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SKETCH OF THE RELATIVE ANATOMY OF THE SPINAL COLUMN.

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(Continued from p. 370.)

Sixth Dorsal Vertebra.

The division of the left lung takes place at this point. Second branch of the great splanchnic nerve on the left side arises from the sixth dorsal ganglion. The point of the heart lies a little above the level of this vertebra, corresponding with a line drawn rather below the left nipple. About the middle of the posterior mediastinum is opposite to this bone. Its contents are, anteriorly, the œsophagus and vagi; posteriorly, on the right the vena azygos, on the left the aorta, and in the centre the thoracic duct. Part origin of the trapezius from its spinous process. Part insertion of the longissimus dorsi into its transverse process. Part insertion of the spinalis dorsi into its spinous process. Part origin of the complexus from its transverse process. Part insertion of the semispinalis dorsi into its spinous process. Part origin of the multifidus spinæ from its transverse; and Part insertion of the same into its spinous process. Inferior origin of the semispinalis colli from its transverse process. Interspinalis and intertransversalis.

Remarks.—If disease be detected on the left side of the chest, above the level of this vertebra, it will probably be in the upper lobe of the left lung.

Seventh Dorsal Vertebra.

The seventh dorsal ganglion gives the third contribution to the great splanchnic nerve. The last true rib is attached to the body of this bone, which is the longest of the ribs. Inferior angle of the scapula is on a line with the spinous process of this vertebra. Part origin of the trapezius from its spinous process. Superior origin of the latissimus dorsi from its spinous process. Part insertion of the longissimus dorsi into its transverse process. Part insertion of the spinalis dorsi into its spinous process. Inferior origin of the complexus from its transverse process. Superior origin of the semispinalis dorsi from the same process. Inferior insertion of the same into its spinous process.

Part origin of the multifidus spinæ from its transverse, and Part insertion of the same into its spinous process. Interspinalis and intertransversalis.

Eighth Dorsal Vertebra.

The eighth dorsal ganglion gives the fourth contribution to form the great splanchnic nerve. The posterior mediastinum ends at about opposite this vertebra. Part origin of the trapezius from its spinous process. Part origin of the latissimus dorsi from the same process. Part insertion of the longissimus dorsi into its transverse process. Part insertion of the spinalis dorsi into its spinous process. Part origin of the semispinalis dorsi from its transverse process. Part origin of the multifidus spinæ from its transverse, and Part insertion of the same into its spinous process. Interspinalis and intertransversalis.

Remarks.—This vertebra has no primary origin nor ultimate insertion of any muscle. It is the only vertebra similarly circumstanced.

Ninth Dorsal Vertebra.

The ninth dorsal ganglion on the left side contributes a considerable branch to the great splanchnic nerve. The œsophagus, with the vagi, enters the left hole of the diaphragm opposite this vertebra. Part origin of the trapezius from its spinous process. Part origin of the latissimus dorsi from its spinous process. Part insertion of the longissimus dorsi into its transverse process. Part origin of the semispinalis dorsi from its transverse process. Inferior insertion of the spinalis dorsi into its spinous process. Part origin of the multifidus spinæ from its transverse, and Part insertion of the same into its spinous process. Interspinalis and interspinalis dorsi.

Tenth Dorsal Vertebra.

The tenth dorsal ganglion gives roots to form the lesser splanchnic nerve. The cardiac orifice of the stomach. Upper margin of the spleen. Inferior margin of the large lobe of the liver descends as low as the tenth rib. Part origin of the trapezius from its spinous process. Part origin of the latissimus dorsi from the same process. Part insertion of the longissimus dorsi into its transverse process.

Superior origin of the spinalis dorsi from its spinous process.

Inferior origin of the semispinalis dorsi from its transverse process.

Part origin of the multifidus spinæ from its transverse, and

Part insertion of the same into its spinous process.

Interspinalis and intertransversalis.

Eleventh Dorsal Vertebra.

Posterior hole of the diaphragm, through which pass the aorta, vena azygos, the thoracic duct, and the splanchnic nerves.

Renal capsules.

Cæliac artery and its branches—splenic, hepatic, and gastric.

Cæliac plexus of nerves.

Part origin of the trapezius from its spinous process.

Part origin of the latissimus dorsi from the same process.

Superior origin of the serratus posticus inferior from its spinous process.

Part insertion of the longissimus dorsi into its transverse process.

Part origin of the spinalis dorsi from its spinous process.

