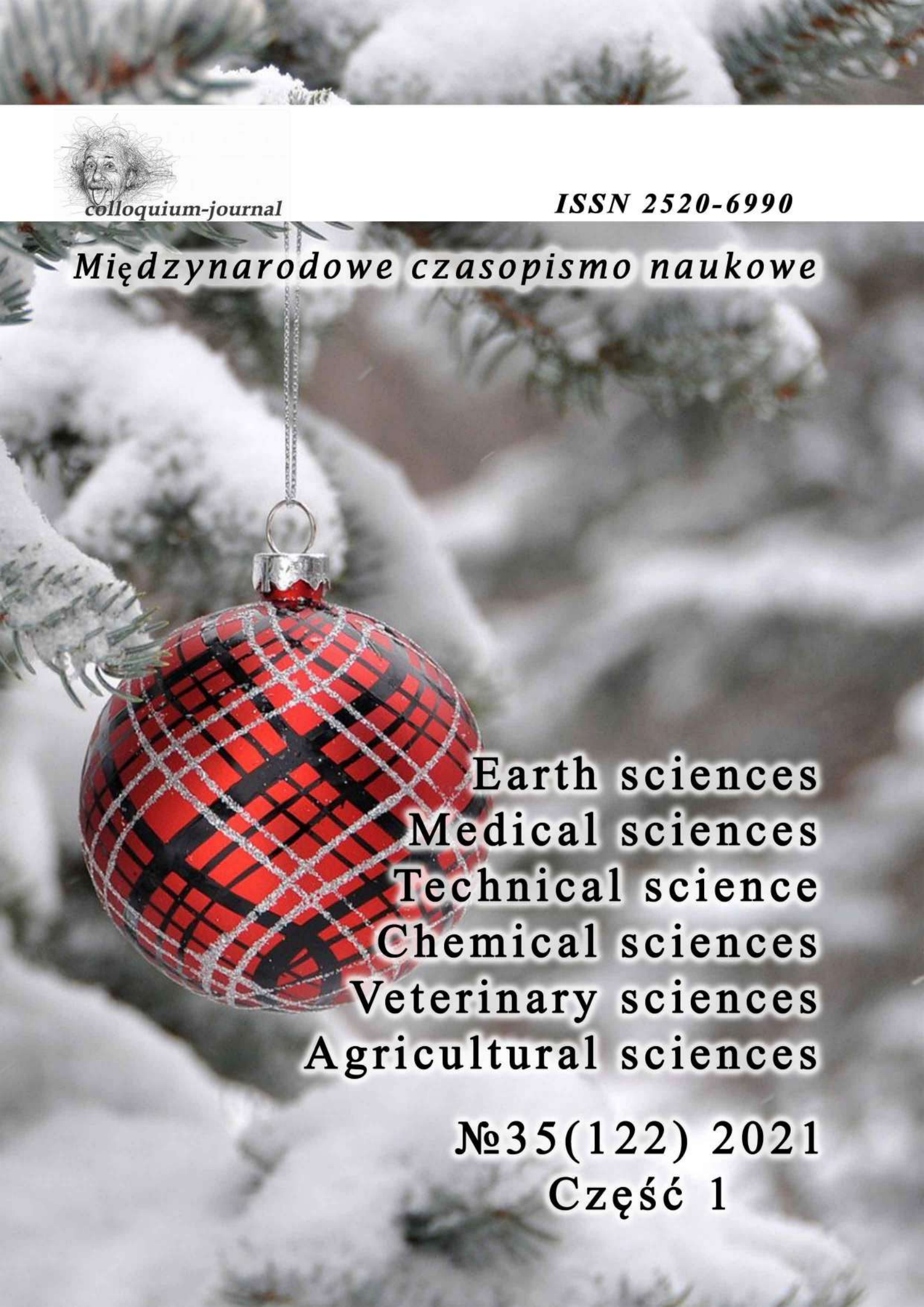
colloquium-journal

ISSN 2520-6990

Międzynarodowe czasopismo naukowe



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№35(122) 2021
Część 1

colloquium-journal

ISSN 2520-6990

ISSN 2520-2480

Colloquium-journal №35 (122), 2021

Część 1

(Warszawa, Polska)

