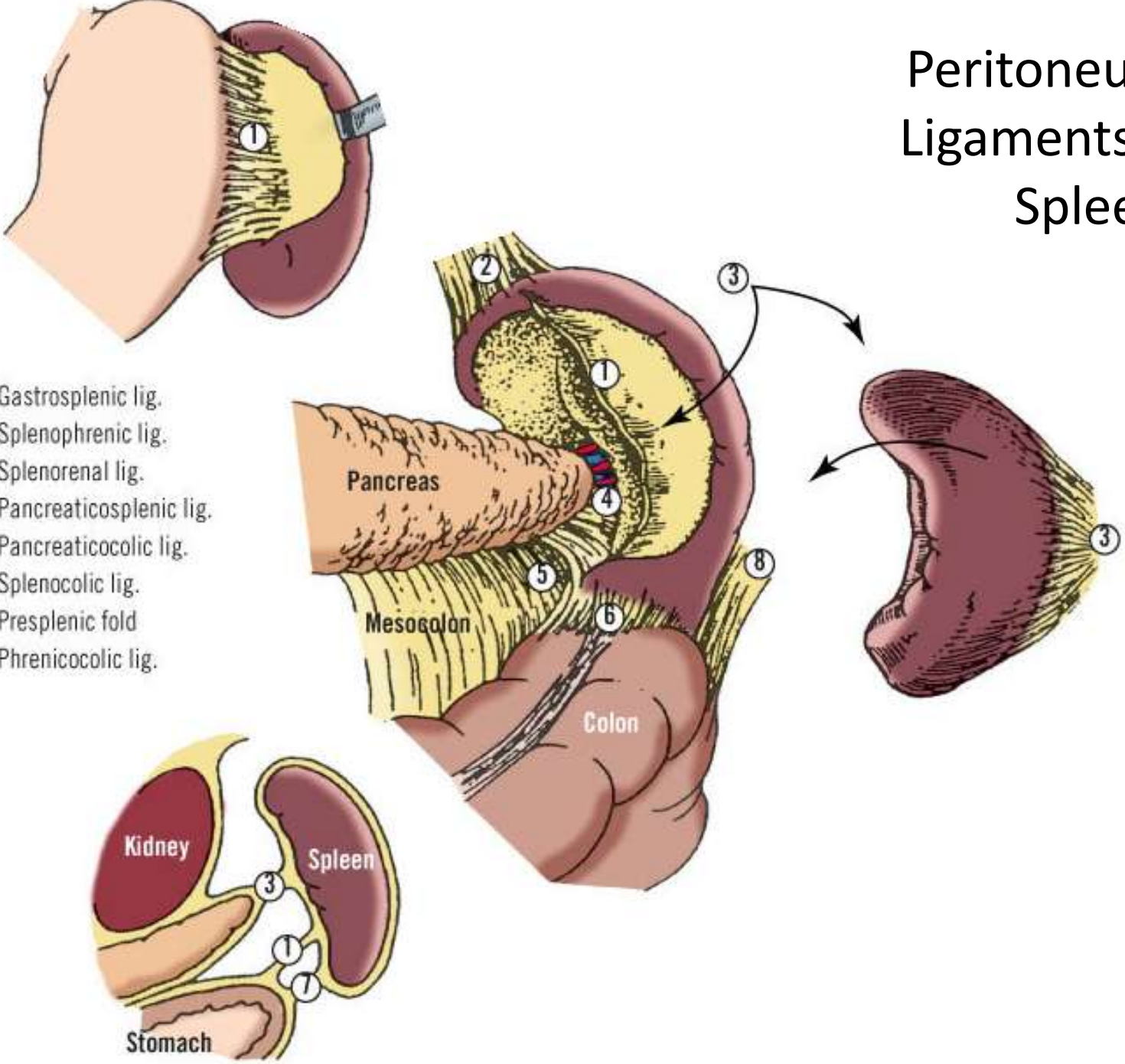
Peritoneum and Ligaments of the Spleen

- There are eight folds or ligaments in all:
- Six ligaments are directly associated with the spleen:
 - i. Gastrosplenic
 - ii. Splenorenal
 - iii. Splenophrenic
 - iv. Splenocolic
 - v. Pancreatosplenic
 - vi. Presplenic fold
- Two others are indirectly associated with the spleen:
 - i. Pancreaticocolic
 - ii. Phrenicocolic

