

ISSN 2509-4327 (print)  
ISSN 2510-4780 (online)

Inter  
**GING**



# Deutscher Wissenschaftsherold German Science Herald

**№ 4/2017**

*Die Zeitschrift „Deutscher Wissenschaftsherold“ ist eine Veröffentlichung mit dem Ziel ein breites Spektrum der Wissenschaft allgemeinverständlich darzustellen. Die Redaktionsleitung versteht sich als Vermittler zwischen Wissenschaftlern und Lesern. Durch die populärwissenschaftliche Bearbeitung wird es möglich unseren Lesern neue wissenschaftliche Leistungen am besten und vollständigsten zu vermitteln. Es werden Untersuchungen, Analysen, Vorlesungen, kurze Berichte und aktuelle Fragen der modernen Wissenschaft veröffentlicht.*

## Impressum

Deutscher Wissenschaftsherold – German Science Herald

Wissenschaftliche Zeitschrift

Herausgeber:

InterGING

Sonnenbrink 20

31789 Hameln, Germany

Inhaber: Marina Kisiliuk

Tel.: + 49 51519191533

Fax.: + 49 5151 919 2560

Email: [info@dwherold.de](mailto:info@dwherold.de)

Internet: [www.dwherold.de](http://www.dwherold.de)

**Chefredakteur/Editor-in-chief:**

Marina Kisiliuk

**Korrektur:**

O. Champela

**Gestaltung:**

N. Gavrilets

Auflage: № 4/2017 (September) – 30

Redaktionsschluss September, 2017

Erscheint vierteljährlich

**Editorial office:** InterGING

Sonnenbrink 20

31789 Hameln, Germany

Tel.: + 49 51519191533

Fax.: + 49 5151 919 2560

Email: [info@dwherold.de](mailto:info@dwherold.de)

Deutscher Wissenschaftsherold - German Science

Herald is an international, German/English language, peer-reviewed, quarterly published journal.

№ 4/2017

Passed in press in September 2017

**Druck:** WIRMachenDRUCK GmbH

Mühlbachstr. 7

71522 Backnang

Deutschland

Der Abdruck, auch auszugsweise, ist nur mit ausdrücklicher Genehmigung der InterGING gestattet. Die Meinung der Redaktion oder des Herausgebers kann mit der Meinung der Autoren nicht übereinstimmen. Verantwortung für die Inhalte übernehmen die Autoren des jeweiligen Artikels.

**INDEXING: Google Scholar, WorldCat, Index Copernicus, InfoBase Index, Journal Index, Citefactor, International Scientific Indexing, JIFACTOR, Scientific Indexing Services, International Institute of Organized Research.**