Part origin of the multifidus spinæ from its transverse, and

Part insertion of the same into its spinous process.

Interspinalis and intertransversalis.

Remarks.—If the large lobe of the liver exceed the margin of the tenth rib, it must be considered as morbidly enlarged. Such enlargement is not of unfrequent occurrence, and can easily be distinguished by its acute margin, and the notch between the large and small lobes. The eighth, ninth, tenth, and eleventh dorsal vertebrae, have the least muscular attachments, having only twenty each.

Twelfth Dorsal Vertebra.

The pancreas.

Superior mesenteric artery and plexus of nerves.

Superior extremity of the kidney.

Glisson's capsule will be found nearly on a line with this vertebra; it contains the vena portarum, hepatic artery, bile ducts, and the hepatic plexus of nerves, veins, and lymphatics.

Semilunar ganglion, formed by the splanchnics and eighth pair of nerves.

Attachment of the last rib.

Superior vertebral origin of the transversalis abdominis from its transverse process.

Superior vertebral insertion of the quadratus lumborum into the same.

Superior origin of the psoas parvus from its side.

Superior origin of the psoas magnus from its transverse process and side.

Inferior origin of the trapezius from its spinous process.

Part origin of the latissimus dorsi from the same process.

Part origin of the serratus posticus inferior from the same process.

Inferior insertion of the longissimus dorsi into its transverse process.

Part origin of the spinalis dorsi from its spinous process.

Part origin of the multifidus spinæ from its transverse, and

Part insertion of the same into its spinous process.

Interspinalis and intertransversalis.

Remarks.—Might not the watery fluid evacuated from the stomach in pyrosis be derived from the pancreas, and be thrown up precisely in the same manner as the bile? Both the ducts, choledochal and pancreatic, terminate at the same spot; and if bile be supplied and thrown up from the one, watery fluid may be from the other. This is the more probable, as in water-brash there is often pain felt in the back.

Pains felt between the scapulæ, in disordered functions of the assimilating organs, may be conveyed, through the medium of the splanchnic nerves, from their connection with the semi-lunar ganglia, &c.

First Lumbar Vertebra.

Superior attachment of the mesentery.

The duodenum and the termination of the biliary and pancreatic ducts into its second turn.

The receptaculum chyli.

Centre of the kidneys, or nearly so.

Renal vessels and plexus of nerves, from which is given off

The internal spermatic nerve.

Source of the ureters.

Right spermatic vein terminates in the cava.

Left spermatic vein in the left emulgent.

The flanks of the transverse arch of the colon rest upon the kidneys, which may be called the piers of the arch.

The first lumbar nerve gives the superior root to form the anterior crural nerve.

Part origin of the transversalis abdominis from its spinous process.

Superior origin of the crura of the diaphragm from its body.

Part insertion of the quadratus lumborum into its transverse process.

Part origin of the psoas parvus from its side.

Part origin of the psoas magnus from its side and transverse process.

Part origin of the latissimus dorsi from its spinous process.

Part origin of the serratus inferior posticus from the same.

Superior origin of the sacro-lumbalis from its spinous and transverse processes.

Superior origin of the longissimus dorsi from the same.

Part origin of the spinalis dorsi from its spinous process.

Part origin of the multifidus spinæ from its oblique and transverse, and

Part insertion of the same into its spinous process.

Interspinalis and intertransversalis.

Remarks.—Perhaps there is no symptom more commonly met with in practice than pain of the loins, which is usually and at once attributed to bile, gravel, or rheumatism; but as it may be also derived from other causes left out in a hasty decision, I shall enumerate them, and endeavour to point out the symptoms by which each may be distinguished.

Pain of the loins may be derived from the muscles, from the liver, from the duodenum, from the kidneys, from the colon, from the uterus, from the aorta, from the spine, or from matter collected on the psoas muscle independent of spinal disease.

In order to arrive at its true cause, we must endea-

your to ascertain what function is principally involved, which will at once lead us to it.

If the pain be rheumatic, it will be increased by pressure, and by the slightest action of the muscles affected. There will probably be also rheumatism in other parts of the body, the system will not evince much disorder, the urine will be high colored, and deposit a lateritious sediment.

If derived from the hepatic function, the pain will shoot upwards along the splanchnic nerves to the scapulæ; the alvine evacuations will be either deficient in, or exuberant with, bile; or show a morbid quality of that secretion; the urine will have a bilious tinge; there may be congestion of the hæmorrhoidal veins; and the spirits will be depressed.