The major
ligaments

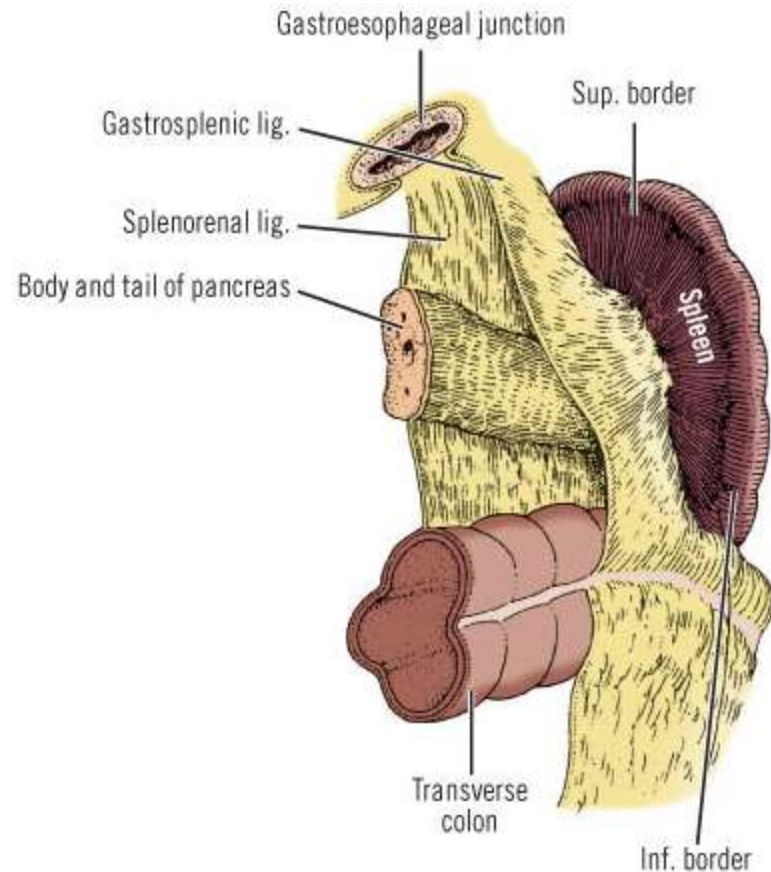
Peritoneum and Ligaments of the Spleen

- 1. Gastrosplenic lig.
- 2. Splenophrenic lig.
- 3. Splenorenal lig.
- 4. Pancreaticosplenic lig.
- 5. Pancreaticocolic lig.
- 6. Splenocolic lig.
- 7. Presplenic fold
- 8. Phrenicocolic lig.