**JIFACTOR**



**CiteFactor**  
Academic Scientific Journals



**Scientific Indexing Services**



**INTERNATIONAL**  
Scientific Indexing



**MIAR**

<http://miar.ub.edu/issn/2509-4327>

© InterGING

© Deutscher Wissenschaftsherold – German Science Herald

## REDAKTIONSKOLLEGIUM / INTERNATIONAL EDITORIAL BOARD:

**Jurga Bernatoniene**, Dr., Prof.  
Physics Lithuania  
*jurgabernatoniene@yahoo.com*

**Arvidas Galdikas**, Dr. habil., professor  
Physics Lithuania,  
*arvidas.galdikas@ktu.lt*

**Kristina Ramanauskienė**, Ph.dr., Prof.  
Pharmacy, Lithuania  
*kristinaraman@gmail.com*

**Khpaliuk Alexander**, Dr. med. habil., Prof.  
Pharmakologie, Belarus  
*clinicfarm@bsmu.by*

**Arnold M. Gegechkori**, Dr., full Prof.  
Biology, Georgia  
*arngegechkori@yahoo.com*

**Omari Mukbaniani**, Prof., DSc.  
Chemistry, Georgia  
*omar.mukbaniani@tsu.ge*

**Teimuraz Lezhava**, Prof.  
Genetics, Georgia  
*teimuraz.lezhava@tsu.ge*

**Shota A. Samsoniya**, Prof.  
Chemistry, Georgia  
*shota.samsonia@tsu.ge*

**Mdzinarashvili Tamaz**, DSc., Prof.  
Biophysics, Georgia  
*tamaz.mdzinarashvili@tsu.ge*

**Aliaksandr V.Prokharau**, MD, PhD, MSc Prof.  
Oncology, Belarus  
*aprokharau@gmail.com*

**Pyrochkin V.**, MD, PhD, MSc Prof.  
Theraphy, Belarus  
*wlad\_cor@mail.ru*

**Golubev A.P.**, BD, Prof.  
Ecology, Belarus  
*algiv@rambler.ru*

**Makarevich A.**, MD, PhD, Prof.  
Theraphy, Belarus  
*makae@bsmu.by*

**Kanunnincova N.**, BD, Prof.  
Physiology, Belarus  
*n.kanunnikova@grsu.by*

**Giedrius Vanagas**, Prof.  
Internal Medicine, Lithuania  
*Giedrius.Vanagas@lsmuni.lt*

**Armuntas Baginskas**, Prof.  
Neurofiziologija, Lithuania  
*Armuntas.Baginskas@lsmuni.lt*

**Ricardas Radisauskas**, MD., Ph.D., Prof.  
Cardiology, Lithuania  
*Ricardas.Radisauskas@lsmuni.lt*

**Meyramov Gabit**, Prof.  
Cytology and Histology, Kazakhstan  
*meyramow@mail.ru*

**Aisha Mohammed Abd al-salam Shahlol**  
Ph.D. in Medical Bacteriology, Libya  
*Ais.shahlol@sebhau.edu.ly*

**Edmundas Kadusevicius**, MD, PharmD, PhD, Prof.  
Pharmacology, Lithuania  
*Edmundas.Kadusevicius@lsmuni.lt*

**Ivo Grabchev**, Prof., PhD.  
Chemistry, Bulgaria  
*i.grabchev@chem.uni-sofia.bg*  
*grabchev@mail.bg*

**Mariyana Ivanova Lyubenova**, Prof., PhD.  
Ecology, Bulgaria  
*ryann@abv.bg*  
*ryana\_1@yahoo.com*

**Tsvetanka Tsankova Marinova**, MD, PhD, DMedSci,  
Biologv. Bulgaria  
*tmarinova@yahoo.com*

**Evgueni D. Ananiev**, Prof PhD,  
Biology. Bulgaria  
*evgueni\_ananiev@yahoo.com*

**Plamen G. Mitov**, Prof., PhD.  
Biology, Bulgaria  
*mitovplamen@gmail.com*

**Atanas Dimov Arnaudov**, Ph.D.  
Physiology, Bulgaria  
*arny87@yahoo.co.uk*

**Iliana Georgieva Velcheva**, PhD,  
Ecology, Bulgaria  
*anivel@abv.bg*

**Osman Demirhan**, Prof.  
Biology, Turkey  
*osdemir@cu.edu.tr*

**Jharna Ray**, M. Sc., PhD, Prof.  
Neurogenetics, India  
*Indijharnaray@gmail.com*

**Marián Halás** doc. RNDr, Ph.D.  
Human geography, Czech  
*marian.halas@upol.cz*

**Ayfer Pazarbasi** Prof.Dr.  
Biology, Turkey  
*payfer@cu.edu.tr*

**Tusharkanti Ghosh** Prof.  
Physiology, India  
*tusharkantighosh53@yahoo.in*

**Khudaverdi Gambarov Gambarov**, Prof.  
Microbiology, Azerbaijan  
*khuda1949@mail.ru*

**Rovshan Ibrahimkhalil Khalilov**, Prof.  
Biophysics, Azerbaijan  
*hrovshan@hotmail.com*

**Svitlana Antonyuk**, Dr.phil.  
Stony Brook University, USA  
Linguistics

**Samuel M.Johnson**, Prof.Dr.phil.  
Theology, Wells, Maine, USA  
*djtjohnson@earthlink.net*

**Satanovsky Leon** MD/PhD.  
Perio-odontologie, Israel  
*satleonid@gmail.com*

Lists of references are given according to the Vancouver style

**Kavun M.P.**

*M.G. Turkevich Department of Human Anatomy, Higher State Educational Establishment of Ukraine "Bukovinian State Medical University", Chernivtsi, Ukraine, kovalskan@ukr.net*

