

# \* Pancreas \*

- Features :- Organ that is partly exocrine & partly endocrine.
  - i) exocrine :- secretes - digestive pancreatic juice.
  - ii) endocrine :- secretes - Hormone, eg. insulin

- Location :- Lie in posterior abdominal wall :- At 1<sup>st</sup> and 2<sup>nd</sup> lumbar vertebrae

→ Pancreas divided into 4 parts (i) Head (ii) Neck (iii) Body (iv) tail.

## <i> Head of Pancreas

- enlarged flattened right end of pancreas.
- situated within "C-shape" curve of duodenum.

### • External Feature

- 3 Borders
  - i) Superior
  - ii) Inferior
  - iii) Right lateral
- 2 Surfaces
  - i) Anterior
  - ii) Posterior
- 1 Process
  - uncinata Process

### • Relation

- 3 Borders
  - i) Superior :- overlapped by 1<sup>st</sup> part of duodenum :- Superior pancreaticoduodenal artery.
  - ii) Inferior :- overlapped by 3<sup>rd</sup> part of duodenum :- Inferior pancreaticoduodenal artery.
  - iii) Right lateral :- 2<sup>nd</sup> part of duodenum.

- 2 surface

i) Anterior :- 1<sup>st</sup> part of duodenum

:- Transverse colon

:- jejunum

ii) Posterior :- Inferior vena cava

:- Renal vein

(ii) :- Right crus of diaphragm

★ • Uncinate Process

- Superior Mesenteric vessels (Relation)

(ii) Neck of Pancreas

→ constricted part of Pancreas b/w Head & Body.

→ 2 surface → (i) Anterior (ii) Posterior

• Relation

- Anterior surface :- pylorus

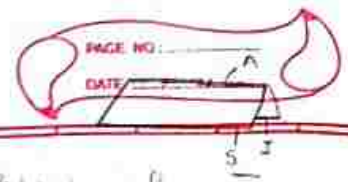
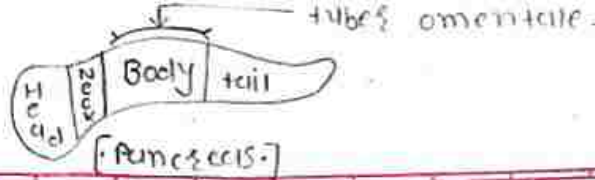
:- Peritoneum covering poste...  
wall of lesser sac.

- Posterior surface :- Superior Mesenteric vein

(ii) Body of Pancreas

→ Body of Pancreas is elongated.

