

РЕФЕРАТИ СТАТЕЙ, ОПУБЛІКОВАНИХ У ЖУРНАЛІ “SURGICAL AND RADIOLOGIC ANATOMY (JOURNAL OF CLINICAL ANATOMY)”.
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Nano M., Dal Corso H., Ferronato M., Solej M., Hornung J.P. Can intestinal innervation be preserved in pancreatoduodenectomy for cancer? Results of an anatomical study (Чи може бути збережена кишкова іннервація під час панкреатодуоденектомії з приводу раку? Результати анатомічного дослідження) // Surg. and Radiol. Anat. – 2003. – V. 25, № 1. – P. 1-5.

Twenty dissections were carried out, in all of which the splanchnic nerves, celiac plexuses, capital pancreatic plexus and superior mesenteric plexus were identified and traced. The capital pancreatic plexus was formed from two bundles, the first taking its origin from the right celiac plexus, the second from the superior mesenteric plexus. These two bundles joined together just behind the head of the pancreas. Two preganglionic bundles, a ganglion and two postganglionic bundles composed the superior mesenteric plexus. Postganglionic bundles received fibers from both right and left celiac plexuses. In small cancers a thin layer of nervous tissue around the superior mesenteric artery might be spared in order to avoid diarrhea from intestinal denervation. This study has provided anatomical evidence that a part of the mesenteric plexus, which receives fibers from both left and right celiac plexuses, maintains a sufficient intestinal innervation.

Mauroy B., Demondion X., Drizenko A., Goulet E., Bonnal J.-L., Biserte J., Abbou C. The inferior hypogastric plexus (pelvic plexus): its importance in neural preservation techniques (Нижнє підчеревне сплетення (тазове сплетення): його важливість у хірургічних заходах по збереженню нервів) // Surg. and Radiol. Anat. – 2003. – V. 25, № 1. – P. 6-15.

The progress in the surgery of male neurological cancers relies on the anatomico-surgical approach to the pelvic neural structures. The objective of our study was to provide a better understanding of the inferior hypogastric plexus (IHP) and its anatomical relationships in order to spare it during radical prostatectomy. Fifteen male formalin-preserved cadavers which had no sub-umbilical scar were used. In five subjects, the superior hypogastric plexus (SHP) and the presacral plexus were displayed then the IHP and its sacral afferents (pelvic splanchnic nerves or erector nerves of Eckhardt)

were dissected out. Serial sections of the IHP were then studied in ten subjects. This allowed its identification on certain imaging sections obtained in pelvic tumor pathology and these made up the "reference cuts". The IHP lies within a fibro-fatty plate which is flat, rectangular, sub-peritoneal, sagittal and symmetrical. It arises at the level of the intersection between the vas deferens and the terminal pelvic ureter and follows the postero-lateral aspect and circumvolutions of the seminal vesicle, with which there is a plane of surgical cleavage. The seminal vesicle is, therefore, an essential landmark for this neural structure. The plane of this cleavage may be used in pelvic cancer surgery. The safest technical means of respecting sexual function and the integrity of the IHP is to keep it at a distance. The preservation of a lateral layer of the seminal vesicle is probably a method of limiting these complications as long as this does not conflict with the oncological clearance. An irregular communicating branch was found in one of five cases between the IHP, the sacral plexus and the pudendal nerve. This communicating branch lay immediately behind the intersection between the vas deferens and the ureter in the sacral concavity. It overhangs the IHP in the seminal vesicle. Impotence remains a frequent complication after radical prostatectomy. The methods of neural preservation at the prostatic apex are known but neural preservation should also be carried out posteriorly at the lateral pole of the seminal vesicle. The possibility of posterior neural preservation may be assessed preoperatively by study of the "reference sections". The cleavage plane between the seminal vesicle and the IHP may be used intra-operatively to spare the IHP. The cavernous nerve in particular emerges at the antero-inferior border of the IHP before running along the postero-lateral aspect of the prostate. It therefore passes in contact with the seminal vesicle and may as a result be injured during radical prostatectomy with vesiculectomy. A proximal communicating branch between the IHP and the pudendal nerve is irregular. Such communicating branches may explain a better recovery of sexual function in curative neurological cancer surgery. The essential relationship of the IHP is with the seminal vesicle. The two are in tight contact and the seminal vesicle has a true plane of surgical cleavage with IHP. The risk of injuries to the posterior erectile

