

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

Internet: 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

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

Rusnak V.F.,*M.G. Turkevych Department of Human Anatomy, Higher State Educational Establishment of Ukraine "Bukowina State Medical University", Chernivtsi, Ukraine***Bedyk V.V.***Department of Surgical and Pediatric Dentistry Higher State Educational Establishment of Ukraine "Bukowina State Medical University", Chernivtsi, Ukraine***FEATURES OF PHARYNGEAL MORPHOGENESIS IN FIVE-WEEK EMBRYOS**

Abstract. *The article highlights the features of morphogenesis and the development of the pharyngeal topography and clarifies the topographic-anatomical relationship between the pharynx and surrounding structures in the ontogeny of the human five-week embryos. The anlage of the pharynx occurs in the embryos of the fifth week of ontogenesis, representing an enlarged and flattened cranial part of the gut in the dorsoventral direction. In this period, there is no complete formation of all parts of the pharynx due to the absence of the secondary palate and due to the unclear separation of the pharynx from the larynx and from adjacent structures.*

Key words: *pharynx, anlage, development, topography, human.*

Introduction. In the structure of the incidence of diseases in children and adolescents the pathology of the respiratory system is among the most common ones [1]. It should be noted that in the group of children from birth to 14 years of age, the rate of respiratory diseases, which includes the pathology of the pharynx and lymphoid tissue associated with its mucous membrane, is higher compared with the group of children aged 15-17 years. The high frequency of registration of diseases of respiratory organs, cases of chronic pathology requires the expansion of groups of dispensary supervision of children [2, 3].

The pharynx is a unique organ that is under maximum antigenic stress and fulfills an immunoreceptor function, which is to familiarize with antigens of the lymphoid tissue associated with the mucous membrane and to populate other organs with antigen-primed lymphocytes. Lymphoid tissue, associated with mucous membranes of the tubular organs, and its reactivity have been studied quite fully [4, 5]. The data on the morphogenesis of the respiratory tracts are quite complete, while the issue of the formation of the lymphoid tissue of the pharynx associated with the mucous membranes in the early postnatal period remains poorly understood [6, 7, 8].

Objective. To study the features of morphogenesis and the development of the pharyngeal topography, to clarify the topographic-anatomical relationship of the pharynx with the surrounding structures in human embryos.

Material and methods. A histological study of

human embryos was carried out on the corpus material of the embryos, whose death was not associated with ENT pathology in accordance with the Helsinki Declaration of the World Medical Association "Ethical principles of medical research involving the human being as a research object" (1964-2000). The examination of the pharynx was carried out in the Chernivtsi Regional Forensic Medical Bureau and at the M.H. Turkevych Department of Human Anatomy of BSMU. After fixation in a 10% solution of formalin, the histological material was coated with paraffin according to the generally accepted scheme. For the morphological study, paraffin blocks of human embryos were used. To obtain the sections we used a sanitary microtome, which allowed preparing serial sections and conducting histological studies. Paraffin sections which were 4-6 microns thick were stained with hematoxylin and eosin according to the standard method and method of Van Gison and subjected to a thorough microscopic examination. Morphometric measurements were performed in typical histostructural sections of human embryos. Mathematical processing of data was carried out at the M.H. Turkevych Department of Human Anatomy of BSMU using methods commonly accepted in morphology.

Results and discussion. During the fifth week of the embryonic period of ontogenesis (embryos with 6.0 - 8.0 mm of crown-rump length CRL), the pharyngeal anlage is an enlarged front part of the large intestine which is 133 - 136 microns long. The pharynx in this period of intrauterine

development is represented by a wide low tube, heavily flattened in the dorsoventral direction.

The oral groove, which is the initial part of the pharynx, is limited superiorly by an unpaired frontal process, inferiorly with a cardiac protuberance and with the maxillary processes on both sides. Its posterior border is formed by the maxillary arch. The oral groove contains a small unpaired mesodermal tubercle, covered with a multilayered flat keratinized epithelium, which is a rudiment of the tongue.

