CLINICO-PATHOANATOMICAL COMPARISONS AND DIAGNOSTICAL ERRORS IN BRAIN STEM HEMORRHAGES

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Primary cerebral trunk hemorrhages, according to data submitted by various authors, amount to 2—10% of all hemorrhages of the brain (3). They usually occur within the pons varolii and rather seldom — within the cerebral peduncles and medulla oblongata (2, 9). In most of the cases, the hemorrhage is localized in the tegmentum of the bridge of Varolius and rather seldom it extends to its pars basilaris (1, 5, 13).

The clinical picture of brain stem hemorrhages is usually characterized by acute onset of the affection, unconsciousness, narrow pupils — the latter symptom being considered as the most frequently met and characteristic in varolian pons affection (2, 3, 4, 11, 12, 15, 16). Occasionally, the following findings are also present: inequality of pupils and ocular rima, eyeball deviation externally, nasally, downwards or at a variable height along the vertical axis, paresis of the facial nerve — central or peripheral type. The muscle tone is increased, reduced or altered according to type of decerebration rigidity. Pathological reflexes are noted bilaterally (14) and rather seldom — unilaterally. In some of the patients meningeal syndrome is likewise discovered (6). Disturbed respiratory rhythm of the type Cheyne-Stokes is observed in most of the cases and sometimes acute facial cyanosis as well. The clinical picture in some instances greatly resembles that of ventricular hemorrhage (13). Hemorrhages within the bridge and the middle brain do not invariably lead to sudden death (7). In some instances the punctate character of the hemorrhage, gradually intensifying does not account for prompt, heavy changes of the nerve system, incompatible with life (7).

We assumed the task to carry out a clinico-pathoanatomical comparative study on the basis of patients dying from isolated brain stem hemorrhages as well as to lay emphasis on diagnostical difficulties and inadequate assessment, diagnosticalwise, of some symptoms.

For better illustration, we discuss the following case reports:

1) S. H. E., female aged 72, history of illness № 1738/1964.

In the morning of 12 February, 1964, she was found in bed, fully unconscious with snoring (raling) respiration. From the past history — parkinsonism dating back 15 years.

Somatic state—the patient was comatose with noisy, stertorous breathing. Heart sounds — dull. Blood pressure — 190/100. Neurologic state — slight down- and outward shift of the left eyeball. The pupils are slightly mydriatic, bilaterally, equally lacking light reflex. Increased muscular tone with the coggedwheel symptom and leftside hypertension more slightly pronounced and more readily overcomed. Babinski — positive bilaterally, but more pronounced to the right.

Paraclinical investigations — eye bottoms — bilateral cataract, owing to which the fundi could not be inspected. The oscillatory index of the left brachial artery exhibits a leftsided shift and reduced amplitude of oscillations. Blood cholesterol 260 mg%, blood sugar — 140 mg%, urea — 29.8 mg%. Prothrombine index 90%, Hb — 74%, erythrocytes — 3 580 000, leukocytes — 7400, erythrocyte sedimentation rate — 22 mm. Liquor — slightly xanthochromic and partially transparent, Pandy (++), Nonne-Apelt (++), protein — 90 mg%, leukocytes 2/3, erythrocytes 247/3.

In the course of several days the grave condition of the patient persisted and at 16 pm on February 15th, 1964, she expired displaying phenomena of cardiovascular and pulmonary insufficiency.

Clinical diagnosis: Hypertonic disease stage III, hypertonic heart, diffused cerebral atherosclerosis. Brain insult — a massive hemorrhage within the system of the deep branches of the right medial brain artery with subarachnoidal space leakage. Cerebral edema. Leftside central hemiparesis. Hypostatic bronchopneumonia. **Concomitant affections:** chronic stage of lethargic encephalitis with slight residual lesion of the left oculomotor nerve.

Pathologo-anatomical diagnosis (autopsy protocol № 52/15. 2. 1964): Hypertonic disease, stage III, hypertonic heart. Generalized atherosclerosis. Atrophy of the left frontal lobe. Massive hemorrhage in the pons, mainly in the lower half and in the cerebral peduncles. Pulmonary emphysema and bronchopneumonia. The patient survived for three days despite the massive hemorrhage in the pons and cerebral peduncles.

The circumstance that in the past history of the patient diseases were present, preceding the cerebral hemorrhage — parkinsonism with residual left oculomotor nerve lesion — obviated the correct interpretation of some of the characteristic of trunk hemorrhage symptoms.

2) The case report concerns a male patient — L. G. N. — 63-year-old, with history of illness № 7904/1965.

On 14 June, 1965 he awoke with heavy headache and left facial half numbness. Gradually the headache intensified to the extent of becoming intolerable. At this time the blood pressure was normal. On the following day low back pains appeared. Somatic state — arrhythmia of heart beat, with dull sounds. Blood pressure 120/80.

Neurological state — equal pupils, reacting to light, accommodation and convergent. Well pronounced meningeal syndrome. Leftside facial hypesthesia.

Paraclinical investigations—erythrocyte sedimentation rate after Westergreen — 43/85, leukocytes — 7500, differential count: stab cells 0%, segmented cells — 67%, lymphocytes — 20%, monocytes — 7%, eosinophil — 6%, eye bottoms — within normal limits. Liquor on 17 June, 1965 — bloody, after centrifugation — xanthochromic, Pandy — +, Nonne Apelt +, Rivalta (—), leukocytes 8/3, lymphocytes — 46%, segmented cells 54%, protein — 40 mg%. During the hospitalization in the clinical ward he sustained herpes of the upper lip, furred tongue, feebleness, reduced hearing capacity to the left and anisocoria — the right pupil had a longer diameter than the left. On 11 July, 1965 the patient died suddenly with phenomena of acute pulmonary and cardiovascular insufficiency.