## MORPHOGENESIS OF THE HEPATIC-DUODENUM LIGAMENT IN EARLY ONTOGENESIS OF THE HUMAN

**Abstract.** *With the help of a set of morphological methods, the sources of hepatic-duodenal ligament formation (HDL) have been determined. It has been established that the formation of HDL occurs through the process of gradual transformation of the ventral mesentery of the embryo, namely, its transition from the sagittal plane to the frontal one, starting from the sixth week of intrauterine development and until the end of the embryonic period. The dynamics of morphological changes in the structure of the aforementioned ligament and its components (bile ducts, arteries and veins) in the embryonic and pre-fetal period of human ontogenesis was also studied. With the help of a complex of modern morphological techniques, their correlation relationships have been established with the purpose of determining the time and morphological prerequisites for the occurrence of structural variants and developmental defects of the above-mentioned formations.*

**Key words:** *hepatic-duodenal ligament, bile ducts, hepatic artery, portal vein of the liver.*

**Introduction.** Morphological studies of the nasal region, at whatever structural level they are not conducted, are aimed at revealing the mechanisms and pathogenesis of diseases and searching for effective methods of treatment. The study of the nasal septum is of practical value, since developmental defects that require surgical correction, elimination of polyposis growths of its mucous membrane, treatment of chronic bleeding, posttraumatic lesions are often encountered here. One of the conditions for the successful resolution of these problems is a thorough study of the anatomical features of the nasal septum at each stage of development [1-3]. The question of the causes of deflection of the nasal septum now is the point of wide discussions among scientists in the pages of the scientific literature. But all the published interpretations remain fragmented, scattered and incomplete. [4].

**The objective of the study.** To study the morphological features of the nasal septum in childhood and to investigate possible variants of its structural organization.

**Materials and methods.** 20 biological preparations and organocomplexes of the nasal area of childhood were investigated by methods of regular and fine preparation with the help of the MBS-10 microscope, the topographic anatomical sections, X-ray and morphometry.

**Results and discussion.** During the early childhood, the forming processes of the nasal septum continue. In the perpendicular plate of the latticed bone, the gradual replacement of the cartilaginous tissue by the bone begins. In the process of growth, the anteroposterior size of the vomer exceeds the vertical one. The thickness of the vomer is almost unchanged.

During the study of preparations of young children (the period from one to three years) it was established that the cartilaginous part of the nasal septum forms a homogeneous cartilaginous tissue, it is not possible to macroscopically distinguish the cartilage of the nasal septum from the perpendicular plate of the latticed bone in this age period. The bony part of the nasal septum is formed by the vomer, which is represented by a homogeneous plate. At the posterior margin of the plate the wings are more pronounced, which adhere to the body of the sphenoid bone. Anteroposterior size of the vomer exceeds  $30.2 \pm 0.6$  mm, vertical  $11.2 \pm 0.13$  mm.

Anteroposterior size of nasal septum in infants is  $39.0 \pm 0.5$  mm, maximum vertical dimension is  $24.0 \pm 0.4$  mm. The thickness of the cartilaginous plate of the nasal septum is  $2.4 \pm 0.05$  mm, and together with the mucosa it is  $3.2 \pm 0.13$  mm. On 8 preparations (30%) in the anterior section of the nasal septum a blind canal was found, which is the organ of Jacobson.

During early childhood (4-7 years), the vomer of the cartilage of the nasal septum approaches the quadrangular. The perpendicular plate of the latticed bone is already 85-90% represented by bone tissue. The cartilaginous tissue (growth site) is located at the junction of the lower edge of the perpendicular plate of the latticed bone and the cartilage of the nasal septum with the upper edge of the vomer.

In the period of late childhood (8-12 years) there is a complete ossification of the perpendicular plate of the latticed bone. At the junction of the perpendicular plate and cartilage of the nasal septum with the upper edge of the couch, a segment of growth still remains. There are more intensive changes in the shape and size of the nasal septum as a whole. Its cartilage already has an irregular quadrangular shape.

