indicative of a considerable development of the anterior surface in its length associated with the development of the cellular process.

Lavriv L.P.

ANATOMICAL PECULIARITIES OF THE PAROTID GLAND STRUCTURE IN HUMAN FETUSES

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Formation of organs is a very complicated process not investigated completely. The role and value of additional information concerning the intrauterine human development are hardly to be overestimated for the solution of issues of perinatal medicine. The parotid gland is an object of a special attention of many scientists. At the same time, the findings concerning typical and variant anatomy of the parotid gland during the fetal period of human development remain disputable and even controversial.

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 under4 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 with130,0-375,0 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 the area is mobile, the adipose tissue and superficial fascia are especially well seen at the end of the examined period of the prenatal development. 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.

Lazaruk O.V.

DETERMINATION OF MATRIX METALOPROTEINATES EXPRESSION IN CELLS OF DUCTAL BREAST CARCINOMA WITH METASTASES AND WITHOUT THEM

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Ductal breast carcinoma is about 80% of all types of carcinomas. Immunological and histochemical methods of investigation were used for the study of matrix metalloproteinases (MMP) in tumors during past years. They have the ability to change the properties or destroy the extracellular matrix components. Tumor cells acquire metastatic capabilities, including changes in intercellular connections, basal membranes and other barriers for multilevel process of metastasis.

In addition, the formation of a "metastatic niche" in the area of future implantation plays a significant role in the processes of metastasis. Resent researches point to a particular functional role of MMP-9 in creating of "niches" in places of distant metastases before migration.

162 cases of ductal breast carcinoma, including 97 cases with metastasis and 65 cases without them were used in the research. The expression of MMP-2, -9 was determined with the help of the immunohistochemical diagnostic method. The obtained preparations were transformed into digital images. The level of expression in units of optical density was determined by (ImageJ), the computer microdensitometer program. Quantitative indicators between groups with metastases and without them were compared on the basis of the obtained data. It was found out that the index was within the range of 0.221-0.272, the average figure was 0.238 in determining the expression of MPP-2. In 91% of cases, the metastatic indicators of optical density were $\geq$ 0.238, at 9% $\leq$ 0.238. In the non-metastatic group, the results were:

62% - ≤ 0.238 and in 38% of cases ≥ 0.238. For MPP-9, the limits of optical density were 0.284-0.3116, the average was 0.297. In 77.5% of the metastatic indices were ≥ 0.297, 25.5% ≤ 0.297. In the group without metastases the results were 75% - ≤ 0,297 and 25% ≥ 0,297.

The relative risk of MRP-2 with a diagnostic value of "1.0" is 4.239, the odds ratio was 15,664. For MPP-9 the value of the relative risk with a diagnostic value is "1,0" - 4.433 and odds ratio is 27.841.

Lazaruk O.V.

INVESTIGATION OF PROTEINS' PECULARITIES IN THE TISSUES OF DUCTAL BREAST CANCER FOR TUMOUR METASTASIS PREDICTION

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The importance of studying changes of proteins in tumor processes proves that these data indicate an active process in the tissues. These processes are the growth of tumor, invasion or metastasis. Particular importance is given to the metastasis of tumor.

The objective of the research was to establish the proteins' properties with the "acidic" and "basic" groups as a criterion for the oxidative modification of proteins, as well as quantify of free NH2- group of proteins as a criterion for limited proteolysis. It became possible due to the usage of histochemical methods of epy research. After receiving these data, a quantitative metastasis prognosis would be established.

The morphological observation of 162 cases with invasive duct breast carcinomas, including those with metastases (97 cases) and without metastases (65 cases) has been used for in the research. Free NH2- group of proteins was determined by A.Yasuma and T.Ichikava, as well as "acidic" and "basic" proteins were determined by Mikel Calvo with the help of the computer program ImageJ.

It was found out that the relative risk of free NH2-group of proteins with established diagnostic value "1,0" was 7.85, and the odds ratio - 109.40. The relative risk of R/B that was staining the "acidic" and "basic proteins" at the diagnostic value of 1.34 in tumor cells was 9.30, and the odds ratio was 196.07. The relative risk factor R/B that was staining the "acidic" and "basic" paints was 1.64, in the fibers of the connective tissue it was 8.05, and the odds ratio was 133.50.

The difference in spectral characteristics of colour elements of the stroma and parenchyma of breast cancer is in difference between the amino acids and carboxyl groups of proteins. In the cells of epithelial carcinoma, in comparison with stroma, the structure is mainly blue; that indicates the predominance of "main" proteins, pointing out the prevalence of amino groups in them, and in compound components, the colour is mainly red - it indicates the predominance of "acidic" proteins, namely proteins with the domination of carboxyl groups.

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ANATOMIC PECULIARITIES OF THE FACIAL NERVE IN THE EARLY PERIOD OF HUMAN ONTOGENESIS

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The embryology of the seventh cranial nerve, especially its peripheral development, has received little attention in man in comparison to the important role it plays in postnatal life.

The specimen of 21 embryos and 23 pre-fetus were selected to be the materials of the research. Following investigational methods have been used: macroscopy, microscopy of consecutive histological sections series, conventional and thin preparations.

In a 4.2 mm embryo, the facial nerve arises in common with the eighth cranial or acoustic nerve and is attached to the metencephalon just rostral to the otic vesicle. This facioacoustic primordium (acousticofacial crest) is fibrous in its attachment but soon becomes cellular as it courses ventrally. It passes rostral to the otic vesicle and, at the lower part of the vesicle, the acoustic division arises. The major division of the primordium (facial part) continues ventrally, becomes more cellular and compact, and appears as a column of cells. In 4.8 to 6.5 mm embryos the facial division of the facioacoustic primordium is less cellular than the acoustic division and, as it courses ventrally, it is partially surrounded by the developing acoustic ganglion. The facial division separates into two almost equal parts. The caudal part, which constitutes the main trunk of the facial nerve, shortly disappears into the surrounding mesenchyme. The rostral part enters the mandibular arch by passing ventral to the first pharyngeal pouch and will become the chorda tympani nerve, the first branch of the facial nerve to develop. The proximal part of the facioacoustic primordium begins to separate into two distinct nerves in 8.0 to 10.6 mm embryos. A complete separation appears at 14.0 mm and a discrete nervus intermedius is present at 16.5 mm. In 18.0 mm embryos the nervus intermedius is considerably smaller than the motor root of the facial nerve and is arranged as one or two main bundles that pass from the geniculate ganglion to the brainstem between the motor facial root and the acoustic nerve. In pre-fetuses 20.2 - 41.0 mm the facial nerve becomes proportionally smaller in relation to the total cranial region and its peripheral branches gradually approach the definitive condition. Proximally the facial nerve is round or oval on transverse section although peripherally, in some areas of the face, it is flat.