mechanisms can be reduced either by using the cleavage plane between the IHP and seminal vesicle or by leaving a layer of the seminal vesicle when the oncological conditions allow. During celio-surgery, the operator must be careful to retract the little bands of the seminal vesicle and divide the fibrous and vascular tracts which tighten during this maneuver. During an abdominal approach, dissection of the seminal vesicle takes place at the bottom of a real pit. The operator must carry out the division leaving a layer of the seminal vesicle in place rather than trying to extract all the seminal vesicle by placing the forceps blindly. This maneuver is naturally dependent on the oncological situation. The anatomical confirmation of a regular or irregular proximal or distal communicating branch between the IHP and the pudendal nerve is probably an explanation for the sometimes uncertain results of new techniques of neural preservation in curative cancer surgery.

Shafik A., Mostafa R.M., Shafik A.A., Ahmed I. Study of the functional activity of the cecocolonic junction with identification of a "physiologic sphincter", "cecocolonic inhibitory reflex" and "colocecal excitatory reflex" (*Вивчення функціональної діяльності сполучення сліпої та ободової кишок з розпізнанням "фізіологічного сфінктера", "сліпокишково-ободовий гальмівний рефлекс" та "ободово-сліпокишковий збуджувальний рефлекс"*) // **Surg. and Radiol. Anat.** – V. 25, № 1. – P. 16-20.

Radiologic, endoscopic and histomorphologic studies have suggested the presence of a sphincter at the cecocolonic junction (CCJ), while some investigators have denied its existence. To investigate the physiologic activity at the CCJ, the right colon was exposed during right hemicolectomy for early colonic cancer in 11 patients (mean age 43.6±12.3 years; 8 men). Three manometric catheters were introduced through colotomy to be separately located in the cecum, CCJ and ascending colon. We determined the CCJ pressure response to cecal and colonic distension by means of a balloon filled with saline in increments of 10 ml. The test was repeated after individual anesthetization of cecum, CCJ and ascending colon. The CCJ measured 1.6±0.6 cm in length and had a higher pressure ($p<0.05$) than the cecum or colon. Large-volume cecal distension effected a significant CCJ pressure reduction which was augmented as the distension increased. Latency decreased upon increase of the distending volume. In contrast, the CCJ responded to large-volume colonic distension by pressure elevation which increased upon increase of the distending volume. Latency diminished with increased distension.

Small-volume cecal or colonic distension effected no CCJ pressure response. The anesthetized CCJ did not respond to distension of the cecum or colon. Likewise, the CCJ did not exhibit a pressure response to distension of the anesthetized cecum or colon. The CCJ is a high-pressure zone which reacts to cecal or colonic distension by dilatation or narrowing, respectively. These data presumably denote the existence of a physiologic sphincter at the CCJ. We suggest that the CCJ pressure response to cecal or colonic distension is reflex and mediated through the cecocolonic inhibitory and colocecal excitatory reflexes, respectively. The role of the CCJ and related reflexes in colonic motility disorders needs to be studied.

Hounnou G.M., Uhl J.F., Plaisant O., Delmas V. Morphometry by computerized three-dimensional reconstruction of the hypogastric plexus of a human fetus (*Морфометрія за допомогою комп'ютерної тримірної реконструкції підчеревного сплетення плода людини*) // **Surg. and Radiol. Anat.** – 2003. – V. 25, № 1. – P. 21-31.

The histological study of the plexus hypogastricus inferior (hypogastric plexus) of a human fetus does not permit the direct appreciation of its spatial configuration and its complicated relations. Developments in the field of computer science and three-dimensional (3D) reconstruction from serial histological sections have allowed a precise description of its morphometry and relations. The histological sections which were used came from the "Rouviere" collection of the Institute of Anatomy in Paris. A personal computer (IMAC) system of image analysis with reconstruction software was used. Serial pelvic histological sections were directly digitized from the slides. Image treatment and reconstruction were done with manual methods. The 3D reconstruction of the hypogastric plexus, the nerves, the pelvic skeleton and viscera were done. The hypogastric plexus and its topographic relations with the other organs were visualized and studied in three dimensions, and its morphometry was studied. The direct acquisition of the images from the slides allowed excellent high-quality digital images to be obtained. However, manual processing for the reconstruction was time-consuming. At first, the reconstruction of the various pelvic structures was done separately for each organ. Then the structures were visualized all together. Thus, the hypogastric plexus could be examined under various incidences with each organ. The virtual images obtained show new details of the topographic relations and improve knowledge of the precise innervation of the pelvic organs.