→ extend from its Neck to the tail



• External Feature

- 3 Borders :- (i) Anterior (ii) Superior (iii) Inferior

→ Root of Body projects upwards known as tubae omentalis

- 3 surface :- (i) Anterior (ii) Posterior (iii) Inferior

• Relation

- 3 Borders :- Anterior - attachment to Root of transverse mesocolon

:- Superior - Coeliac trunk

- Hepatic artery

- Splenic artery

:- Inferior - sup. mes. vein

- 3 surface :- Anterior - covered by peritoneum

- lesser sac & stomach

:- Posterior - devoid of peritoneum

- Aorta

- left crus of diaphragm

- left supra renal gland

- left kidney

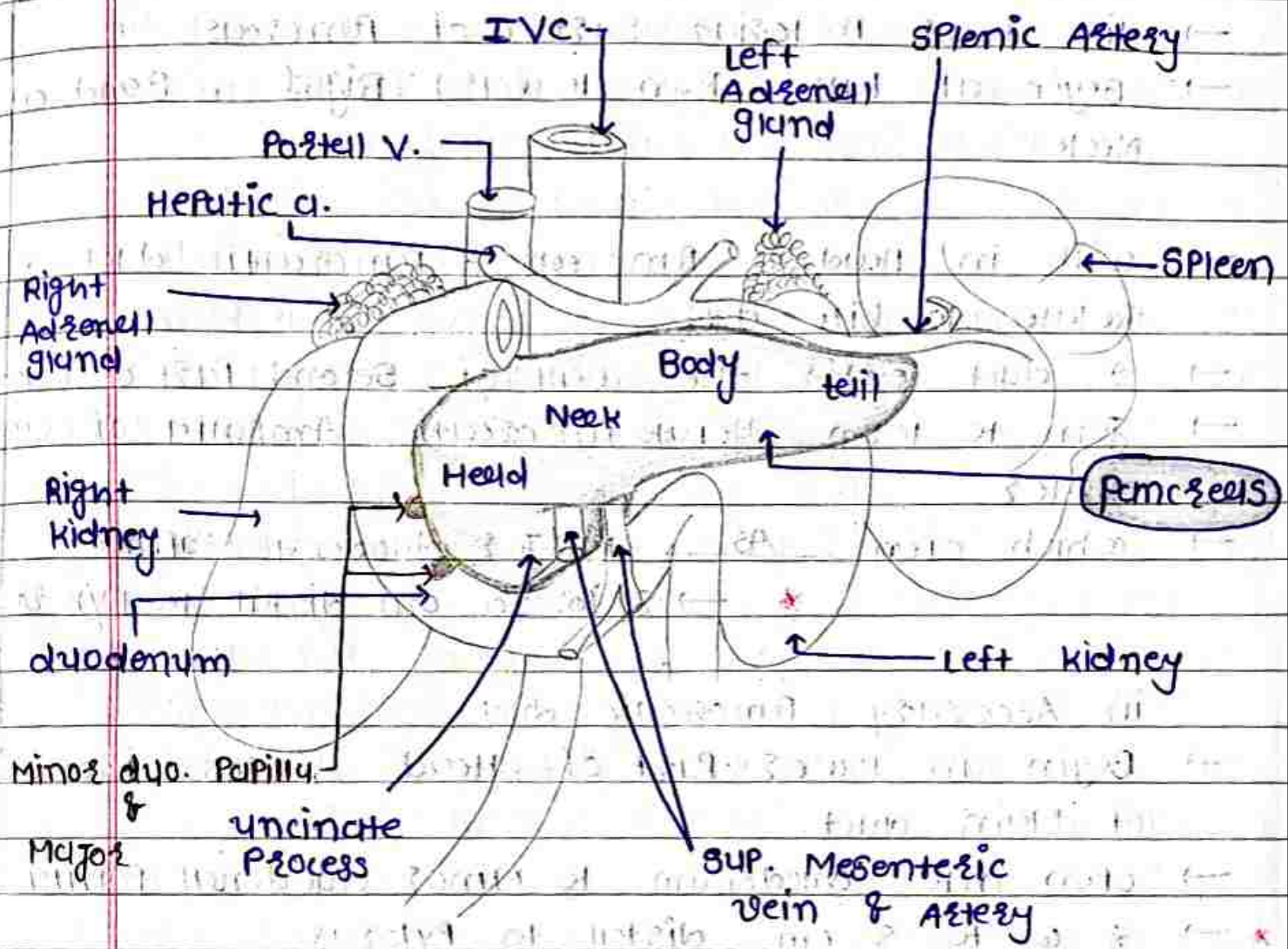
- Splenic vein

- :- Inferior - covered by peritoneum

- duodeno jejunal flexure

(iii) Tail of Pancreas

- Left end of pancreas.
- lie in lienorenal ligament.



[ • Pancreas and its Relation • ]

## • DUCTS of Pancreas

- 2 Duct
  - Main Pancreatic duct
  - Accessory Pancreatic duct

### i) Main Pancreatic duct (3 mm in diameter)

- lie near posterior surface of pancreas
- Begin at tail, Run towards right, Bend at Neck
- with in Head of pancreas - Pancreatic duct relate to bile duct
- 2 duct enter the wall of second part of duod.
- Join to form Hepato Pancreatic Ampulla of Vater
- which open AS → Major duodenal Papilla
  - ★ → 8 to 10 cm distal to pylorus

