Bodies are clearly defined from the thoracic vertebrae, and in the lumbar and sacral vertebrae only arches are clearly visible and closely spaced bodies. The vertebral bodies at this stage are well differentiated. All of them have the same, primitive, quadrilateral body shape and are separated from each other by a layer of mesenchyma. The layers correspond to the future intervertebral discs.

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EXAMPLE OF USING 3D MODELING DURING EXAMINATION OF ACUTE HEART INJURY

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Despite the fact that classical methods of acute trauma research are well studied and widely used in forensic medicine, in recent years in the world and domestic forensic practice have been increasingly introducing modern computer technology and three-dimensional spatial modeling, which significantly complement and improve visualization of bodily injuries, as well as increase the accuracy of identification of the arms causing injury.

Forensic identification of the stabbing-cutting tool found at the scene and seized by the investigating authorities, with the presence of stab wounds to the heart, using photogrammetry and 3D modeling of the wound canal in the heart muscle.

As the materials of the study barbed cutting tool and individual elements of the wound canal were used, which were examined using photogrammetry and subsequent 3D modeling for their compliance in the examination of acute heart injury.

An example of using the method of 3D modeling is given and its advantages in comparison with classical methods used in forensic practice during the examination of bodily injuries in the forensic identification of stabbing-cutting tools. Full compliance is shown when comparing the 3D model of a knife blade provided by investigators, its length, width at the site of the greatest thickening and bevel of the blade created by photogrammetry and three-dimensional spatial modeling with 3D models of fragments of the wound canal of stab-cut heart damage. The measurement results obtained from 3D models of fragments of the wound canal with the help of computer programs "Agisoft Photoscan" and "3ds max" are an order of magnitude more accurate than the measurements provided by classical methods.

The use of photogrammetry and modern 3D modeling technologies allows obtaining 3D models of the wound canal in the thickness of the heart muscle or any other parenchymal organ and stabbing-cutting tool, to make more accurate linear measurements and comparison of fragments of the wound canal with the probable injury tool compliance.

The electronic archive of 3D models will allow to save the parameters of damages in their original form, use them during additional, repeated or commission examinations, virtual expert experiment, as well as send by e-mail for remote consultation and investigative bodies and juries for use during court sessions.

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FETUSES ANATOMY OF THE PAROTID GLAND STRUCTURE

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Formation of the organs is a very complicated process which is not definitively studied nowadays. It is very important to study the structure of the organs and systems in association with the basic processes of morphogenesis on the basis of the findings of embryogenesis. The study of the development and forming of the topography of the parotid gland during the prenatal period human ontogenesis is of great importance for integral understanding of the structural – functional organization of the salivary apparatus and the oral cavity on the whole. The analysis of scientific literature dealing with the parotid gland anatomy is indicative of a fragmentariness and discrepancy of the data, pertaining to the syntopy and chronology of the topographic-anatomical changes during the fetal period of human ontogenesis.

The objective of the study was to investigate variant anatomy and topographic-anatomical peculiarities of the human parotid gland and surrounding structures in fetuses.

The parotid gland was examined on 25 human fetuses, 130,0-375,0 mm of the parietal-coccygeal length (PCL). The following methods were applied in the course of the study: thing section of the parotid gland and parotid-masticatory area under the control of a binocular magnifying glass; macro- and microscopy; morphometry; computed 3-D design.

The parotid gland is found to be located in fetuses with 130,0-375,0 mm of PCL in a deep depression posteriorly the branch of the lower jaw, in the posterior mandibular fossa. A greater part of the gland is located between the mandible and sternocleidomastoid muscle penetrating deeply between these structures. The skin of this particular region is thin, movable. The subcutaneous pot is thin and fused with the skin. The structure of the parotid gland of 4-10 month human fetuses is anatomically changeable which is manifested by different shape (oval, leaf-shaped, horseshoe-like, triangle, irregular tetragonal), location and syntopy. Computed 3-D design of the gland presents its volumetric description which is the most practical one – in the shape of trilateral pyramid turned to the malar arch by its base, and to the mandibular angle – by its apex. A number of structures pass through the tissue of the parotid gland including facial nerve, posterior mandibular vein, external carotid artery, auricular-temporal nerve. The parotid duct is formed due to the fusion of two extra-organ lobular branches which in their turn are formed by means of fusion of several upper and lower lobular ducts emerging from the gland tissue passing through its capsule. The direction of the parotid gland is arch-like, with upward convexity. Passing along the external surface of the mastication muscle the parotid duct touches the upper extremity of the adipose body of the cheek and penetrates through the buccal muscle into the oral vestibule where it opens in the shape of a papilla of the parotid duct. The length of the parotid duct in the fetuses of the third trimester is 8,0-26,0 mm, diameter of the lumen is within 0,8-2,5 mm. The parotid duct is projected on the skin of the face from both sides along the line from antilobium to the mouth angle. The wall of the parotid duct consists of the connective tissue rich in elastic fibers and epithelium lying the lumen of the duct. The epithelium consists of two layers – deep cubic and superficial cylindrical.

Therefore, morphogenesis and topographic formation of the human parotid gland in fetuses are influenced by a total effect of spatial-temporal factors associated with the dynamics and close syntopic correlation of organs, vascular-nervous formations and fascial-cellular structures of the parotid area. At the end of the 10th month of the prenatal development the parotid gland under the microscope demonstrates its practically definite shape, although histological processes of differentiation in it are not completed yet. A study of the specific characteristics and consistent patterns of the morphogenesis and dynamics of the spatiotemporal changes of the salivary glands will make it possible to reveal new findings, pertaining to the emergence of variants of their structure, the preconditions of the onset of the congenital malformations and acquired diseases.

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THE STRUCTURE PECULIARITIES OF INTRAMURAL APPARATUS WITH ATRESIA OF INTESTINAL WALL IN NEWBORNS

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In early human embryogenesis, intramural ganglia are formed along the craniocaudal gradient and the onset of hereditary factors coincides with the moment of neuroblast differentiation in some specific area of the intestinal tube.

The rudiments of the nodes of the musculointestinal plexus are the same in different parts of the digestive tract, represented by individual cells and small groups of neuroblasts, located outside the rudiment of the circular layer of the muscular membrane. Neuroblasts of intramural nodes appear along the digestive tract in the craniocaudal direction. The vascularization sources of the intramural nerve elements of the intestine are the arteries of the membranes with autonomic plexuses. The occurrence of atresia of the small intestine is associated with morphological changes in the hemomicrocirculatory system and the structure of intramural nerve plexuses. The time of intestinal