The mucous membrane that lines the nasal cavity is covered with a high, multi-rowed cylindrical epithelium, in which cilia are well expressed. In the respiratory region of the nucleus its cells form 3-4 rows, and in the olfactory region 4-5. The thickness of the epithelium, in comparison with the previous age period, does not change.

The contours of the glands become more distinct. The diameter of the vessels of the anterior and posterior trellis arteries ranges from 0.28 to 0.38 mm. The number of branches of the second order is 2 (lateral and medial), branches of the third order - from 5 to 7. The diameter of the latter is 0,08 - 0,1 mm. The pterigo-palatine artery in 6 cases (20%) had 4, in two (5%) - 3 and in 5 (15%) - 2 posterior lateral nasal branches. Their diameter varies from 0.36 to 0.4 mm. They branch, mainly in the area of the lower and middle nasal conchaes and the corresponding nasal passages, where they form loops of various shapes and sizes.

The diameter of the posterior artery of the nasal septum is 0.3 - 0.6 mm. It is divided into branches of the second order (lower and upper).

In the study of nerves, it was found that the medial superior posterior nasal branches penetrate into the posterior sections of the nasal septum, which begin from the wing-palatal node and manifest in its mucosa. The nasopharyngeal nerve passes in the descending direction, branches into large branches in the mucosa of the nasal septum. All the main nerve trunks 0.46-0.5

mm in diameter are located in the deep layer of the mucous membrane, where they are distributed into the secondary and tertiary branches. In places of thickening of the mucous membrane, the nerve fibers almost perpendicularly pass through the epithelial lining.

Topographically, the most superficial are the glands and a small mesh of vessels, then the nerves and vessels of the middle caliber and the deepest are the large trunks of nerves and vessels.

**Conclusion.** Formation of the nasal septum begins in the early period. At the end of early childhood, it is a homogeneous cartilaginous tissue, which is supplemented by a bone shaving. The ossification of the perpendicular plate of the latticed bone ends in the period of late childhood.

The mucous membrane is lined with a high cylindrical ciliated epithelium.

During development, the greatest concentration of blood vessels is in the anterior part of the nasal septum.

**Perspectives for further research.** It is planned to investigate the features of the nasal septum in mature and elderly periods of a human.

#### **References:**

1. Molmenti EP, Pinto PA, Klein AS. Normal and variant arterial supply of the liver and gallbladder. *Pediatr Transplantation*. 2003;7:80-2.
2. Minkov IP. Monitoring vrozhdennyh porokov razvitija, ih prenatal'naja diagnostika, rol' v patologii u detej i puti profilaktiki. *Perinatol ta pediatrija*. 2000;(1):8-13.
3. Kulakov VI, Baharev VA, Fanchenko ND. Sovremennye vozmozhnosti i perspektivy vnutriutrobnogo obsledovanija ploda. *Ross med zh*. 2002;(5):3-6.
4. Karaliotas CCh, Broelsch CE, Habib NA. Liver and biliary tract surgery: embryological anatomy to 3D-imaging and transplant innovations. Wien: Springer-Verlag; 2006. 640 p.
5. Ahtemijchuk JuT. Aktual'nist' naukovih doslidzhen' u galuzi perinatal'noi anatomii. *Neonatologija, hirurgija ta perinatal'na medicina*. 2012;3(1):15-21.
6. Kulakov VI, Isakov JuF, Kucherov Jul. Prenatal'naja diagnostika i lechenie vrozhdennyh porokov razvitija na sovremennom jetape. *Ros vestn perinatol i pediatrii*. 2006;51(6):63-5.
7. Aubrey Milunsky MB, Milunsky MJ. Genetic disorders in the fetus, diagnosis, prevention and treatment. 6th ed. 2009:1120-28.

