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Hard palate in fetal and early neonatal periods of human ontogenesis

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Abstract

Background: This investigation is important to reveal hard palate ontogenetic transformations in fetal and early neonatal periods, which is important for the facial surgery in fetuses, newborns.

Material and methods: Investigations have been performed in 53 cadavers of fetuses from 4 to 10 months of development, and in 9 cadavers of newborn children of both genders, who died of the reasons not connected with digestive system diseases or anomalies, and were without external signs of anatomic deviations or abnormalities, and were without evident macroscopic deviations of skull structure. Adequate anatomic methods have been used for investigation: macropreparations, topographic anatomical sections, morphometry, and statistical analysis.

Results: Variants of the hard palate shapes during fetal and early neonatal periods of ontogenesis are the following: trapezium (15%), square (10%), and ellipse (7%) shapes. The shapes of the trapezium were detected in most cases in 6-7-month fetuses (20%), and in equal percentage proportion in early and late fetuses (12%). The square form is a characteristic variant form in early fetuses (17%), with fetuses age increase this form was detected in less cases, in 6-7-month fetuses – in 10%, in late (8-10 month) fetuses – in 8%, and within the newborn period the square form was not observed. The form of the ellipse was observed in larger percentage proportion in late fetuses and in newborns (12%), in less proportion (5%) – in 6-7-month fetuses, in early fetuses this form was not detected at all. Forms of the ellipse and of the trapezium were observed in equal number of cases in 8-10-month fetuses and newborns. With fetuses development the hard palate form in sagittal and frontal planes changed from arcuate to flat one.

Conclusions: An ascertainment of typical and variant anatomy of hard palate forms and types would promote implementation of the new methods of major and reconstructive surgical invasions in face and skull.

Key words: hard palate, anatomy, fetus, newborn, human.