### ii) Accessory Pancreatic duct

- Begin in lower part of Head, cross front of Main duct.
- open into duodenum to Minor duodenal Papilla
- ★ → 6 to 8 cm distal to pylorus

## • Arterial Supply

- Mainly by - Pancreatic branches of spleen
- Superior & Inferior pancreaticoduodenal artery

## • Venous Drainage

- Splenic vein
- Sup. Mes. vein
- Portal vein

• Nerve supply —

→ Parasympathetic nerve :- Vagus nerve

→ Sympathetic nerve :- Splenic nerve

Splenic

• Clinical Anatomy of Pancreas —

i) Pancreatitis :- which can cause severe abdominal pain

ii) Pancreatic Cancer :- A serious malignancy that can affect any part of pancreas.

iii) Diabetes

## \* Spleen :-

- Spleen is a lymphatic organ connected to Blood vascular system
- Act as a filter for blood and plays an important role in immune response for body.
- Location :- Mainly in left Hypochondrium and partly Epigastrium.
- Shape :- wedge shape (tetrahedral shape)
- Dimension :- soft, highly vascular and dark purple in colour.
  - :- on average :- 9.5 cm thick
  - :- 7.5 cm broad
  - :- 12.5 cm long
- Position :- lie obliquely along the long axis of 10th Rib.
- make an angle of  $45^\circ$  with Horizontal Plane :- Directed - downward, forward and laterally.