## CONTENT:

Galagdina A.A., Dmytrenko R.R., Bambuliak A.V. Diagnostics of ischemic-reperfusion damage of the brain in rats afflicted with diabetes mellitus	3
Guranych S.P., Voronych-Semchenko N.M., Guranych T.V. Macro- and microelement status of rats with insulin resistance against the ground of iodine deficiency	6
Fedyshyn T.V., Maliar V.V., Maliar V.A. Peculiarities of utero-placental blood circulation formation in women with spontaneous and recurrent miscarriages associated with vagina dysbiosis	10
Rusnak V.F., Bedyk V.V. Growth of the pharynx at the end of the fetal stage of human ontogenesis	13
Teplytskyi S.S. Formation and development of the skin on the palmar surface of the hand throughout the period of prenatal ontogenesis and its importance in dermatoglyphics	16
Tkachuk N.P., Bilookyi V.V., Gyrla Ya.V., Sheremet M.I. Evaluating the efficiency of the scale for prediction of post-operational relapse in patients with nodular goiters	20
Yemelyanenko N.R. Anatomical transformations of the nasal septum in childhood	24
Kavun M.P. Morphogenesis of the hepatic-duodenum ligament in early ontogenesis of the human	26
Kotyuzhinskaya S.G., Umansky D.A. Functional state of lipittransport system in patients with atherosclerosis with fatty load	28
Lomakina Yu.V., Burdeina M.P. Stress-associated changes in the excretory function of the kidneys in old rats under the conditions of a usual light period	32
Malyar V.V. Structural and functional features of fetal membranes in pregnant women with moderate idiopathic oligo- and polyhydramnios	35
Nesterak R.V., Gasyuk M.B. Pilot investigation of the method of interactive training of patients at the stage of medical rehabilitation and treatment	38
Pecheryaga S.V., Marinchina I.M. Features of hemodynamic changes in spiral arteries with low placentation at the early gestational age	42
Psychenko V.V., Chernov V.S., Frenkel Yu.D. The status of extraorganic blood flow in pineal gland of rats under conditions of acute stress and twenty-four hour darkness	44
Reshetilova N.B., Glubochenko O.V., Kulish N.M., Dudko A.G. Formation of anterior cerebral vesicle cavities at the 5th week of the embryonic period	47
Riznichuk M.O., Galitskaya V.O., Dyhodyuk Yu.V., Kravchuk Yu.V., Vakaryuk O.V. Prader-will syndrome, diagnostics and currency features	50
Shalamay U.P., Pavlikivska B.M., Voronich-Semchenko N.M. The state of autonomous heart regulation in adolescents with light iodine deficiency and latent iron deficiency	52
Shutova N.A., Nikolayeva O.V., Sulkhodost I.O. Electromagnetic radiation impact on the cellular protective mechanisms in experiment	58
Yasnikovska S.M., Hrytsak H. Evaluation of clinic-laboratory and ultrasonic research results in different forms of the chorion's pathology in the first three-month of gestation	61
Yashchyshyn Z.M., Zaiats L.M., Yurkiv I.Y., Maslyak K.T., Vodoslavskaya N.Y., Sikomas M.T. Changes in neuroglial interrelation of muscle-intestinal nerve plexus of esophagus after one-sided crossing of vagosympathetic trunk	64
Navarchuk N.M., Kosteniuk S.V. Morphogenesis of the dentognathic apparatus during the early times of the human ontogenesis	67
Rusnak V.F., Bedyk V.V. Features of pharyngeal morphogenesis in five-week embryos	70
Talanova O.S., Apt O.A. Specifics of distribution of glycosaminoglycans in the white pulp of the spleen and stroma of rats after experimental modeling injection inside the fetus of antigens of different nature	72
Pivtorak K.V., Mazur I.A., Voloshin M.A. Correction of metabolic disorders caused by non-alcoholic fatty liver disease	74
Rozhko V.I. Research of content correlation of immunoglobulins and lisozyme in oral fluid of children with rampant caries against the background of gastro-intestinal diseases	78
Karavan Ya.R., Havaleshko V.P. Up-to-date anesthetic possibilities in dentistry practice in diagnosis of the patient's allergic status	80



# **Deutscher Wissenschaftsherold German Science Herald**

**Bibliographic information published by the Deutsche Nationalbibliothek  
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed  
bibliographic data are available on the Internet at <http://dnb.dnb.de>**

**№ 4/2017 – 30  
Passed in press in September 2017**



**WirmachenDruck.de**

**Sie sparen, wir drucken!**