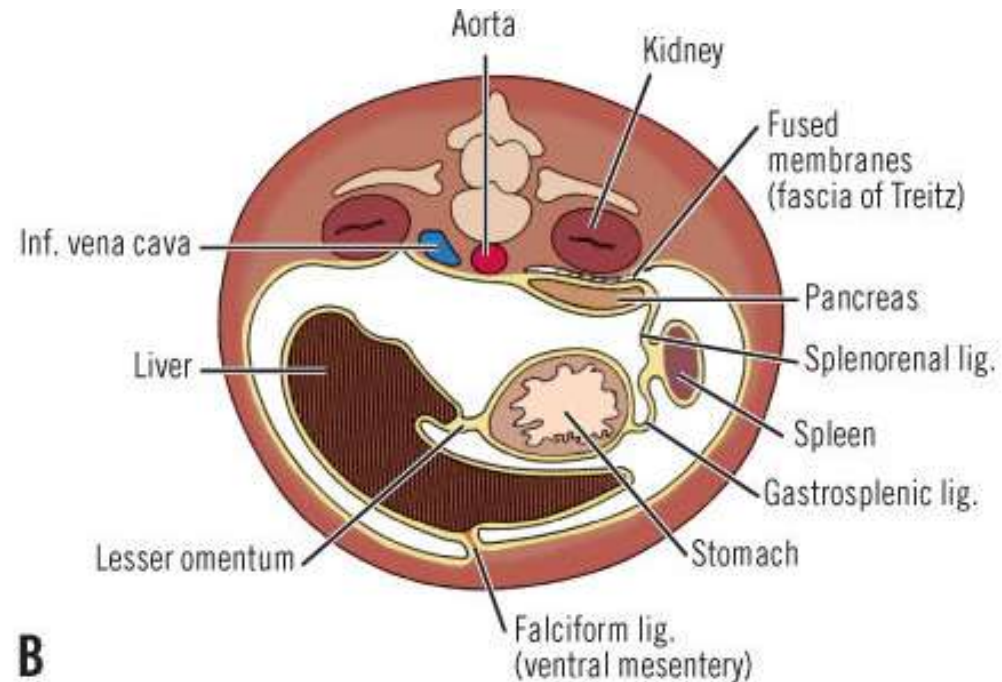
Gastrosplenic Ligament

- The portion of the dorsal mesentery between the stomach and the spleen
- The more cranial part contains the short gastric arteries, and the more caudal part contains the left gastromental vessels.



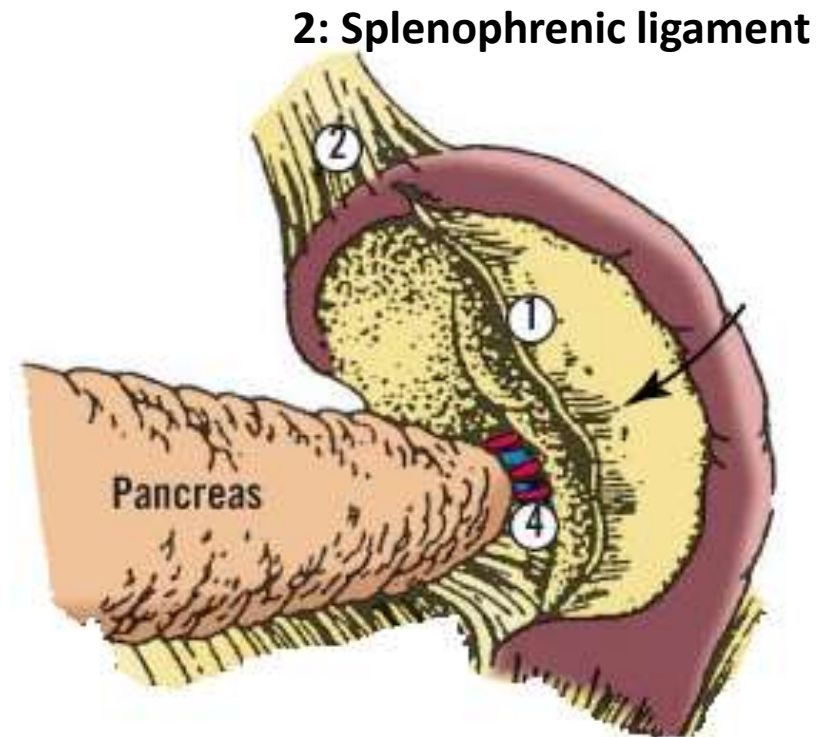
Splenorenal ligament

- This is the posterior portion of the primitive dorsal mesogastrium.
- It envelops the splenic vessels and the tail of the pancreas.



