



and U-shaped sigmoid colon is peculiar for the dolichomorphic type, and the brachiomorphic type is characterized by the long spiral and zigzag sigmoid colon. Macro- and microscopic signs are indicative of the location of the sphincter apparatus within the borders of the sigmoid rectal transition.

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**THE IMPORTANCE OF COBALT (Co) AND SULFUR (S) FOR THE DEVELOPMENT AND CONSTRUCTION OF UPPER JAW BONE TISSUE IN HUMAN PRENATAL ONTOGENESIS**

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Published scientific works (Slobodyan O.M. et al., 2018; Smith S.L. et al., 2017; Oshurko A.P., 2019) explain the peculiarities of the formation of the structure and topography of the maxilla in the fetal and early neonatal periods of ontogenesis, as well as the study of anatomical, histological structures and mineral composition of bone tissue of different areas in the age dynamics. At the same time, basic data on the study of the features of the structure and mineral composition of the human maxilla bone tissue in the dynamics of prenatal ontogenesis still lack.

The aim of the study is to determine the interdependent role of cobalt (Co) and trace elements of sulphur (S) as a building material of the human upper jaw, their participation in the development and mineralization of bone tissue in prenatal ontogenesis. Methods of macroscopy, morphometry of research objects, turbidimetric method, the method of flame atomic absorption determination of metal ions and statistical method with the use of statistical groupings have been used in the study. The upper jaw germs of 131 human fetuses aged 11-40 weeks of intrauterine development have been investigated. All studies have been conducted following "Procedure for extracting biological objects from the dead, whose bodies are subject to forensic examination and pathoanatomical study, for scientific purposes" (Mishalov V.D., Voichenko V.V., Malysheva T.A. et al., 2018).

Cobalt (Co) is known to belong to biogenic trace elements since its content in the human body does not exceed 1.5 mg. The bulk of the element is in the bone and fatty tissues. Considering the scientific sources, the participation of sulphur (S) in oxidation-reduction has been established, which has proved that it plays the same role of tissue respiration as hemoglobin, provide the transfer of energy since its ions are electrons carriers, as well as involve in the transport and fixation of methyl groups. Sulphur (S) contributes to the process of replication of DNA and RNA and is a part of the vitamins of group B (thiamine, biotin). And that is why there is a close interconnection between sulphur (S) and cobalt (Co). In other words, sulphur (S) is a biogenic macroelement that is an integral part of amino acids, in particular, cysteine and methionine, which are the constituents of proteins that form their spatial structure for further collagen synthesis. The highest concentration of sulphur is in blood, nerve tissue, and bones.

The results obtained in the study in the form of the mean value of the investigated parameter (M), the standard deviation (m), with probability of the error-free prediction  $p < 0,001$  of the trace element of cobalt (Co), in the studied fragments of bone tissue samples weighing 0,15-0,55g in the first age group are (mg / g) -  $0,086 \pm 0,006$ ; in the second -  $0,081 \pm 0,015$ ; in the third -  $0,119 \pm 0,014$ ; in the fourth -  $0,059 \pm 0,008$ , which at the same time provide a complete basis of mineralization, and qualitative characteristics of the development of bone tissue in prenatal ontogenesis. The results for sulphur (S) have shown the following indices: in the first age group (mg / g) -  $1,143 \pm 0,138$ ; in the second -  $1,835 \pm 0,042$ ; in the third -  $1,989 \pm 0,051$ ; in the fourth -  $1,636 \pm 0,047$ .

The macroelement sulphur (S) and the trace element cobalt (Co) belong to biogenic macro- and microelements, which are mainly deposited in the bone and fatty tissues. The primary importance of sulphur (S) and cobalt (Co) is due to the fact that they are embedded in the chemical structure of cyanocobalamin and their main biological function is the participation in the process of hematopoiesis. They participate in oxidation-reduction, providing the role of continuity of tissue respiration. The maximum growth rate (%) is set for both sulphur (S) and cobalt (Co) in the middle



of the period of intrauterine development (22-27 weeks), which confirms the growth of the intensity of the development of the vascular system of the upper jaw rudiment of the human fetus and metabolic transformations, namely in this age period.

**Pavliukovych O.V.**  
**FORMATION OF STUDENTS 'CRITICAL THINKING BY MEANS OF  
USING SITUATIONAL TASKS**

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The purpose of this work is to discuss the possibility of situational tasks applying for the formation of forensic expert thinking among students.

One of the main tasks of medical students training at the Department of Forensic Medicine and Medical Law is the formation of their forensic expert thinking, which enables to continue working independently during the on-site inspection of the corpse both during internship and medical practice. Taking into consideration that conduction of practical classes involves test control of knowledge in each class on the one hand, and on the other hand – the development of practical skills, this in some way restricts the development of forensic expert thinking of the students.

Current control is not only testing of the level of mastering the material in the class, it is also the continuation of training, review of the main issues of the topic, systematization of knowledge and skills, and also their consolidation.

Control by help of situational tasks is designed to sum up the mastering of each section of the class, to sum up the students' knowledge, to give them opportunity to systematize their ideas about mechanisms of death and description of the victim's body, to allow them to make adjustments to understanding the laws of the body functioning on the whole.

Thus, a partial role of the forensic expert thinking in situational problems solving is very significant, and its significance is not limited only to controlling current training on a topic, but is an intermediate training activity in the educational system.

Therefore, clinical situational tasks can be used not only for controlling of knowledge, but also for the formation of the students' forensic critical thinking.

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**INFLUENCE OF PLACENTAL CALCINOSIS ON THE LEVEL OF APOPTOSIS  
IN THE TROPHOBLAST OF CHORIAL VILLI IN IRON DEFICIENCY ANEMIA  
OF PREGNANT WOMEN**

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The aim of the study - to evaluate quantitative parameters of immunohistochemical staining on the proapoptotic protein Bax and the antiapoptotic protein Bcl-2 in the trophoblast of placenta with calcinosis in women with iron deficiency anemia in pregnancy. 164 placentas with calcinosis were studied, while the diagnosis of IDAP (I-II severity level) was made in 84 pregnant women, the rest 80 of the placenta's calcinosis observations were without anemia. In addition, 30 placentas of physiological pregnancy were studied. Primary antibodies against the pro-apoptotic Bax protein and the anti-apoptotic protein Bcl-2 (DAKO) were used for the immunohistochemical investigation.

Considering the possibility of vertical heteromorphism for the distribution of immunohistochemical staining intensity on the Bax protein, it was found that the optical density of the color in average is the lowest in the zone A, and the highest in the zone C. It should be admitted that such heteromorphism was noticed in all the study groups. In the study of the vertical heteromorphism accordingly to the distribution of the intensity of the anti-apoptotic protein Bcl-2, it was found that the optical density of staining is on an average the highest in the zone A, and the lowest in the zone C, that was noticed in all the groups of the study with calcinosis, and for the physiological pregnancy the differences of the zone C from zones A and B were found.