the mesenchyme of adjacent organs. The thickness of this more compact mesenchymal layer reaches an average of 19-22 microns. The nuclei of mesenchymal cells are oval in shape and located at different levels.

Dorsal to the rudiment of the pharynx is the spine, separated from it by a small layer of mesenchyme 17-20 microns thick, ventrally - the rudiment of the larynx, behind the pharynx is the main artery, and ventrolateral - between the pharynx and the rudiment of the respiratory system - the vascular bundle of the neck. The vagus nerve is massive, its diameter is almost equal to the diameter of the intestinal tube. After the formation of the rudiments of various organs from the pharyngeal mesenchyme begins to form loose connective tissue that surrounds blood vessels and nerves. In the embryonic period of development of vessels and nerves, gradually shift more medially, thereby getting closer to a lateral wall of a throat.

So, in the study of a series of histological sections of embryos 12.0–13.8 mm PCL (end of the sixth week of fetal development) and plastic wax reconstruction model of the primary oral cavity and nose of the embryo 14.0 mm PCL, it was found that the length of the pharynx is 443-475 μm. The width of the lumen is on average 62 μm. Moreover, the shape of the lumen throughout is not the same due to the further development of the tongue and the larynx.

Sarkisova Y.V.
POLARIZATION MICROSCOPIC TOMOGRAPHY OF THE PROTEIN STRUCTURE OF VITREOUS BODY PREPARATIONS IN THE DIAGNOSIS OF THE TIME SINCE DEATH
Department of Forensic Medicine and Medical Law
Bukovinian State Medical University

Throughout the history of forensic medicine, determining of the time since death (TSD) has been one of the most frequently and carefully studied issues. The importance of accurately defining TSD in the context of medical and legal investigation of death cannot be underestimated, as the comprehensive data obtained allow investigative bodies to establish the time and circumstances of the events preceding death, identify suspects or deny involvement in the crime. However, despite the extreme importance, forensic experts often answer the question of the assessment of TSD with insufficient accuracy. This phenomenon occurs due to some limitations in the application of most modern scientific methods, as well as the influence of many environmental factors and the internal state of the victim's body.

The aim of the work is to develop a set of new forensic objective criteria for accurate establishment of TSD over a long period of time after death according to microscopic polarization tomography by statistical and wavelet analysis of the temporal dynamics of changes in the protein structure of the vitreous body (VB).

Vitreous body was taken from the anterior chamber of the eye from 30 corpses with a previously known time of death from 1 to 48 hours; the fence interval was 1, 4, 8, 12, 18, 24, 36 and 48 hours. The cause of death was cardiovascular pathology. Subsequently, VB smears were irradiated with helium-neon laser. The coordinate distributions of the polarization intensity of laser images of human VB in the plane of the photosensitive plate of the CCD camera were measured. Then statistical and wavelet analysis of the results was performed.

Results. Coordinate distributions of the circular birefringence (CB) of the optically active protein fraction of the VB layer of the deceased with TSD 12 h. were found to be characterized by a smaller mean value (SM_1=0,36) and a scatter range (SM_2=0,22), and a larger value of asymmetry (SM_3=0.62) and excess (SM_4=0,91) random values of the histogram compared to similar values statistical parameters (SM_1=0,53; SM_2=0,32; SM_3=0,39; SM_4=0,59), which characterize the coordinate distributions of the value of CB for VB samples with TSD 3 h. The obtained results illustrate the necrotic destruction of VB proteins with increasing TSD. Thus, the sensitivity range of the method of microscopic polarization tomography by statistical analysis of maps and histograms of the distributions of random values of CB of the protein fraction of the VB layers was 24 hours with the accuracy of setting the TSD within 25 minutes.

To improve the efficiency of the method, we additionally considered the information possibilities of large-scale selective wavelet analysis. The obtained data show that the values of all statistical moments of 1 - 4 orders, which characterize the distributions of the amplitude of the wavelet coefficients of the CB maps of the protein fraction of representative samples of VB with different TSD, change linearly within 36 hours. At the same time, the most sensitive to necrotic changes were the statistical moments of the 3rd and 4th orders, which characterize the asymmetry and excess of distributions of the wavelet analysis of polarization-reproduced maps of CB. Quantitatively, this is manifested in the increase of the angles of inclination of the corresponding linear dependences of temporal necrotic changes in the magnitude of statistical moments of higher orders, which characterize the amplitude distributions of the wavelet coefficients of CB maps in comparison with similar parameters of CB maps of the protein fraction. The obtained data show that the use of wavelet analysis improves the accuracy of the method of microscopic polarization tomography in the determination of TSD for 5 minutes (within 19 - 21 minutes).

The effectiveness of the method of microscopic polarization tomography of a set of maps and histograms of distributions of random values of CB of the protein fraction of VB layers with different TSD by statistical and wavelet analysis is demonstrated. The sensitivity range of the method is 36 hours, with the accuracy of determining the TSD – 19-20 minutes.

Stelmakh G.Ya.
THE PHYSIOLOGICAL ATRESIA OF COMMON BILE DUCT
M.G. Turkevych Department of Human Anatomy
Bukovinian State Medical University

The conducted study has shown that in embryos of 4.0-5.0 mm parietal coccygeal length PCL (at the end of the 4th week) the hepatic diverticulum is an endoderm protruding of the ventral wall of the primary intestine, in which cranial (liver) and caudal (bladder) parts are clearly distinguished.

In embryos of 8.5-11.0 mm PCL at the beginning of the common bile duct due to accelerated processes of epithelial proliferation there is a physiological atresia, which reflects a solid stage of its development.

The beginning of recanalization of the lumen of the common bile duct was detected at the end of the embryonic period (embryos 11.0-13.0 mm PCL) in the area of the connection of the common bile duct with the hepatic and vesical ducts. Along with this, in the caudal part of the common bile duct epithelial "plug" still remains. Therefore, at this stage of development there is no direct connection between the lumens of the common bile duct and the duodenum, which is consistent with the data. The critical period for morphogenesis of common bile duct is the period from the 6th to the 8th week of fetal development. At the studied stage of development at the beginning of the gallbladder formed a small lumen, as the beginning of the process of recanalization of the duct.

So, recanalization of the lumen of the common bile duct occurs differently: earlier in the cranial part and later in its caudal part. The cranio-caudal gradient of the recanalization of SJP can be explained by the different rate of proliferation and death of epithelial cells, which is a natural phenomenon for embryonic development. In the caudal part of the common bile duct, the rate of proliferation of epithelial cells exceeds the rate of their death, which may be due to the positive inductive effect of the adjacent mesenchyme.

Zmiyevska Yu.G.
POSSIBILITIES OF THE MULTIDIMENSIOANL REMODELLING DURING FORENSIC-MEDICAL EXAMINATION OF GUNSHOT INJURIES
Department of Forensic Medicine and Medical Law
Bukovinian State Medical University

Transience of incidences with the use of firearms in the majority of battle cases does not enable to find a real picture of circumstances when these incidences occur. But, a dynamic