If from the duodenal function, three or four hours after a meal the pain will be aggravated, shooting through towards the right side of the abdomen, and remaining till the food has passed into the jejunum. Dyspeptic symptoms will prevail, and there will frequently be painful pustules breaking out about the face. I have lately met with a case in which the boils were extremely annoying.

If from the kidneys, the pain will shoot down the course of the spermatic nerves towards the round ligament in the female, and towards the testis in the male, which will often be retracted by the action of the spermatic nerves upon the cremaster muscle. There will be more or less irritation communicated to the mucous membrane of the bladder. The urine also will be diagnostic in this instance; it may deposit mucus, calculous matter, blood, pus, or albumen, according to the nature of the case; or it may be otherwise morbid in its constitution.

If from the uterus, the pain of the back will arise either from disordered function or disease of that organ. In the former case the pain will be of a neuralgic character, will return in forcing paroxysms extending around the hips and hypogastric region, will be attended with hysteria, and often with increased quantity of the menstrual discharge. In the latter case the pain will be constant and severe, extending along the anterior crural nerve half way down the thighs. There will be a thin, offensive discharge from the vagina. The countenance will be wan and sallow, exhibiting the wear and tear of organic lesion.

If from the colon, there will be constipation, and inflation in the course of the bowel, or the fœcal discharges will be of small diameter, or there will be soreness of the intestine under pressure, especially at its ascending or descending portions, accompanied by mucus, or shreds of lymph in the form of boiled vermicelli, amongst the excretions.

If from arterial dilatation, an abnormal pulsation of the vessel involved—the aorta, for instance—may possibly be detected by auscultation in the incipient stage of the disease, *if such were suspected*; but in a large majority of cases such a cause may reasonably escape the attention of the ablest surgeon, from there being no tangible symptom that might lead him to suspect it; and even after the dilatation has considerably advanced, it may be sufficiently large to press upon and disturb the spermatic nerves, but not large enough to project and pulsate externally, and this may, at this stage, be confounded with disease of the renal function.

A few years ago I met with a case of this kind in a man of middle age. The pain had been constant and wearing, shooting from the loins down the course of the spermatic nerves, and for a considerable time was reasonably attributed to the renal function, especially as there had been constant disturbance of this function. At length the aneurysmal sac began to approach the surface, and then, of course, the cause became apparent.

If from disease of the spinal column, the pain will be aggravated by percussing the spinous processes at this part of the spine, or by suddenly striking the toes against an uneven surface. There will be involuntary action of the muscles, especially of the flexors of the legs, diminished temperature, abnormal feelings, and more or less loss of power of the lower limbs. Should there be at the same time any unnatural projection of the spinous processes, the disease will be confirmed.

If from a collection of matter upon the psoas muscle, unconnected with spinal disease, the pain will be continued, dull, and deep-seated, extending from the loins down the psoæ, or in whatever direction the matter may have taken its course. The pain will be aggravated by flexing the thigh towards the abdomen, and there will be difficulty in walking; moreover, there will be marks of a strumous habit, and more or less symptoms of hectic fever. Should any fluctuating tumor present at the groin, or at any other point where the matter may find its way out of the body, it will be conclusive as to the nature of the case.

Second Lumbar Vertebra.

Commencement of the cauda equina in the adult. In the child the spinal cord terminates at the twelfth dorsal vertebra.

The second lumbar nerve gives the superior root to the external cutaneous nerve.

The second lumbar gives the second root to form the anterior crural.

The external spermatic nerve takes origin from the second lumbar.

The second lumbar nerve gives the superior root to the obturator nerve.

Upon the body of this vertebra the lacteals unite to form the thoracic duct.

The inferior mesenteric artery is given off opposite this bone.

Mesentery attached also to it.

Part origin of the transversalis abdominis from its transverse process.

Part origin of the long crus of the diaphragm from its body.

Superior origin of the short crus from the same.

Part insertion of the quadratus lumborum into its transverse process.

Inferior origin of the psoas parvus from its side.

Part origin of the psoas magnus from its side and transverse process.

Part origin of the latissimus dorsi from its spinous process.

Part origin of the serratus posticus inferior from the same.

Part origin of the sacro-lumbalis from its spinous and transverse processes.

Part origin of the longissimus dorsi from the same processes.

Inferior origin of the spinalis dorsi from its spinous process.