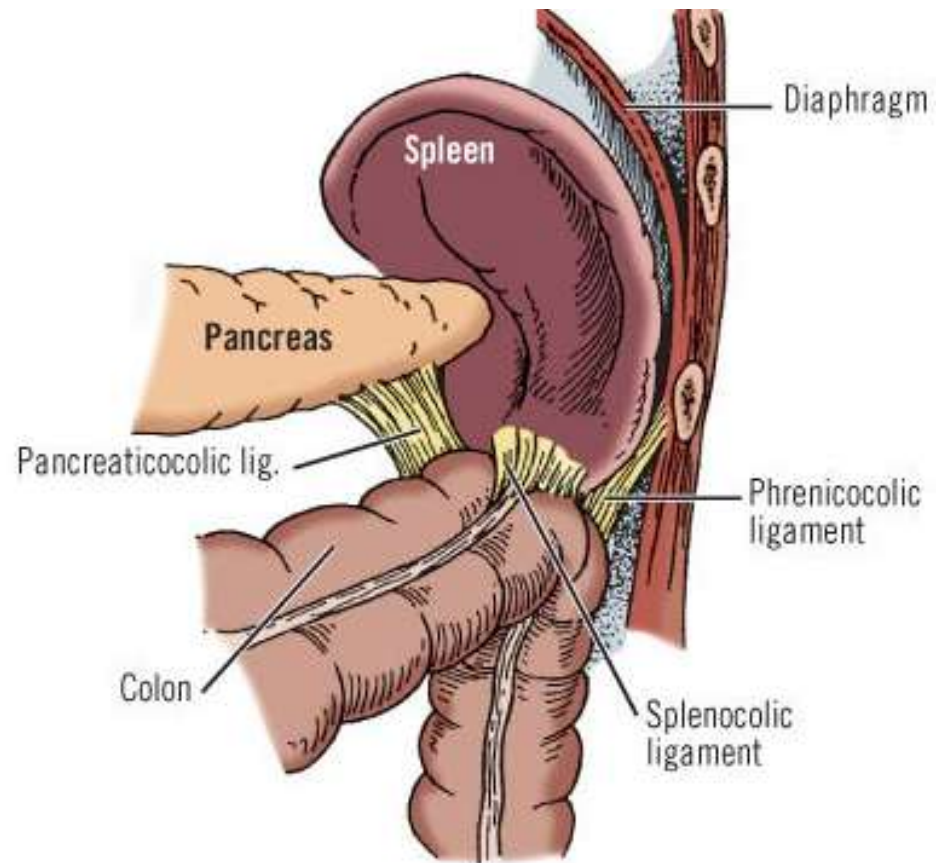
Splenophrenic ligament

- This is the reflection of the leaves of the mesentery to both the posterior body wall and to the inferior surface of the diaphragm at the area of the upper pole of the spleen close to the stomach
- It usually has no content



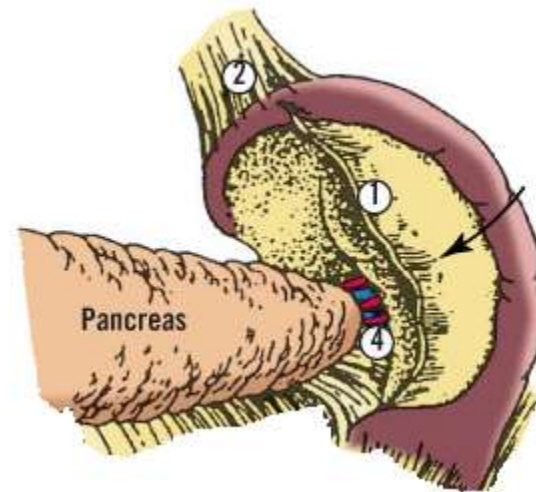
Splenocolic ligament

- This is a remnant of the extreme left end of the transverse mesocolon.
- It is avascular