Okiemy G., Foucault C., Avisse C., Hidden G., Riquet M. Lymphatic drainage of the diaphragmatic pleura to the peritracheobronchial lymph nodes (*Лімфовідтік від діафрагмальної плеври до перитрахеобронхіальних лімфатичних вузлів*) // *Surg. and Radiol. Anat.* – 2003. – V. 25, № 1. – P. 32-35.

Non-small cell lung cancer invading the visceral pleura is characterized by a particular richness of mediastinal lymph node (LN) metastases. This may be due to subpleural lymphatic drainage of tumor cells. The aim of this study was to determine mediastinal LN lymphatic drainage from the diaphragmatic pleura. Subpleural lymphatics of 30 adult cadavers and 12 fetuses were injected with a modified Gerota's medium to permit lymph vessels and nodes to be visualized and then dissected. Each stage of the dissection was described and photographed. In 32 cadavers mediastinal visceral LN chains were injected, of which 29 originated from the mediolateral portion of the diaphragm. On the right, injections (n=16) demonstrated lymph vessels (n=20) ascending directly along the inferior pulmonary ligaments (n=8) or after having encircled the inferior vena cava (n=8), and lymph vessels passing between the pulmonary veins (n=4); all these lymphatics were connected to the intertracheobronchial nodes and some ascended along the tracheobronchial LN chains in the upper mediastinum. On the left, injections (n=13) demonstrated lymph vessels (n=16) ascending along the inferior pulmonary ligament (n=5) or along the esophagus (n=11) and connecting to the intertracheo-bronchial nodes, some of which ascended further in the upper mediastinum (left paratracheobronchial LN chain). These mediastinal LN chains are the same as those that receive lymph from the pulmonary segments. Lymphatic drainage of the diaphragmatic pleura may add to that of the lung involved in cancer and potentially increases lymphatic spread of tumor cells.

Gupta V., Tuli A., Choudhry R., Agarwal S., Mangal A. Facial vein draining into external jugular vein in humans: its variations, phylogenetic retention and clinical relevance (*Лицева вена, яка впадає в зовнішню яремну вену у людей: її варіанти, філогенетична затримка та клінічне значення*) // *Surg. and Radiol. Anat.* – 2003. – V. 25, № 1. – P. 36-41.

The superficial veins, especially the external jugular vein (EJV), are increasingly being utilized for cannulation to conduct diagnostic procedures or intra-venous therapies. Ultrasound-guided venipuncture is a viable possibility in cases of variations in the patterns of superficial veins, and their knowledge is also important for surgeons doing reconstructive

surgery. This study was done on 89 dissected adult cadavers (178 sides) and variations in patterns of termination of the facial vein (FV) into the EJV were studied. The FV in 16 sides (9%) was found to drain into the EJV, in two main patterns: type I and type II. Type I had the FV draining into the EJV with varying degrees of obliquity in a Y-shaped (6 cases, 37.5%), U-shaped (3 cases, 18.7%), tuning-fork-shaped (2 cases, 12.5%) or N-shaped (1 case, 6.2%) pattern. Type II showed an inverted A-shaped pattern (2 cases, 12.5%) or a stepladder-shaped pattern (2 cases, 12.5%) depending on the presence of one or more connecting conduits between the FV and EJV respectively. In *Macaca mulatta* (rhesus monkey) a pair of vertically disposed, subcutaneous veins placed nearly side by side and of equal caliber were seen on each side of the neck. The lateral vein was the EJV while the medial one took the course of the FV in the upper oblique segment and ran parallel to the EJV in the lower segment over the sternocleidomastoid, with one or two transverse communications. The anomalous patterns found in our study could be explained in terms of the regression and retention of various parts of the veins found in the rhesus monkey, or the drainage pattern found in horse, ox and dog, where the vein from the face drain into the external jugular vein, the internal jugular vein being either absent or a small vessel accompanying the carotid artery.

