АНОМАЛИИ ЧЕРЕПА ЧЕЛОВЕКА

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ABNORMALIES OF THE HUMAN SKULL

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Relevance of the topic: There are abnormalities of the skull, causing no pathological changes in the brain and abnormalities, associated with malformations of the brain and organs related to the brain, or abnormalities, creating conditions for the development of CNS pathology.

There are two groups of abnormalities. The first group has been shown to include: non-permanent bone sutures, fontanelles, bone islet, non-permanent sutures, great parietal foramen, or thinning of parietal bone or parietal impression as local absence of external bone plates, foraminous skull and others. As a rule, these defects are not manifested clinically, tending to be detected accidentally by X-ray examination and do not require treatment.

The second group can be associated with impaired development of the brain. In case of unclosed front of the neural tube during the embryonic period the brain and skull remain open on the dorsal side, which is known as cranioschisis. This condition is accompanied by hypoplasia of the brain up to its complete absence (anencephaly), resulting in the formation of cerebral hernias.

In craniostenosis patients are found to have various alterations in skull configuration (tower, scaphoid, wedge-shaped, sloping skull et cetera). The types of craniostenosis include craniofacial dysostosis, Crouzon syndrome, or craniostenosis associated with hypoplasia of the facial bones, short hooked nose, shortening of the upper jaw, exophthalmos, strabismus, hypertelorism.

It has been established that alterations in the size of skull, observed in microcephaly are characterized by a decrease in the size of cranium and brain with normally developed facial skeleton. There are true microcephaly, which can be hereditary and radiation microcephaly, which develops due to ionizing radiation exposure in utero. An abrupt increase in the size of the cranium with normal facial size usually indicates hydrocephaly. Increase in size of the skull is possible due to excessive development of the brain with no signs of hydrocephaly (megalocephaly, macrocephaly).

The study allowed the authors to determine the following malformations of the skull, resulting in the formation of brain herniation, which are protrusions, covered with skin, located in

front or behind the midline defects, connecting with the cavity of the skull through defects in skull bones development. The most common are: a) anterior encephalocele at the hernial orifice in the region of the nose bridge; b) posterior cerebral hernia observed in occipital bone defect. These children are often found to have other malformations. Hernia content determines the type of abnormalities, namely: a) encephalocele, when the contents are only dense tissue; b) meningocele, with protruding meninges filled with liquid; c) encephalocystocele, hernia filled with brain tissue and cerebrospinal fluid.

It has been determined that basilar impression is abnormal development of the skull, which is manifested by flattening of its foundation. It can develop as a consequence of prolonged intracranial hypertension in childhood.

Basilar impression is known to be characterized by: • flattening of the skull base; • a reduction of anterior and posterior cranial fossae; • a reduction of clivus; • clivus location in the horizontal plane.

Basilar impression is usually congenital and is observed as intracranial impression of the skull base into the cavity of the posterior fossa.

The incidence of basilar impression in the population comprises 1 - 2% and it is regarded as one of the most studied abnormalities of the craniovertebral zone.

This anomaly is largely conditioned by underdevelopment of foramen magnum edges (as in hypoplasia or dysplasia). The following forms of basilar impression are distinguished depending on the location of underdevelopment site: •anterior; •posterior; •paramedian; •mixed.

Conclusion: Detection of cranial pathology is necessary at early stages for further treatment success and successful outcome.