Pancreaticosplenic Ligament

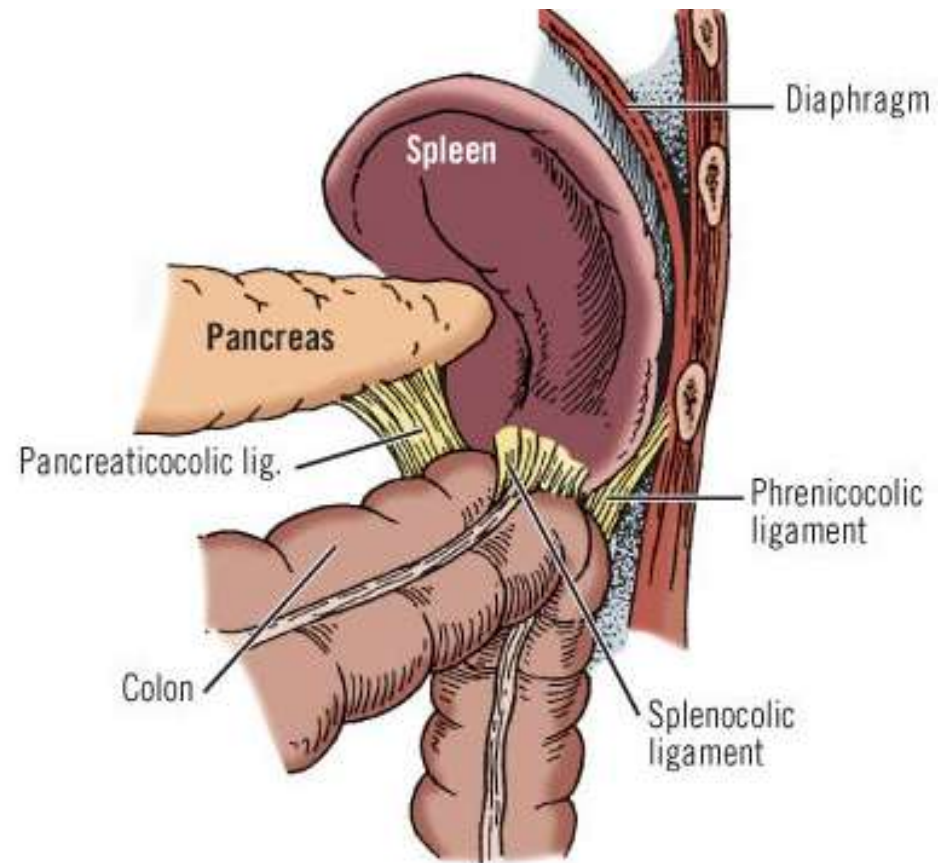
- Not always present
- Present when the tail of the pancreas does not touch the spleen.
- Usually thin and cordlike.
- It is avascular



Pancreaticosplenic ligament

Phrenicocolic Ligament

- This extends between the splenic flexure and the diaphragm.
- It is not an intrinsic ligament of the spleen, but the spleen rests upon it.
- It also suspends the left colonic flexure in space
- It acts as a barricade between the left supracolic region and the left paracolic gutter

