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Topographico-anatomic peculiarities of the external carotid artery in the perinatal period

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Abstract

Background: the importance of the given issue is in clarification of ontogenetic transformations of the external carotid artery during the perinatal and early neonatal periods, which is essential from the view of surgical treatment of congenital pathology of the cervical vessels in fetuses, neonates and infants.
Material and methods: the study was performed on 50 specimens of dead fetuses (from 4 to 10 months) and 9 neonates (5 isolated complexes of organs in particular) without external signs of anatomical defects or deviations, and without visible macroscopic anomalies from the normal structure of the cardio-vascular system. Adequate anatomical methods of investigation were applied during examination: macropreparation, injection of the blood vessels, making topographic-anatomical sections, morphometry, and statistical analysis.
Results: the cervical part of the external carotid artery during the perinatal period is a distance from its origin to the point of crossing with the stylohyoid muscle. The major branches of the cervical part of the external carotid artery are: the superior thyroid one, hyoid, facial, occipital and posterior auricular arteries. The two types are peculiar for the branching of the external carotid artery: main (77%) and scattered (23%). Variability of emerging branches from the external carotid artery is found in 3.5% of cases.
Conclusions: determination of typical and variant topography of the external carotid artery and its branches will promote implementation of new methods to perform radical and reconstructive-restorative surgery on the cervical vessels.

Key words: external carotid artery, topography, fetus, neonate, human subject.