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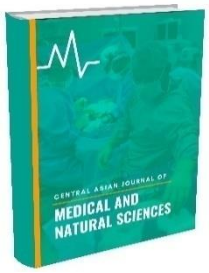

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Specifics of Determining the Age of a Brain Injury

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Abstract: The article deals with the age of craniocerebral injuries. Morphologically, they often manifested as epi-, subdural and subarachnoid haemorrhages. According to the character of morphological changes, particularly the state of hemorrhage, presence of coagulation, colour, organization or dissolution, density and some other attributes the age of the injury could be defined definitely.

Keywords: craniocerebral trauma, morphological changes, age of the injury.

Introduction. In the modern world, due to an increase in exogenous factors affecting human health, an increased traumatization of the population has been noted, with craniocerebral injury standing out in the structure of mechanical injuries [2]. It is most common in road traffic accidents and mostly in people of working age [5,9,16]. The greatest difficulty for both clinicians and forensic physicians in assessing the severity of the head injury is to determine the age of the head injury [10,14]. Difficulties are also caused by the presence of concomitant diseases (atherosclerosis, hypertension, coronary heart disease, etc.) [7,8]. In particular, diagnostic errors in the provision of medical care are the cause of incorrect forensic qualification of the harm caused to human health [3,11,12]. Therefore, these circumstances justify the need for improved diagnosis of craniocerebral injury [13,15]. Determining the age of a head injury is important in the investigation of crimes against health and life, and therefore law enforcement agencies constantly raise this question for forensic examination [1,4,6].

The aim of the study was to determine the age of the craniocerebral trauma by morphological changes of hemorrhages.

Material and methods of investigation. We have conducted a retrospective analysis of 40 reports of forensic medical examination of the corpses which died of craniocerebral trauma, carried out in the Samarkand regional branch of the Republican Scientific and Practical Centre of Forensic Medicine.

Study results. The findings showed that head injury was more common in males 34 (85%) than in females 6 (15%) from a gender perspective. By age group, it was more common in those of working age (75%). The brain injury was combined (67%) rather than combined (24%) and isolated (9%).

The morphological characteristics of the changes detected in craniocerebral trauma manifested themselves mainly as epidural, subdural and subarachnoid haemorrhages.

Epidural haematomas during the day in the form of liquid blood with coagulation; on the 2nd or 3rd day - moist, shiny blood coagulation; on the 4th or 5th day dark red colour with brownish tint, thickened to the touch; by the end of the 1st week pronounced brown colour, thickened to the touch; dark brown by the 2nd week, crumbling on pressure; by the end of the 2nd or 3rd week a more pronounced connective-tissue capsule; subsequently scar-like thickening of dura mater with overgrowth into cranial bone.

Subdural haemorrhages within 24 hours as liquid blood with unformed small clots; by end of 2-3 days hematoma as formed dark red clot; by end of 1st week blood clot brown; by end of 2nd week relatively firmly fused with dura mater; after 2-3 weeks a capsule begins to form around the haematoma with gradual thickening; at the end of a month the outer layer of the capsule may be as thick as the dura mater; several months later it is brownish-grey in colour; over time it becomes organised and slowly dissolves, even years after injury, as layers on the dura mater.

Subarachnoid haemorrhages usually fill the sulcus gradually as liquid blood, partly mixed with the cerebrospinal fluid, and reach the cerebral base cisterns; over a week the blood resorbs. If blood enters the subarachnoid space, aseptic meningitis may develop. Diffuse subarachnoid haemorrhages spread over the entire surface of both hemispheres. Small focal haemorrhages, stasis of blood in the microvessels may be found in the cortical areas subjected to subarachnoid haemorrhage. With massive or repeated subarachnoid hemorrhages cerebrospinal fluid absorption is impaired and hydrocephalus may develop.

Conclusion. Consequently, the results of this study indicate that craniocerebral injuries morphologically manifested as epi-, subdural and subarachnoid hemorrhages. The nature of their changes, in particular the state of hemorrhage, presence of coagulation, colour, organization or resorption, density and a number of other signs can definitely determine the age of the injury.

Literature.

1. Barygina A.A. Peculiarities of assessment of certain types of Types of Evidence in Criminal Proceedings: Monograph / A. A. Barygina. - Moscow: Yurlitinform, 2013.
2. Bakhriev I.I., Islamov Sh.E., Kakhkharova Z.T. et al. Morphological characterization of craniocerebral trauma// Infection, Immunity and Pharmacology. - 2020. - №1. - C. 17-21.
3. Giyasov Z.A., Islamov Sh.E. Establishment of locations of medical care defects// Forensic Medicine. - 2019. - №1. - C. 29-32.
4. Kolesnikov A.O. Forensic medical assessment of fractures of bones of the skull vault in impact influences depending on their anatomical features and character of traumatic object. //Prof. c.j.s., 2002. - 24c.
5. Novokshonov A.V., Lastaev T.V. Craniocerebral injuries in children with polytrauma // New Medical Technologies. - №1, 2015. - C.23-28.
6. Permyakova N.V., Dolgova O.B., Kokorin D.L. Optimization of interaction between investigators and forensic medical experts in the investigation of criminal cases in cases of death of victims from

craniocerebral injury // Bulletin of the Ural Law Institute of the Russian Interior Ministry - № 3, 2018. -C. 33-41.

7. Pigolkin Y.I., Dubrovin I.A., Leonov S.V., Gornostaev D.V. Craniocerebral trauma. Mechanogenesis, morphology and forensic evaluation. - Moscow, 2018 - 248 p.
8. Pigolkina E.Y., Dorosheva J.V., Sidorovich Y.V., Bychkov A.A. Modern aspects of forensic diagnostics of craniocerebral trauma// Forensic medical examination. - 2012;55(1). - C. 38-40.
9. Sarsenov T.K. Forensic assessment of craniocerebral injury in forensic medicine // Science and Health Care. - №4, 2013. - C.66-68.
10. Shevchuk V.A. et al. Traumatic brain injury. Issues of pathogenesis and intensive care of contusion foci // Bulletin of the Ukrainian Association of Neurosurgeons. - Kiev, 2001. - C.13-17.11. Islamov Sh.E. Subjectivity in defects in rendering medical aid // European science review, Vienna, 2018. - №11-12. – P. 95-97.
11. Makhmatmuradova N.N., Safarova M.P. Charasteristics of chronic obstructive pulmonary disease// Материалы Международной научно-практической конференции «Тенденции и перспективы развития науки и образования в условиях глобализации», Переяслав-Хмельницкий, 2019, с. 510-512.
12. Marion DW. Introduction // Traumatic Brain Injury / Marion DW. — Stuttgart : Thieme, 1999. — ISBN 0-86577-727-6.Parikh S., Koch M., Narayan R.K. Traumatic brain injury // Int Anesthesiol Clin. — 2007. — T. 45, № 3. — P. 119—135.
13. Saatman K.E., Duhaime A.C. Workshop Scientific Team Advisory Panel Members; Classification of traumatic brain injury for targeted therapies // Journal of Neurotrauma . — 2008. — Vol. 25, no. 7. — P. 719—738.
14. Valadka A.B. Injury to the cranium // Trauma / Moore E.J., Feliciano D.V., Mattox K.L. — New York : McGraw-Hill, Medical Pub. Division, 2004. — P. 385–406.