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ON

Anatomy of the Stomach & Intestinal Canal

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Anatomy of the Stomach and Intestinal Canal

These Organs, so essential to the support of animal economy, are situated in the abdominal cavity, and are in relation to various other organs, that assist them in the great functions, which they have to perform. There is no animal from the Polypus, the lowest order of animals, up to the Mammalia, but what contains this Canal in some modification or other. In the Polypus it is merely a Cæcal sac, and it gradually increases in size and complication till we reach the highes orders of organism, of which man constitutes the Capping-stone.

The Stomach is an enlargment of the alimentary canal and is situated in the Epigastrium, for the most part. It is conoidal in shape, and bent upon itself: the base or larger extremety being to the left side, and in the left hypochandrium, and the apex or smaller end being to the right side: it lies obliquely across the Epigastrium extending sometimes into both hypochondrii: It is in relation with the Diaphragm above, the transverse Colon below, the Pancreas behind, the Liver to the right and above, and the Splen to the left side. It is divided for description, into two surfaces, two borders, and two extremities: of its borders the upper

is concave, and is called the lesser curvature; the lower is convex and is the greater curvature; Its extremities are called the Cardiac or Splenic, and the pyloric; it has two openings: one situated about two inches from the larger end, called the Cardiac opening; the other is the pyloric opening. There is no valve at the cardiac opening; the food is prevented from regurgitating into the asophagus, by the closing up of this canal, when the Stomache is moderately distended, by being inclined forward, and the canal bent upon itself, thus closing the canal. We also notice that when distended its surfaces are not

immediately anteriorly and posteriorly, but obliquely upwards and downwards. Near the smaller extremely, and on the greater curvature, is a dilatation, called the Antrum of the pylorus.

It is held in position by the oesophagus, the pylorus, and some peritoneal reflections

It consists of four coats; a peritoneal, a muscular, a cellular, and a mucous coat. The peritoneal coat envelopes it entirely, except at its curvatures, where the omenta are attached.

The Muscular coat consists of three layers or planes of fibers: the Circular, which are most abundant around the pylorus, and which in conjunction

with a spiral fold of the mucous coat, form the pyloric valve.

The longitudinal fibers, which descend from the oesophagus, and spread out on the greater end of the organ and around the cardiac orifice; they are also most distinct about the lesser curvature. Lastly the oblique fibers are found about the splenic extremity, extending toward the small end

The cellular coat, being between the muscular and mucous coats, serves as a medium for the transmission of blood vessels and nerves; and when in the divided state, it has the appearance of cotton; it is thicker and more distinct here than in the oesophagus.

The Mucous coat is a continuation of that of the oesophagus, and is of unequal density at different parts: it is soft, of a pinkish colour which is deeper in childhood, than in in adult life, and which also deepens during the process of digestion: it is thrown in to rugæ or folds, which are most numerous at the greater curvature and at the pyloric opening, where with the Cellular coat, it forms the pyloric valve. By washing a part of the stomach, and then placing it, in water, within the range of the microscope, we will observe innumerable, small villi, resembling

the down upon a peach, which are about the one three hundredth of an inch in length, and whose office it is to secrete and exude the gastric fluid.

The next division of my subject is into the Intestines which are divided into the greater and lesser bowels. The lesser bowels, named the Duodenum Jejunum and the Ileum, form about three fifths of the whole length of the Canal.

The Duodenum is situated at the upper part of the intestines and takes its origin at the pylorus opening of the Stomach: it is about ten or twelve inches in length

and is curved in its course.

It is not entirely invested by a peritoneal coat, on account of its passing between the lamina of the lesser or colic omentum

What is most peculiar about this, is, that the mucous membrane is tinged with bile, and that it contains within its upper part the glands of Brunner, and in its lower part, great numbers of valvulæ conniventes, formed by the folding of the mucous coat upon itself

The Ductus Communis Choledochus, and the Pancreatic duct, empty into it, about mid way its length, sometimes together.