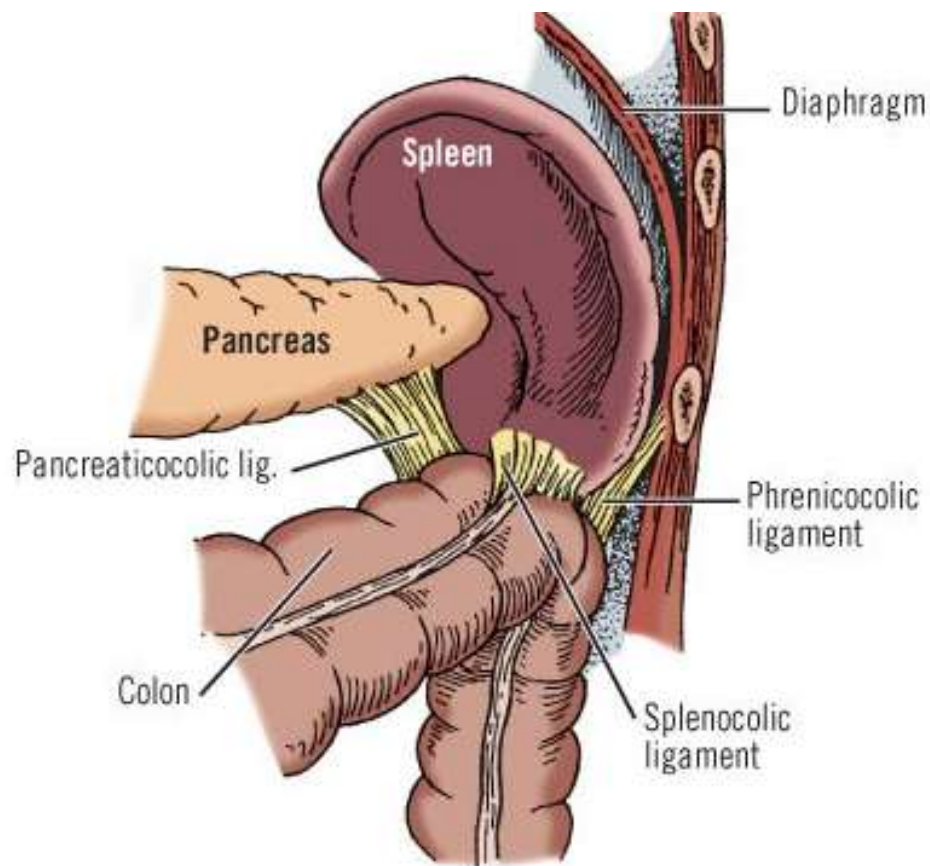


Pancreaticocolic Ligament

- The pancreaticocolic ligament is the upper extension of the transverse mesocolon

NOTE:

The three "colic" ligaments: the pancreaticocolic, the splenocolic, and the phrenicocolic are prolongations of the transverse mesocolon



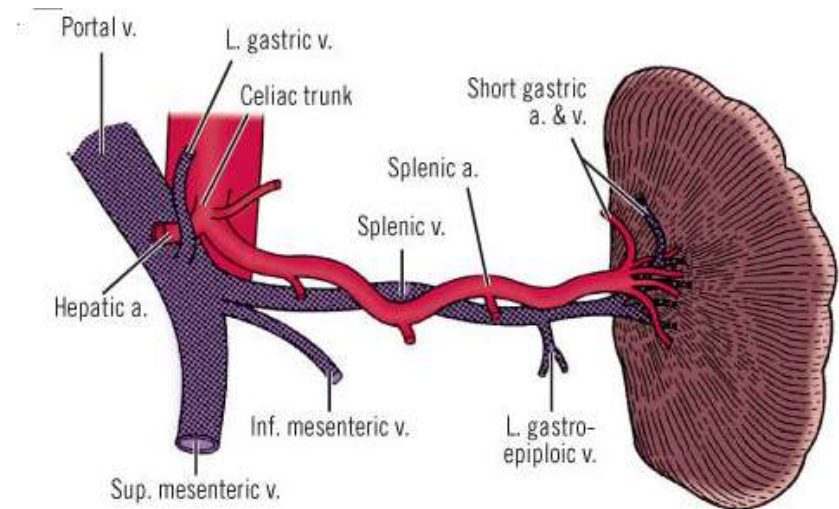
Artery:

- Splenic Artery.
- Very Tortuous
- Enters the hilum between layers of the splenorenal ligament
- Divides into 5-6 branches which enters the spleen

Vein:

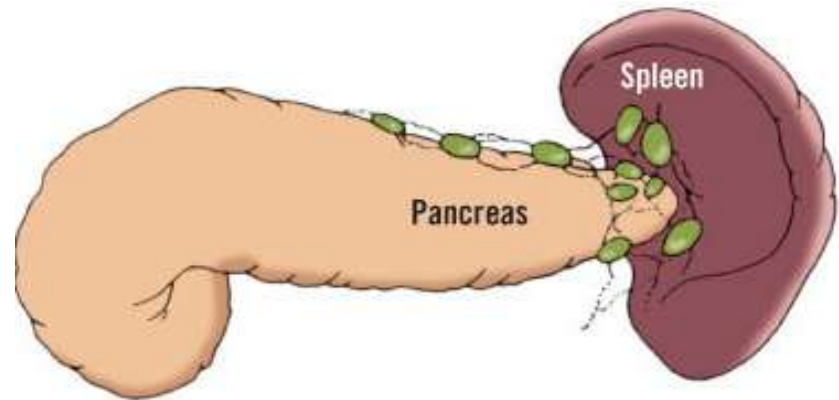
- Usually posterior to the artery
- Empties into the portal vein
- Receives also the inferior mesenteric vein
- Not as tortuous as the artery

Blood supply



Lymphatic drainage

The splenic lymphatic vessels leave the lymph nodes in the splenic hilum and pass along the splenic vessels to the pancreaticosplenic lymph nodes



Any Question?