Futami C., Tanuina K., Tanuma Y., Saito T. The arterial blood supply of the conducting system in normal human hearts (*Артеріальне кровопостачання провідної системи нормально-го серця людини*) // *Surg. and Radiol. Anat.* – 2003. – V. 25, № 1. – P. 42-49.

The distributing artery of the conducting system of the heart is occasionally injured in cardiac surgery. The aim of this study was to define the anatomic characteristics of the principal arterial source of the sinoatrial node and atrioventricular node. Furthermore, the morphology of the tendon of Todaro was clarified. Thirty hearts were studied by gross anatomic methods, and the exact area of the conducting system was supported by histologic observations of four hearts. The sinoatrial node was supplied by the right coronary artery more frequently (73% of cases) than by the left (3%), and in 23% of cases this node was supplied by both coronary arteries. The atrioventricular node was supplied by the right coronary artery (80% of cases) more than by the left (10%), and in 10% of the cases this node was supplied by both coronary arteries. The atrioventricular bundle branch arose from the right coronary artery in 10% of cases, the left coronary artery in 73%, and both coronary arteries in 17%.

Most of the blood to the right bundle (the moderator band) was supplied by the interventricular septal branches of the anterior interventricular branch from the left coronary artery. Finally, all the arteries of the right bundle and left bundle were defined to be derived from left coronary arteries.

Yilmazlar S., Ikiz I., Kocaeli H., Tekdemir I., Adim S.B. Details of fibroligamentous structures in the cervical unco-vertebral region: an obscure corner (*Деталі фіброзно-зв'язкових структур у шийній ділянці хребта*) // **Surg. and Radiol. Anat.** – 2003. – V. 25, № 1. – P. 50-53.

Vertebral bone, joints and ligaments on the cervical spine are structures that maintain the stability of the spine and protect the neurovascular structures. Determining the detailed anatomical location of the inter-vertebral foramen and unco-vertebral (UV) region with respect to the vertebral bone, joint and ligaments is critical when choosing the safest surgical approach to the cervical spine. We studied the microscopic detailed anatomy of the dural covering and posterior longitudinal ligament (PLL) in eight cadaver specimens and the relevance of these structures in the UV region from C4 to C7. The uncinat process (UP) and its covering ligaments are mechanical barriers that prevent the nerve root and the vertebral artery against unintentional surgical damage. Dissection at the posterolateral surface of the UP revealed a separate perivascular fibroligamentous tissue (PVFLT) that originates from the PLL. The recognition of the PVFLT may provide for safe surgery by protecting the neural and vascular structures during decompression in the UV region.

Bozkir M.G., Karakas P., Oguz O. Measurements of soft tissue orbits in Turkish young adults (*Вимірювання м'яких тканин очноямкової ділянки молодих дорослих турків*) // **Surg. and Radiol. Anat.** – 2003. – V. 25, № 1. – P. 54-57.

The present study was undertaken to determine the normal values of the intercanthal distance, biocular distance, interpupillary distance and palpebral fissure length and height for the Turkish population. These measurements were taken from 500 (272 females, 228 males) healthy young adults aged 18-25 years. The measurements were made with a millimetric compass. The mean values of intercanthal distance, biocular distance, interpupillary distance, right palpebral fissure length and palpebral fissure height were 30.7±3.0 mm, 95.9±6.0 mm, 63.9±3.6 mm, 32.6±2.4 mm and 10.3±1.6 mm respectively in males. In females the equivalent values were 30.0±2.6 mm, 92.0±5.4 mm, 60.8±3.2 mm, 31.0±2.4 mm and 10.4±1.5 mm respectively.

Feipel V., Simonnet M.L., Rooze M. The proximal attachments of the popliteus muscle: a quantitative study and clinical significance (*Проксимальні прикріплення підколінного м'яза: кількісне дослідження та клінічне значення*) // **Surg. and Radiol. Anat.** – 2003. – V. 25, № 1. – P. 58-63.

