AN INAUGURAL DISSERTATION
ON
The anatomy of the lines
of the muscles of the thorax and
shoulder.

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The anatomy of the liver.

The liver is supposed to be the first visibly developed organ of the foetus. It forms half the bulk of the embryo at three weeks, which proportion continues through the first half of foetal life, from this period until puberty it rapidly diminishes in size. At birth it forms by weight one-eighteenth of the body; at puberty it has acquired a relative bulk which continues to old age viz. about four pounds as the thirty-sixth part of the entire body. Notwithstanding the decrease in this organ it remains the largest glandular structure in the human system.

It is of a dark red colour situated beneath the diaphragm in the right
hypochondrium its smaller portion occupying a part of the epigastric
region. It presents two surfaces.
an upper surface which is convex
and a lower canane surface.
it also has two margins a posticus
thick, and an anticus thin.
its upper surface which presents
postwards is muffled as it were in
the cananeity of the diaphragm
which separates it from the cavity
of the thorax, and to which it is
attached over a considerable and
space by means of the coronary
ligament, it is somewhat off
in point which divides it into two
unequal portions the right, and left-
laterals. The inferior canane
surface presents remarkable diversity.
of structure on this surface is seen the umbilical fissure which extends from the notch in the front margin to the posterior boundary. This fissure contains in the foetus the umbilical vein which in the adult is but a mere cast, posterior to this is to be found the remains of foetal ductus venous, the anterior portion of the fissure is frequently ossified by an isthmus the (transhepatic) The umbilical fissure indicates upon the cancellous surface of the liver its division into two lobes, the right, and the left.
The transverse fissure passes from the left into the right lobe, it is about two inches in
length, and affords a passage to
the hepatic artery, portal vein, and
nerves. Upon this surface is found
two other fissures, one for the gall
bladder and one for the oesophagus.
The liver is divided into three
lobes, superior, and two
inferior. These lobes are separated
by fissures of which there are also
five in number. The two great
lobes are indicated on its convex surface
by the suspensory ligament, the notch
in front and the umbilical fissure.
The right lobe of the liver
is about five times as large as the left,
and upon this lobe is found the other
three minor lobular enlargements
the lobulus Anglicii, lobulus
cardinalis and the lobulus quadratus
The labulus spigelii is partially canceled by the lesser amentum and hepatic vessels; it is found behind the transverse fissure and forms the pyamiliar elongation seen on this portion of the liver.

The labulus canalis is simply a process of the labulus spigelii, and is gradually lost upon the right lobe. The labulus quadratus is also found on the under surface of the right lobe between the free margin and transverseness, just to the right of the lobe is found the gall bladder.

The coats of the liver are two in number: the visceral and the epibolic tunics. The visceral coat invests the whole of the gland.
excepting the diaphragmatic ostium, and the depression for the gall bladder.

It is from this fact that the ligaments of the liver are divided.

The fibrous coat is the inner tunic of the liver; it's appearance is white, resembling that of the common connective tissue, and not only invests the liver but penetrates into its substance, and embraces its trabeculated structure, and the ultimate granules.

It is this coat that forms sheaths for the blood vessels, and excretory ducts running in the transverse fissure, the basis of Glisson's capsule.

The blood vessels of the liver are remarkably large; they are the hepatic artery, the vena portae, and the hepatic veins. The
hepatic artery for nutrition is derived from the coeliac at is, and divide into two branches in the transverse fissure, one of which is distributed to the right, the other to the left.
The size of the arteries are small when compared with the vast amount of glandular structure to which they are distributed. It terminates in the vena portae and biliary ducts. The vena portae for secretion is found by a junction of all the veins of the abdominal viscera which are formed into a single trunk behind the pancreas, then ascending the transverse fissure it divides into two branches and being distributed to either lobe of the liver. The
distribution of its branches is not unlike that of the hepatic artery, penetrating as they do the ultimate glandular structure in which are given off vaginal and interlobular veins. These terminate in the lobular venous plexuses formed by the capillary radicles of the hepatic vein.