The ectoderm cells, compactly located downwards and on both sides of the frontal process, form two thickened plates, represented by a 4-5-row cylindrical epithelium. At the initial stage of the anlage of the nasal placodes, on whose free surface there are depressions - the formation of nasal fossas. More laterally of the frontal process there are eminences, which in the future become the nasal processes. The nasal fossas are located between them, caudally to which the maxillary processes are formed and they grow towards the median line.

In the upper pharyngeal region on the right and left lateral walls there are openings with the diameter of 1.24 - 2.08 microns, which are funnel-shaped - the pharyngeal openings of the auditory tubes.

The caudal border of the pharynx in embryos passes through the fore intestine in a place that corresponds to the level of the mesenchyma cells congestion- the future anlage of the cricoid cartilage of the larynx, that is, at the very initial stage of embryogenesis, it is considered to be the common boundary of the organ.

More dorsally of the pharynx anlage, in the area that corresponds to the future base of the skull, a congestion of the mesenchyma begins to show. The anlage of the tongue is located more ventrally of the pharynx anlage.

The pharyngeal wall throughout is represented by a two-layer epithelium, which consists of basal high prismatic cells and covering small cubic cells. The epithelium is located on the basal membrane, outside of which lies a solid layer of undifferentiated mesenchyma which is 104 - 162 microns thick. The height of the epithelium is almost the same throughout the organ and reaches 6-10 microns. The nuclei of its cells are usually oval, of 3-4 microns in size, and are located at different levels: most of them are located in the middle part of the cells, some of the nuclei are localized closer to the base, and some occupy an apical position.

The lumen of the pharyngeal anlage (on transverse sections) in the cranial part is 486-510 microns, and in the caudal one it is narrowed to 178-182 microns. The nuclei of cells of the mesenchymal layer, which surrounds the pharynx rudiment, as well as the nuclei of the cylindrical epithelium lining its lumen, are located at different levels. It should be emphasized that the intensity of their color is practically the same.

Conclusion. The anlage of the pharynx takes place in the embryos of the fifth week of ontogenesis, representing an enlarged and dorsoventrally flattened cranial part of the gut. In this period, there is no complete formation of all parts of the pharynx due to the absence of secondary palate and due to the unclear separation of the pharynx from the larynx and from adjacent structures.

Prospects of further research. In the future it is planned to study the development and formation of the pharynx in other age periods of human ontogenesis.

References:

1. Moisyenko RO. *Chastota i struktura zahvorjuvanosti ditej v Ukraini ta shljahi ii znizhennja. Perinatologija i pediatrija. 2009; 4(40):23-6.*
2. Volosovec AP. *Pul'monologija detskogo vozrasta. Kiev: Zdorov'e; 2004. 608 p.*
3. Julish EI, Jaroshenko SJa. *Chastaja respiratornaja zaboлеваemost' detej rannego vozrasta i persistirujushhie infekcii. Sovr pediatrija. 2010; 31(3):44-9.*
4. Potoc'ka OI. *Morfofunkcional'na charakteristika limfoidnih utvoren' gortani ljudini v ontogenezi ta ih reaktivni zmini [avtoreferat]. Ternopil': 2009. 20 p.*
5. Svitlic'kij AO. *Osoblivosti budovi klubovoï i slipoï kishok novonarodzenih pislja vnutrishn'oplidnoï dii antigeniv [avtoreferat]. Simferopol': 2008. 18 p.*
6. Makar BG, Popeljuk O-MV, Jakovec KI. *Suchasni pogljadi na morfogenezu i topografo-anatomichni vzaemovidnoshennja gortani v rann'omu ontogenezi ljudini: (ogljad lit). Bukovins'kij med visnik. 2009; 13(2):100-3.*
7. Syrcov VK, Alieva EG, Potockaja EI. *Osobennosti formirovanija immunomorfologicheskogo kompleksa organov dyhanija i prostaty pri antigenom razdrazhenii. Svit medicini ta biologii. 2005; (3):64-6.*
8. Hmara TV, Ahtemijchuk JuT, Gulik RP. *Eponimichni nazvi struktur u klinichnij anatomii golovi ta shii. Klin anat ta oper hirurgija. 2010; 9(1):117-22.*

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-willi 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!