### • External Feature :-

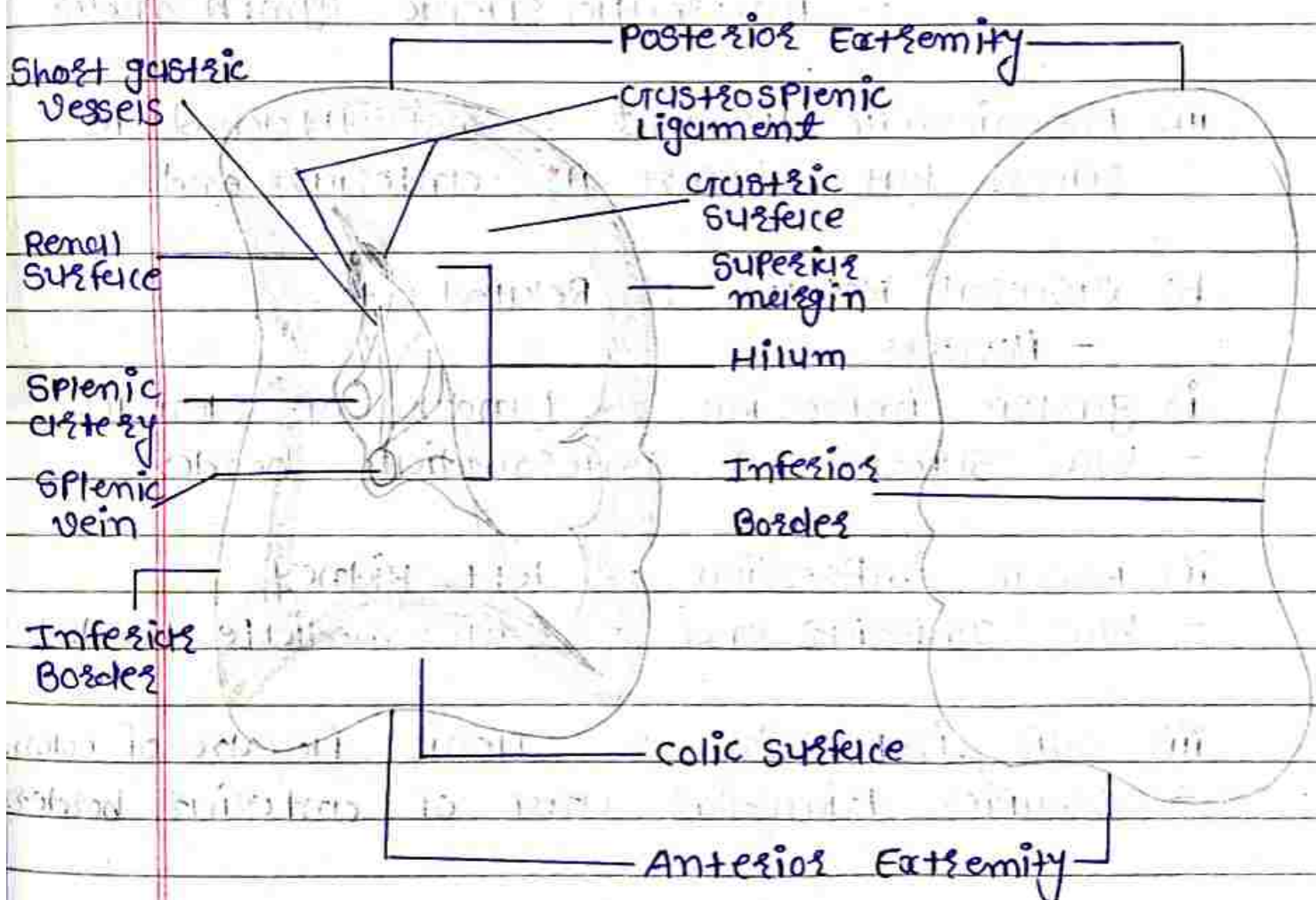
#### i) Two Ends

- a) Anterior or Lateral end :- Expanded and is more like base
  - Directed :- downward and forward
- b) Posterior or Medial end :- Round
  - Directed :- upward and backward.

- ii) Three Borders :- anterior end
- a) Superior - characteristically notched near
  - b) Inferior - Rounded
  - c) Intermediate - also Rounded.

- iii) Two Surface :-
- a) Diaphragmatic :- convex & smooth.
  - b) Visceral :- Concave & Irregular.

- iv) Hilum :-
- Lie b/w superior and Intermediate borders.
  - Pierced by branches and tributaries of Splenic vessels!



[Spleen visceral & diaphragmatic surface]

## • Relations

a) Peritoneal relations :- spleen is surrounded by peritoneum and suspended by ligament.

i) Gastrosplenic ligament :- extend from Hilum of spleen to greater curvature of stomach.

- contain :- short gastric vessels

:- Lymphatic & sympathetic nerve

ii) Lienorenal ligament :- extend from Hilum of spleen to anterior surface of left kidney.

- contain :- tail of pancreas

:- Splenic vessel.

:- Pancreaticosplenic lymph nodes.

iii) Phrenocolic ligament :- not attached to spleen but support its anterior end.

b) Visceral Relation :- Related to -

- ~~fundus~~

i) gastric impression :- Fundus of stomach

- btw superior & Intermidiate borders.

ii) Renal impression :- left kidney.

- btw inferior end & Intermidiate borders.

iii) colic impression :- Splenic flexure of colon.

- Occupies triangular area of anterior border.

iv) Pancreatic impression :- tail of pancreas  
- below hilum and colic impression.

v) Hilum :- lie of Inferomedial part of gastric impression

- Transmits :- Splenic vessel and nerve  
:- Provide attachment to -  
gastrosplenic and lienorenal ligam

c) Diaphragmatic surface

- Related to diaphragm.
- which separated the spleen from pleura and lung.

• Arterial supply :- Splenic artery branch of coeliac trunk

:- Splenic artery is tortuous in its course to allow movement of spleen

• Venous Drainage :- Splenic vein branch of SMV.

• Lymphatic Drainage :- Splenic tissue proper has no lymphatics.

• Nerve supply :- Sympathetic fibres from colic plexus.

## • Clinical examination

i) Puffation of spleen :- A normal spleen is not palpable. An enlarged spleen can be felt under the left costal margin. The spleen becomes palpable only after it has enlarged to about twice its normal size.

ii) Splenomegaly :- enlargement of spleen.

iii) Splenectomy :- Surgical removal of the spleen.