

- Splenic vein unites with the superior mesenteric vein to form the hepatic portal vein

Lymphatic drainage

- Drain to the pancreaticosplenic lymph nodes then coeliac nodes

Innervation

- Derived from coeliac plexus, vasomotor activity

Medical application

Rupture of the spleen

- Close relation to ribs can be detrimental when ribs are fractured
- Blunt trauma to other areas of the abdomen can increase intraabdominal pressure and rupture the spleen, leading to intraperitoneal haemorrhage

Splenectomy and splenomegaly

- Rupture repair is difficult so splenectomy is often the solution
- Subtotal splenectomy is followed by rapid regeneration
- Total splenectomy does not have serious effects, but greater susceptibility to bacterial infection
- Granulocyte leukaemia can cause splenomegaly, and can sometimes be cured by splenectomy
- Hypertension, haemolytic/granulocytic anaemias
- Not normally palpable, but lower edge can be palpated if enlarged

Accessory spleens

- May develop near the hilum; relatively common and small
- Need to be known if splenectomy is to occur, to ensure these are also removed to prevent persistence of the symptoms for which the spleen is being removed in the first place

Splenic needle biopsy and splenoportography

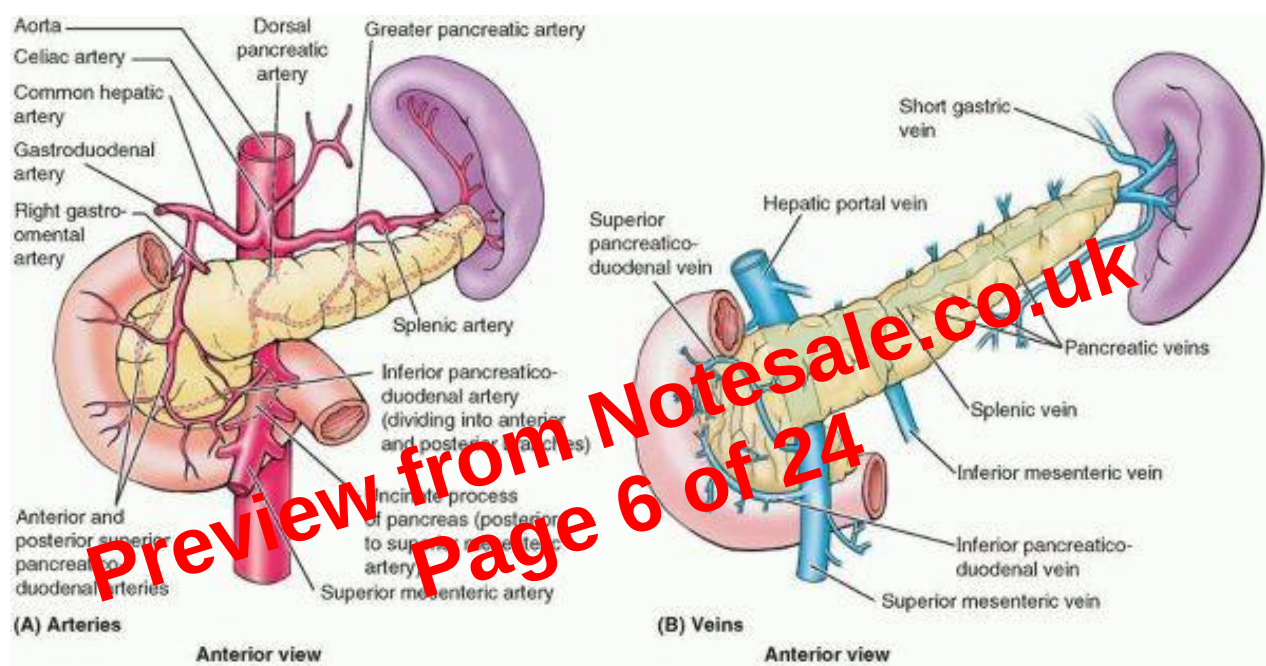
- Costodiaphragmatic recess needs to be considered when splenic needle biopsy or splenoportography (radiopaque material injected for visualisation of the hepatic portal vein) performed
- Material could enter the cavity causing pleuritis

Arterial supply of the pancreas

- Mainly branches of the splenic artery
- Pancreatic arteries form arcades with anterior and posterior pancreaticoduodenal arteries (branches of the gastroduodenal) and anterior and posterior inferior pancreaticoduodenal arteries (branches of the SMA)

Venous drainage of the pancreas

- Corresponding pancreatic veins (tributaries of the splenic and superior mesenteric parts of the hepatic portal vein)
- Most empty into the splenic vein