«Colloquium-journal»
Wydawca «Interdruk» Poland, Warszawa
Annopol 4, 03-236
E-mail: info@colloquium-journal.org
http://www.colloquium-journal.org/

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DOI: 10.24412/2520-6990-2021-35122-11-12

ОЦЕНКА РАЗВИТИЯ РЕШЕТЧАТОЙ КОСТИ В ПЕРИНАТАЛЬНОМ ПЕРИОДЕ ОНТОГЕНЕЗА ЧЕЛОВЕКА И ДЕТЕЙ ГРУДНОГО ВОЗРАСТА

UDC 611.715.6.013-053.15-053.31

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ASSESSMENT OF THE DEVELOPMENT OF THE ETHMOID BONE IN THE PERINATAL PERIOD OF ONTOGENESIS IN HUMANS AND INFANTS

Аннотация.
Оценка развития решетчатой кости в перинатальном периоде онтогенеза человека и детей грудного возраста путем исследования составляющих стенок носа. При этом в хронологическом порядке выполняют морфометрию (измеряют переднезадний, поперечный и вертикальный размеры) решетчатой кости и смежных структур, и при получении отклоняющихся от нормы данных диагностируют патологическое развитие решетчатой кости в перинатальном периоде онтогенеза человека и детей грудного возраста.

Abstract.
Assessment of the development of the ethmoid bone in the perinatal period of ontogenesis in humans and infants by studying the components of the nasal walls. At the same time, morphometry is performed in chronological order (anteroposterior, transverse, and vertical dimensions are measured) of the ethmoid bone and adjacent structures, and when data are obtained that deviate from the norm, pathological development of the ethmoid bone is diagnosed in the perinatal period of human and infant ontogenesis.

Ключевые слова: *решетчатая кость, развитие, перинатальный период, онтогенез, человек, анатомия.*
Keywords: *ethmoid bone, development, perinatal period, ontogenesis, human anatomy.*

Introduction. It is known that the diagnosis and treatment of diseases of the latticed Labyrinth is a more complex and difficult task compared to diseases of other paranasal sinuses [1]. There is a lack of awareness of specialists with modern anatomical, physiological and instrumental methods of their research and treatment [2]. Many studies have been devoted to the anatomy of the lattice labyrinth [3]. One of the most confusing and controversial questions about the structure of the paranasal sinuses remains the question of the topographic anatomy of the frontal-nasal canal and adjacent formations [4]. The development of methods of endoscopic intra-nasal surgery requires a detailed spatial understanding of the three-dimensional structure of the nasal cavity and prion sinuses [5].

Goal. Improve the method of studying the size of the ethmoid bone in the perinatal period of ontogenesis in humans and infants by conducting chronological morphometry of the ethmoid bone and adjacent structures (by measuring the anterior-posterior, transverse and vertical dimensions), as a result of which the normal or pathological development of this structure is diagnosed.

Results. In chronological order, morphometry is performed (anteroposterior, transverse, and vertical dimensions are measured) of the ethmoid bone and adjacent structures, and when data are obtained that deviate from the norm, pathological development of the ethmoid bone is diagnosed in the perinatal period of human and infant ontogenesis.

Morphological studies of the ethmoid bone in fetuses and infants are aimed at revealing the mechanisms and pathogenesis of diseases and searching for effective treatment methods. The study of the features of the ethmoid bone is of considerable practical value since there are malformations in this area that require surgical correction. Along with adult and Child surgery, neonatal surgery has emerged. The introduction of computer diagnostics and endoscopic techniques into medical practice makes it possible to combine the reliability of diagnostic studies, physiological gentle, and highly effective treatment principles.

Fixation of the head or individual organ complexes of fetuses (4-10 months), newborns, and infants (10 days – one year) is carried out first in a 5 % formalin solution for 7 days, then for 30 days – in a 10% formalin solution. Then, after external inspection, they are washed for 1-2 days in running water and examined by macro-and micro-preparation methods. Perform a sagittal incision of the head or organ complex in such a way that the incision passes near the wall of the nasal septum. A series of histological sections of the nasal region is made in this way: during preparation, individual structures are drawn, and preparations with anatomical

features are photo-documented even after the preparation is completed. Thus, morphometry of the ethmoid bone and adjacent structures is performed in chronological order (anteroposterior, transverse, and vertical dimensions are measured).