Part origin of the multifidus spinæ from its oblique and transverse processes.

Part insertion of the same into its spinous process.

Interspinalis and intertransversalis.

Third Lumbar Vertebra.

The duodenum makes its last turn opposite this vertebra.

The third lumbar gives the third root to form the anterior crural nerve.

The third lumbar nerve gives also the second root to form the obturator nerve.

The inferior root of the external cutaneous nerve comes also from the third lumbar.

Inferior attachment of the mesentery.

Superior vertebral origin of the obliquus internus abdominis from its spinous process.

Part origin of the transversalis abdominis from its transverse process.

Part origin of the long crus of the diaphragm from its body.

Inferior origin of the short crus from the same.

Part insertion of the quadratus lumborum into its transverse process.

Part origin of the psoas magnus from its side and transverse process.

Part origin of the latissimus dorsi from its spinous process.

Inferior origin of the serratus inferior posticus from the same.

Part origin of the sacro-lumbalis from its transverse and spinous process.

Part origin of the longissimus dorsi from the same processes.

Part origin of the multifidus spinæ from its oblique and transverse, and

Part insertion of the same into its spinous process.

Interspinalis and intertransversalis.

Fourth Lumbar Vertebra.

The inferior extremity of the kidneys reach as low as this vertebra, and are sometimes united, forming what is called the horse-shoe kidney.

Cæcum begins, and the ilio-colic valves lie on about a line with this vertebra.

Bifurcation of the aorta.

Inferior cava formed by the union of the common iliac veins.

Inferior root of the anterior crural nerve is given off from the fourth lumbar.

The great sciatic nerve takes its superior root from the fourth lumbar.

The obturator nerve takes its inferior root from the same.

Part origin of the obliquus internus abdominis from its spinous process.

Inferior origin of the transversalis abdominis from its transverse process.

Inferior origin of the long crus of the diaphragm from its body.

Part insertion of the quadratus lumborum into its transverse process.

Part origin of the psoas magnus from its side and transverse process.

Part origin of the latissimus dorsi from its spinous process.

Part origin of the longissimus dorsi from its transverse and spinous process.

Part origin of the sacro-lumbalis from the same.

Part origin of the multifidus spinæ from its oblique and transverse, and

Part insertion of the same into its spinous process.

Interspinalis and intertransversalis.

Remarks.—In sciatica the neuralgic pain frequently ascends as high up as the loins, which may be explained by the sciatic nerve taking its superior origin from the fourth lumbar.

Fifth Lumbar Vertebra.

The second root to form the sciatic nerve superiorly comes off from the fifth lumbar.

The sigmoid flexure of the colon terminates in the rectum, which is attached to the body of this vertebra by the meso-rectum.

Inferior vertebral origin of the obliquus internus abdominis from its spinous process.

Inferior insertion of the quadratus lumborum into its transverse process.

Inferior origin of the psoas magnus from its transverse process and side.

Sole vertebral origin of the iliacus internus from its transverse process.

Inferior vertebral origin of the latissimus dorsi from its spinous process.

Inferior vertebral origin of the sacro-lumbalis from its transverse and spinous processes.

Inferior vertebral origin of the longissimus dorsi from the same

Inferior vertebral origin of the multifidus spinæ from its oblique and transverse processes.

Inferior insertion of the same into its spinous process.

Interspinalis and intertransversalis.

Remarks.—From the above statement it appears that the twenty four vertebræ give origin and insertion to forty pairs of muscles, having six hundred and sixty-four points of action; that the fifth and sixth cervical vertebræ have the greatest number of muscular attachments, each having forty; that the eighth, ninth, tenth, and eleventh dorsal have the least, each having twenty; and that the eighth dorsal vertebra gives no *primary* origin or *ultimate* insertion to any muscle.

CASE

OF

DROPSY OF THE CORD,

WITH ARREST OF DEVELOPMENT.

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[For the Provincial Medical Journal.]

I was called to Mrs G—, at ten, a.m., on Friday, February 2, in her eleventh accouchement. Labor was progressing satisfactorily, though the pains were deficient in power. Having attended her during her previous confinement, eighteen months before, she informed me she had been "*queerly carried on*" all the time of this pregnancy; in the tenth week she had severe flooding, and every four or six weeks subsequently, till within the last fortnight, the attack was repeated, which she supposed to be the catamenia; that on Tuesday night (January 30), "*the waters broke, and had gone from her ever*