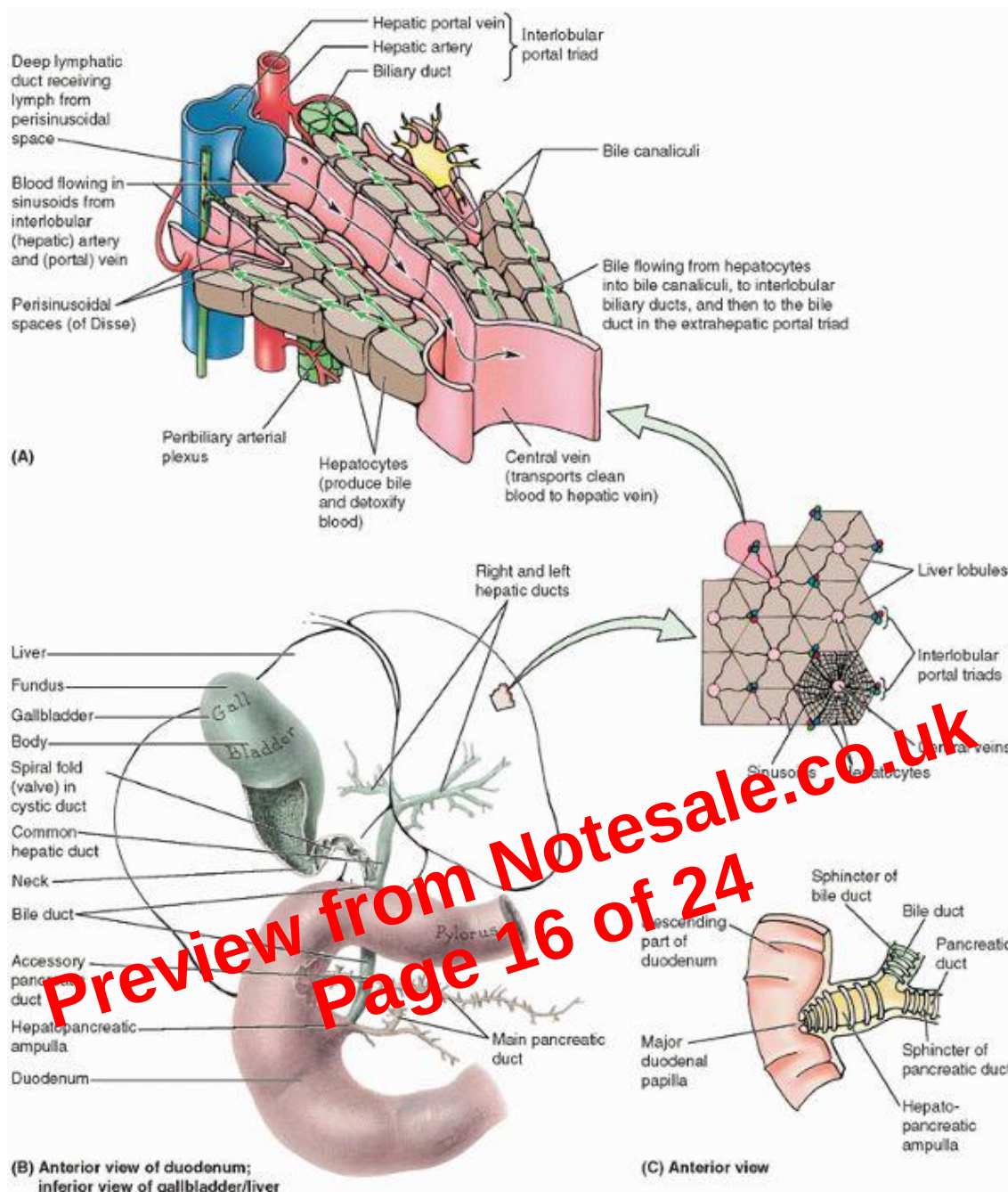
Taken from Moore et al, Clinically Oriented Anatomy, Seventh Edition

Lymphatic drainage of the pancreas

- Follow the blood vessels
- Most drain to the pancreaticosplenic lymph nodes, and also pyloric lymph nodes
- Then to superior mesenteric, or coeliac nodes (via hepatic)

Innervation of the pancreas

- Derive from vagus (via abdominopelvic splanchnic nerves)
- PNS and SNS fibres pass via coeliac plexus and superior mesenteric plexus
- Innervate blood vessels and acinar cells and islets
- PNS are secretomotor



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Lymphatic drainage

- Major lymph producing organ (25-50% entering thoracic duct comes from liver)
- Superficial lymphatics occur in the fibrous capsule of the liver, and deep lymphatics in the connective tissue
- Most lymph formed in the perisinusoidal spaces and drains into deep lymphatics in the intralobular portal triads
- Superficial lymphatics from anterior aspect drain to the hepatic lymph nodes, then to coeliac nodes then cisterna chyli (dilated sac)

Medical application

Subphrenic abscesses

- Peritonitis can result in formation of localised abscesses, a common site being the subphrenic recesses/spaces
- Subphrenic abscesses more common on the right side due to frequent ruptured appendix and perforated duodenal ulcers
- Subphrenic recesses are continuous with the hepatorenal recess, thus can drain there when supine

Hepatic lobectomies and segmentectomy

- As branches of the arteries and veins don't communicate, possible to perform lobectomies without excessive bleeding
- Can also do segmentectomies; segments vary in size and shape in different people
- Most injury is normally to the right side

Rupture of liver

- Easily injured as large, fixed position and friable
- Fractured rib can puncture the liver, which can cause considerable haemorrhage due to high vascularisation

Hepatomegaly

- As IVC and hepatic portal vein lack valves, a rise in central venous pressure will transfer blood to the liver, causing hepatomegaly
- Temporary engorgement will stretch the fibrous capsule, causing pain around lower ribs; this plus diaphragm activity may cause runners stitch
- Congestive heart failure and tumours can cause hepatomegaly
- Bacterial and viral infections can cause hepatitis leading to hepatomegaly
- When enlarged the inferior edge may be palpated
- Common site of metastatic carcinoma drained by the portal system of veins from the gut, also from thorax e.g. breast due to communication between lymph nodes draining the bare area of liver and thorax