
Kidney: Location of Organs In The Abdomen

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The region of the trunk that lies between the diaphragm above the pelvic inlet below is referred to as Abdomen that is divided into nine regions by two vertical and two horizontal lines. Each vertical line passes through mid-point between anterior superior iliac spine and symphysis pubis.

The upper horizontal line (sub-costal plane) meets the 10th costal cartilage on each side whereas the lower horizontal line (inter-tubercular plane) joins the tubercles on the iliac crests. The Transpyloric Plane that lies at the level of Lumbar plexus L1 passes through the tips of 9th costal cartilages on the two sides (The point where the lateral margin of Rectus Abdominis and Linea Semilunaris crosses the costal margin). The Inter-cristal plane passes across the highest points on iliac crests.

- 1) Stomach
- 2) Intestines

- a) Small Intestine

Duodenum
Jejunum
Ileum

- b) Large Intestine

Cecum
Colon (Ascending, Transverse and Descending)
Rectum
Anal Canal

- 3) Liver
- 4) Gall bladder
- 5) Pancreas
- 6) Spleen
- 7) Kidneys

Areas of the Abdominal Region

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Boundaries of the Abdomen

Anteriorly

It is bounded above the thoracic cage and below the abdominal muscles and fascia.

Posteriorly

It is bounded by Lumbar vertebrae, crura of diaphragm, psoas and quadratus lumborum muscles and posterior part of iliac bones.

Laterally

It is yet again bounded above the thoracic cage and below by abdominal muscles and fascia.

Superiorly

It is bounded by diaphragm.

Inferiorly

It continues with pelvis.

Names of Abdominal Regions

Picture : Abdomen is broadly classified into 4 areas (right and left) upper and lower quadrants

image source : <http://health.usf.edu>

Picture : Abdominal Nine areas or regions

Image source : <http://health.usf.edu>

In Upper Abdomen

Right Hypochondrium / Epigastrium / Left Hypochondrium

In Middle Abdomen

Right Lumbar region / Umbilicus / Left Lumbar region

In Lower Abdomen

Stomach Location

Stomach is a muscular bag forming the most distensible part of the Human Digestive System. The regions occupied by stomach are epigastric, umbilical and hypochondriac regions. It lies between the esophagus and the duodenum on the upper-left portion of the abdominal cavity.

Stomach is divisible into cardiac portion which in turn is divided into fundus and body whereas the pyloric division of the stomach is further sub-divided into pyloric antrum and pyloric canal. A small part of the posterior surface of the stomach is in direct contact with the left crus of the diaphragm, cranial to the gastrophrenic ligament.

Picture : Stomach location and its relations with various other organs

Image source : open.jorum.ac.uk

Picture: Stomach Anatomy and its parts

Image source : gistsupport.org

Location of the Intestines

The Human Intestine consists of two segments.

1) Small Intestine

It is about 6 meters (20 feet) long and extends from the pylorus of the stomach to the ileocecal junction.

Divisions of Small Intestine

The small intestine is divided into

1. Upper fixed portion called Duodenum (25cm/10 inches long)
2. Lower mobile portion in which

Upper 2/5 of the mobile intestine is called Jejunum, and
Lower 3/5 of the mobile intestine is called Ileum.

Duodenum

It's a C-shaped tube and is about 25 centimeters (10 inches) long. It extends from the pylorus to the Duodeno-jejunal flexure. Duodenum lies above the level of umbilicus, opposite vertebrae L1, L2 and L3. It occupies the epigastric and umbilical regions. Duodenum is divided into four parts.

First Part of Duodenum

It begins at the pylorus and is approximately 2 inches long. It lies on the transpyloric plane. It is also known as duodenal cap because of absence of plica circularis being replaced by smooth outline.

Second Part of the Duodenum

The second part of the duodenum begins at the superior duodenal flexure and is 3 inches long. The main pancreatic duct and bile duct pierce the postero-medial part at the mid-point. It is retro-peritoneal and fixed.

Third part of the Duodenum

It is 3 inches long and is fixed and retro-peritoneal. It begins at the inferior duodenal flexure.

Fourth part of the Duodenum

It is retro-peritoneal and 2 inches long

Jejunum

It is the upper 2/5th mobile portion of small intestine and occupies the upper-left region of the abdomen and usually begins at the duodeno-jejunal junction.

Ileum

It is the lower 3/5th mobile part of the small intestine and occupies the lower right portion of the abdomen. Ileum ends at the ileocecal junction.