Controversies about the existence of accessory proximal popliteus muscle attachments can be found in the literature. The aim of this study was to verify the occurrence and width of popliteus attachments on the articular and periarticular structures of the knee joint. The relation of these attachments to tibiofemoral cartilage and meniscus degeneration was also investigated. Forty-two anatomical specimens were dissected. The incidence of accessory proximal attachments was determined and their width measured using a caliper. The fibular attachment of the popliteus was observed in 98% of cases; its mean width was 11 (SD 3) mm. At least one attachment on the lateral meniscus was found in 95% of the specimens, with a mean width of 6 (SD 2) mm. Three types of meniscal attachments of the popliteus could be identified. The severity of meniscus and tibiofemoral cartilage alterations was significantly related to the number of meniscopopliteal fascicles: more severe alterations were seen in knees with fewer meniscopopliteal fascicles. Popliteus attachments on the posterior knee joint capsule (57%), arcuate (90%) and oblique popliteal (79%) ligaments were also observed in most specimens. Popliteus muscle relationships with the posterior cruciate (5%) and meniscofemoral (33%) ligament were less common. In conclusion, accessory popliteus attachments on the fibula, lateral meniscus and arcuate popliteal ligament can be considered constant characteristics. The results of this study suggest a role of the popliteus in the protection of knee menisci and tibiofemoral cartilage.

Aube C., Hentati N., Tanguy J.Y., Fournier H.D., Papon X., Lebigot J., Mercier P. Radio-anatomic study of the pancreatic duct by MR cholangiopancreatography (*Променево-анатомічне дослідження протоки підшлункової залози за допомогою магнітнорезонансної холангіопанкреатографії*) // **Surg. and Radiol. Anat.** – 2003. – V. 25, № 1. – P. 64-69.

To compare the performance of MR-cholangiopancreatography (MRCP) and that of classical anatomy in the depiction of the main pancreatic duct, 50 MRCP examinations were done in patients free of pancreatic disease. Axial and coronal sections 20 mm thick were obtained in a Single Shot Fast Spin Echo (SSFSE) sequence. The following were analyzed: (1) visibility of pancreatic duct structures, (2) form of the

main pancreatic duct, (3) various angulations of the duct and (4) diameter of the duct. Anatomic variants were noted. These findings were compared with anatomic and radio-anatomic (ERCP) data in the literature. The main pancreatic duct was visualized in 100% of cases and the accessory pancreatic duct in 61%. The form, diameter and angulations of the various segments of the pancreatic duct were similar to those reported in the literature. These findings are reported in the axial and coronal planes. Comparison with major anatomic classifications was not possible. MRCP enables in vivo anatomic exploration of the main pancreatic duct. Horizontal sections provided new radio-anatomic information. The technique nevertheless remains limited by poor spatial resolution.

Schiffmann L., Kruschewski M., Wacker F., Buhr H.J. Persistent left superior vena cava: a reason for pseudodisplacement of a port catheter (Додаткова ліва верхня порожниста вена: причина для псевдозміщення портального катетера) // *Surg. and Radiol. Anat.* – 2003. – V. 25, № 1. – P. 70-72.

Port catheters have been increasingly used in recent years. Using one case as an example, we de-

monstrate how an anatomic variation can easily become a pitfall when inserting a central venous catheter, port catheter, pacemaker or Swan-Ganz catheter. We report a case of persistent left superior vena cava, the most common variation in the thoracic venous system. Since these procedures are increasingly being performed, surgeons, anesthesiologists and radiologists should be aware of the possible anatomic variations.

Fabie F., Brouchet A., Accadbled F., Verhaegue L., Sales de Gauzy J., Cahuzac J.P. Does the meniscus exist in the elbow joint in children? (Чи існує меніск у ліктьовому суглобі у дітей?) // *Surg. and Radiol. Anat.* – 2003. – V. 25, № 1. – P. 73-75.

The authors report a case of meniscus at the elbow joint in a 15-month-old infant causing a limitation of elbow extension. Histological examination demonstrated that this tissue was not a synovial fold or a chondroid metaplasia of the synovial fold. As a meniscus does not appear at any stage of the embryological evolution of the elbow joint, it has been concluded that the presence of the meniscus can be considered as an abnormal condition.

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