The following parameters are considered to be those that diagnose the normal development of the ethmoid bone in the perinatal period of ontogenesis in humans and infants.

In 4-month-old fetuses (81,0-134,0 mm TCD), the perforated plate of the ethmoid bone has the following dimensions: anteroposterior 4,9-7,8 mm, transverse 1,5-2,2 mm; and the latticed labyrinth has the following dimensions: anteroposterior 4,7-6,2 mm, vertical 2,5-3,2 mm.

In 5-month-old fetuses (135,0 – 185,0 mm TCD), the perforated plate of the ethmoid bone has the following dimensions: anteroposterior 11,5 mm, transverse 2,7 mm; the length of the ethmoid blister is 3,4 mm, width – 1,7 mm; the hooked process has a length of 4,4 – 5,1 mm, width – 1,4 mm; the semilunar opening reaches a length of 4,3 mm.

In 6-month-old fetuses (186,0 - 230,0 mm TCD), the perforated plate of the ethmoid bone has the following dimensions: anteroposterior 13,2 mm, transverse 3,3 mm; the labyrinth of the ethmoid bone has the following dimensions: anteroposterior 6,9 – 8,4 mm, vertical – 4,4-5,2 mm; the length of the semilunar opening reaches 4,3 – 4,9 mm; the dimensions of the ethmoid blister are 3,7 × 1,4 mm; the length of the hooked process is 5,1 mm and the width is 1.9 mm.

In 7-8-month-old fetuses (231.0 - 310.0 mm TCD), the labyrinth of the ethmoid bone has an anteroposterior size – 11,2-12,4 mm, height 5,4 – 6,2 mm; the length of the semilunar opening reaches 7,7 mm; the dimensions of the ethmoid blister are 5,1×2,2 mm; the length of the hooked process is not more than 7,2 mm, width – 2,4 mm. the number of cells in the lattice maze is from 3 to 6, their dimensions: the largest – 1,4×1,12 mm, the smallest – 0,83×0,55 mm.

In 9-10-month-old fetuses (311.0 - 378.0 mm TCD), the perforated plate of the ethmoid bone has the following dimensions: anteroposterior 17,2 – 18,5 mm, transverse – up to 7.5 mm; the latticed labyrinth has an anteroposterior size of 13,5 mm, vertical 6,7 mm; the length of the semilunar opening does not exceed 8,6 mm; the latticed vesicle has 6,2 mm of length and 2,3 mm of width; the length of the latticed vesicle has 6,2 mm of length and 2,3 mm of width; the length of The hooked process is equal to 8,1 – 8,7 mm, width – 2,2 mm; the number of Lattice cells varies from 4 to 6, their dimensions: the largest – 1,7×1,5 mm, the smallest – 1,0×0,7 mm.

In newborns, the length of the semilunar opening does not exceed 8,2±0,7 mm; the lattice vesicle has a length of 4,0±0,13 mm, a height of 2,4±0,05 mm; the length of the hooked process is 5,8±0,1 mm, width – 2,0±0,05 mm; the protrusion of the frontal Bay on the studied preparations is 1,8±0,07 mm; the number of Lattice cells is 4 - 8, their dimensions: the largest – 2,2×1,6 mm, the smallest is 1,6×1,0 mm.

In infants, the number of latticed cells is 4-6, their dimensions are: the largest – 2,5×1,8 mm, the smallest – 1,2×0,8 mm; the perpendicular plate of the Palatine bone has a height of 7,6±0,14 mm and a width of 4,8±0,05 mm; the middle plate of the pterygoid process has the following dimensions: height – 7,6±0,05 mm, width – 5,6±0,1 mm.

If these values deviate from these values, pathological development of the ethmoid bone is diagnosed in the perinatal period of human and infant ontogenesis.

64 fetuses of different ages were diagnosed using the proposed utility model. 32 of them were diagnosed with abnormal development of the ethmoid bone, which was confirmed by clinical studies. Therefore, the claimed method is quite effective.

Conclusion. The proposed method makes it possible to effectively diagnose the development of ethmoid bone in the perinatal period of human and infant ontogenesis using morphometry and can be used in Otorhinolaryngology and computed tomography in the diagnosis of ethmoid bone diseases.

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