Picture : Small intestine location and its parts (duodenum, jejunum and ileum)

Image source : Mayo foundation

2) Large Intestine

The large intestine extends from ileocecal junction to the anus and is divided into caecum, appendix, ascending colon, transverse colon, descending colon, sigmoid colon, rectum and anal canal.

Caecum

It is located in the right iliac fossa. It is 6cm long and 3 inches wide. It is one of those organs of the body that has greater width than length besides prostate.

Ascending Colon

Lying in the lower right quadrant, it extends upward from the ileocaecal junction to the inferior surface of the right lobe of the liver / right hepatic flexure.

Transverse Colon

It occupies the umbilical and hypo-gastric regions and extends from hepatic flexure to splenic flexure.

Descending Colon

It extends downward from left colic flexure to the pelvic brim.

Picture : Large intestine location and its parts – appendix, colon (ascending, transverse, descending and sigmoid) and Rectum.

Image source : ADAM Inc

Liver Location

Liver occupies the whole of the right hypochondrium, the greater part of the epigastrium and the left hypochondrium.

Picture : Location of liver and its relation with other (main) abdominal organs

Picture : Liver and surgical Anatomy A: Lateral sternal line ; B : Vertebral spines; C : Mid-Axillary Line

Image source :

Structures Which Divides Liver into Lobes

Liver is divided into two lobes by attachment of falciform ligament. Right lobe is further divided into caudate lobe (above) and quadrate lobe (below) by presence of gall bladder, fissure for ligamentum teres, inferior vena cava and fissure for ligament venosum.

Hilus of Liver

The Porta Hepatic of Hilus of Liver is found on the postero-inferior surface and lies between caudate lobe above and quadrate lobe below and in front. Margin of porta hepatic provides attachment to lesser omentum.

Bare Area of Liver

It is located on postero-superior surface of liver.

Picture : Lobes of liver

image source : writepass.co.uk

GallBladder Location

It is a bile-reservoir and has a pear-shaped structure. It has the capacity of about 30 to 50ml. Gall-bladder is located in the fossa on inferior surface of the right lobe liver. It is divided into fundus, body and neck.

Fundus

It projects beyond the inferior border of the liver in the angle between the lateral border of the right rectus abdominis and the 9th costal cartilage. Fundus is completely occupied by peritoneum.

Body

It lies in fossa for the gall-bladder on the liver. Its superior surface is devoid of peritoneum whereas the inferior surface does possess peritoneum.

Neck

It is the narrow upper end of the gall-bladder. It is situated close to the right end of the porta hepatis. Its junction with cystic duct is marked by a constriction.

Location of Pancreas

It is partly endocrine and partly exocrine. Pancreas lies more or less located transversely over the posterior abdominal wall at the level of Lumbar plexus' segments L1 and L2. It is divisible into head, neck, body and tail.

Ducts of Pancreas

Main Pancreatic Duct

It begins at the tail, runs along the entire length of the gland and opens into the second part of the duodenum with bile duct on the major duodenal papillae.

Accessory Pancreatic Duct

Just in case if it's present, it begins in the lower part of the head, opens into the duodenum at a short distance above the main duct on the minor duodenal papillae.

Picture : Location of Gallbladder and Pancreas

image source : cancer.osu.edu

Vermiform Appendix Location

Arising from the postero-medial wall of the caecum, it is a worm-like diverticulum and is about 2cm below ileocaecal valve. It is 8-13cm (3-5 inches) in length. The appendix lies in the right iliac fossae. It has lost all its functions through the process of evolution and is widely considered to be a superfluous structure in the human body.

Picture : Appendix location (McBurney's point – 2/3 rd of distance between the pelvis (upper part) and navel)

Spleen Location

Spleen is the biggest lymphoid organ present in the upper far left portion of the abdomen in the left hypochondrium and is surrounded by peritoneum. Spleen is 1 inch thick, 3 inches broad and 5 inches long. The enlargement of spleen is referred to as splenomegaly.

Picture : Spleen Location and Anatomy

Image source: dehlvi.com

Kidneys Location

Kidneys are bean-shaped, brown-colored vital organs that occupy epigastric, hypochondriac, lumbar and umbilical regions. Vertically, they extend from the upper border of vertebrae T12 to the centre of the body of L3. External features of kidney have two poles, two borders and two surfaces.

The right kidney is located below the diaphragm and posterior to the liver whereas the left kidney is located below the diaphragm and posterior to the spleen. Above both kidneys lie the adrenal glands. The right kidney is slightly smaller than the left kidney.

Picture : Kidneys Anatomy and Location

Image source: pbiv.com

Picture : Kidneys (Right and left) Surface anatomy marking

Image source: meded.ucsd.edu

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