The hepatic vein is the office of which is to convey residual blood into the inferior vena cava from their origin in the acini of the liver, where the two systems become continuous.

The liver is supplied with innumerable lymphatics which are divided into two series: one deep seated, the other superficial.
The deep seated lymphatic vessels pass out of the lymphatic plexuses and terminate in the proximate lymphatic glands. The superficial is found upon the surface in the form of a network. The nerves of the liver which are small in proportion to its bulk, are derived from the great solar plexus, and from the pneumogastric and phrenic nerves. Those are derived from the solar plexus embracing the hepatic astra forming a secondary plexus which receives the name of the hepatic.

The biliary ducts are small canals which have their origin in the ultimate granules of the
liver a number of these ducts are combined forming larger trunks that finally make their exit at the transverse fissure in the form of the hepatic ducts. This is subsequently joined by the cystic duct from the gall-bladder forming by this junction the ductus communis cholangicus which opens into the duodenum and then discharges the biliary secretion.

With regard to the substance of the liver various opinions have been entertained by anatomists.

It is however now well ascertained that the glandular aggregation of the whole mass of smaller glands, each one possessing within itself the stamens, and
function of the entire organ.

The small glands which thus compose the substance of the liver are of the smallest size, perhaps not larger than a millet-seed, of an irregular form with certain nodular enlargements of their periphery, and have been termed semicircular. These acini are connected by a cellular structure called the capsule of Glisson. The loblules of the liver may be divided into base, and periphery. The base of each loblule rests on the hepatic vein from this circumstance the vein has been called the sublobules. Within each loblule occupying its centre
is found a vein which is formed by the concurring branches from the labular venous plexus. This receives the name of \textit{inter labular vein}. It penetrates the base of the labula connecting it with and terminating in the sublabular vein. The periphery of the labula receives a concurring from the capsule of Elision, and is called its unattached as capsular surface. The capsule of Elision serves to connect each labula with and at the same time to separate it from the contiguous labulas. The form of the labula is different owing to the greater or less amount of pressure which they sustain.
The intestines of the liver when they are most numerous, and most compressed, they are angular, but as they become superficial where they are less closely connected, and fewer, they are rounded. The design of compassion being less.

Commencing at the tranverse fissure spanning throughout the substance of the entire gland is a number of tubular passages, the proper fissures being composed of lobules three are the postal canal. Every canal however small contains a branch of the hepatic astisy postal vein, and hepatic ducts lined by a proliferation of the capsule of Glisson, all of which terminate in the lobules.
The capsule of Glisson is a cellular muscular membrane, and is said by some anatomists to be to the liver what the pia mater is to the brain— from the manner of its distribution it is divided as are all the vessels of the liver into marginal, interlobular, and lobular portion. The purpose served by the bile in the physiological function of the functions of the system, is to secrete from the carotid gland a viscid fluid of a yellowish green color extremely bitter to the taste with a peculiar odor which has been denominated by anatomists the bile. This fluid containing at least
three distinct substances, Cholestesine, bile acid, and calosing matter. It is secreted in the cells of the liver which after traversing the various biliary ducts is forced into the duodenum. A portion of it then is regurgitated into the gall bladder through the cystic duct, where it remains for some time becoming more viscous than the recently secreted bile.

One of the most important offices of the bile in the animal economy is to assist in performing the function of digestion. The fluid is conveyed from the stomach into the duodenum in the form of chyme, the bile
act upon its fatty matter rendering it more soluble, and fluid, and thereby more easy of conversion into chyle. It also acts as a stimulus to the mucous membrane of the intestine causing an increase secretion from The intestine. The bile is also exerted continuously a portion of it uniting with the residuum left after chylification. It acts as a stimulus to the muscular coat thereby promoting its motile motion. The lungs during gestation serve as a deaerating organ which after birth is superseded by the lungs but contains a short life to separate from the blood the superfluous
Hydro-carbon acquired by the circulation through the tissues.

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