The next division of the intestines is into the mesenteric bowels. including the Jejunum and the Ileum. they are about twenty five feet in length, generally; there is no mark by which to distinguish these from each other, as they gradually diminish in diameter the whole length

These, like the other portions of the canal, consist of four coats; the peritoneum forming a complete coat. The muscular fibers are of a pale colour, and are longitudinal and circular. The cellular coat like that of the Stomach: conveys the blood vessels and nerves, and when dry looks like cotton.

The mucous coat, being continued from the stomache, is longer than the other coats, and is thrown into numerous folds, called Valvulæ Conniventes, some of which pass entirely around the canal, while others pass only partially around it.

These are more numerous in the upper than in the lower part, and cannot be obliterated by distention. Along the extent of the smaller bowels, we find the follicles of Leiberkühn, Peyers glands, and the solitary glands. The follicles are the smallest of the glandular structures, and consist of tubes opening by small orifices, on every part of the intestine

Peyers glands are found in the Ileum, and are about twenty or thirty in number, being situated on the external side; i.e. the side opposite the attachment of the mesentery: They are about one inch long, but sometimes they even reach eight or nine inches in length: They are the seat of inflammation in Typhoid fever, and are sometimes perforated, producing death by the escape of the contents of the bowels into the Peritoneum.

The third and last great division is, into the larger bowels, which consist of the Cæcum, the Colon and the Rectum. These together constitute the reservoir for the fæcal matter. They arise in the

right illiac fossa, and terminate at the anus. The Cæcum, which is the beginning, varies in size: it has attached to its extremity, an appendage called the appendix vermiformis, which is, in some animals, quite large and forms the extremity of the Cæcum.

The Colon is divided into the ascending, the transverse, and the descending portions; the first extends from the Cæcum to the right hypochondriac flexure: the transverse lies across the abdomen, between the Epigastric and the Umbilical regions, to the left hypochondrium. The last portion lies on the left side extending to the left illiac fossa, where it

makes a double curvature upon itself, called the sigmoid flexure

These two divisions of the large bowel are calculated in their length from the longitudinal muscular fibers being shorter than the other coats, and the fibers being collected into three longitudinal bands which give them a triangular or prismatic shape.

Like the other bowels, these consist of four coats: the peritoneal coat invests them closely, except the Cæcum, which is also sometimes closely bound down by it, when it is called the Meso-cæcum: that of the Colon, is called the Meso-colon. On the outer surface of this coat, are a great number of little

sacs, called Appendices Epiploicæ, which are filled with adipose tissue, and which have no known office. As already stated the longitudinal fibers of the muscular coat, are thrown into three bands extending to the Rectum; the circular coat is more dense than that of the smaller bowels. The Cellular coat subserves the same end, that the same coat, of the small bowels, does; &c, it transmits the blood vessels and nerves.

The Mucous coat is white, and is thicker and coarser than in the small bowels: its Crypts are very numerous and are more easily discovered than in the small bowels: They are uniform in appearance, and consist of a minute capillary net work, forming a sac lined by Epithelium.

The whole canal is sometimes subject to Stricture. Inflamation and various other diseases that we will not discuss.

The Rectum is the terminal portion of the canal: it being situated in the pelvis, is comparatively straight, whence its name: it is not covered entirely by peritoneum; the upper third is enveloped by it and then it is called the meso-rectum; the middle third has a coat reflected smoothly over its anterior surface; the lower third has no coat. The Muscular and Mucous coats are similar to those of the other bowels, except the muscular is much thicker and stronger than in the

others. The mucous terminates at the anus, being gradually condensed into the true skin.

The blood vessels of the stomach and bowels are derived from the gastric, splenic, hepatic, superior and inferior mesenteric iliac and pudic arteries. Their veins form the vena portae, and their lymphatics and lacteals empty into the thoracic duct.

The Nerves are the pneumogastric, the sympathetic branches of the solar plexus, the superior and inferior mesenteric, and hypogastric plexuses, and the inferior sacral nerves