Clinical diagnosis: Cerebral atherosclerosis. Subarachnoid hemorrhage. Myocardiosclerosis arteriosclerotica. Arrhythmia perpetua. Heart infarction.

Pathologo-anatomical diagnosis (autopsy protocol № 354/1965): hemorrhage in the left pons peduncle, the size of a hazelnut, and another one, smaller, measuring a pea grain, in the left half of the vermis. Surrounding the hemorrhagic foci, areas are detected of grey softening, the size of a 5 stotinki coin. Parenchymatous dystrophy of the myocardium.

This patient survived for 24 days and died suddenly when his general condition was comparatively good.

The relatively longer life span after the hemorrhagic onset is, in all likelihood, due to the tiny punctiform hemorrhages, which gradually became confluent. The initial symptoms with this patient were headache, meningeal syndrome and leftside facial hypesthesia. In this case the leftside involvement of n. trigeminus was scarcely evaluated. The presence of meningeal syndrome and the lesion of the craniocerebral nerves and trigeminus in particular should have been sufficiently indicative for the involvement of the pons varolian region.

3) The third case report concerns a male patient P. A. B., 57-year-old, with history of illness 2826/1966.

Past history—on 7 March, 1966 after physical strain, he sustained paresis of the left hand which was converted in 10—15 min into plegia with consciousness disorders and comatose state. Somatic state — cyanosis of the lips, nose and fingers of the hand. Accelerated breathing — 28 per minute and accelerated cardiac activity, pulse — 110/min. Blood pressure in the right hand 165/110, and of the left — 150/100.

Neurological state—pupils moderately extended, subsequently becoming narrow, not reacting to light and homatropine. Leftside central hemiplegia in flail state.

Paraclinical investigations — prothrombine index — 76%, Hb — 78%, leukocytes — 9250, erythrocyte sedimentation rate after Westergreen — 8/21, blood sugar — 200 mg%, eye bottoms — could not be examined — pupils narrow, not reacting to homatropine. Cardiogram — sinus rhythm, right femural block.

Clinical diagnosis: Hypertonic disease, stage III. Compensated hypertonic heart. Coronary sclerosis. Brain insult — massive confluent hemorrhage within the system of the right medial cerebral artery. Brain edema. Coma. Hypostatic bronchopneumonia.

Pathologo-anatomical diagnosis (autopsy protocol № 126/10. 3. 1966): Hypertonic disease with hypertrophy and dilatation of the left ventricle. Generalized atherosclerosis. Hemorrhage in the right cerebral peduncle and medulla oblongata with edema of the brain and cleavage. Blood was found in both lateral and fourth ventricle. Subarachnoid hemorrhage in the region of the pons and the cerebellar base.

This woman lived for 42 hours after sustaining the cerebral insult. The prompt lethal outcome might be explained with the localization of the hemorrhage within the right cerebral peduncle and medulla oblongata. The severe comatose condition on admission camouflaged up to a certain extent the clinical picture. Nevertheless, the presence of punctiform pupils in this patient, not reacting to light and homatropine was not properly inter-

preted in the differential diagnosis and, thereby, the trunk hemorrhage was accepted as a hemorrhage developing within the system of the right medial cerebral artery.

Discussion

It is evident from the review of the case reports with hemorrages in the cerebral trunk that there exists a discrepancy between the clinical and patho anatomical diagnosis. This is due to the heavy comatose condition, which up to a great extent camouflaged the clinical picture, on one hand, and on the other — also to the circumstance that some of the symptoms, characteristic of the stem affection, were not analysed sufficiently well. Thus for instance, the punctate pupils were established in case report three, but nevertheless, this symptom was not taken into consideration in establishing the diagnosis. Moreover, in the second case the involvement of the trigeminus was not correctly accounted for and instead of assuming a narrower left pupil, which would be in compliance with the trunk hemorrhage localization the right was accepted as wider. Hence the discrepancy between the clinical and patho-anatomical diagnosis. The inference seems justified therefore that for the correct establishing of diagnosis, the consideration of certain though isolated, but indicative for stem affection symptoms appears to be mandatory. Unlike stem softenings, in hemorrhages alternating syndromes are observed more rarely (10), owing to their extensiveness and heavy usually comatose state of the patients. Alternating syndromes which might provide for better orientation in terms of trunk affections were not detected in our series. It is beyond doubt that it depends on the site and size of the focus. Lately, the establishing of correct diagnosis in brain-stem hemorrhages assumes an utmost importance due to the surgical policy adopted in some instances of hemisphere hemorrhages. There is no indication for surgery in trunk hemorrhages.

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КЛИНИКО-ПАТОЛОГОАНАТОМИЧЕСКИЕ ПАРАЛЛЕЛИ И ПРОПУСКИ ПРИ ОПРЕДЕЛЕНИИ ДИАГНОЗА КРОВОИЗЛЯНИЕ В МОЗГОВОЙ СТВОЛ

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РЕЗЮМЕ

Авторы провели клинико-патологоанатомический анализ у трех больных, умерших в результате первичного кровоизлияния в ствол мозга. Во всех трех случаях было установлено наличие несовпадения между клиническим и патологоанатомическим диагнозами. Это объясняется с одной стороны тяжелым коматозным состоянием, которое в большой степени маскирует клиническую картину и, кроме этого, недостаточно хорошо проведенным анализом некоторых симптомов, соответствующих поражению ствола. Авторы обращают внимание на некоторые, хотя и изолированные симптомы, как узкие зрачки и периферическое поражение черепномозговых нервов, которые облегчили бы определение диагноза — кровоизлияние в ствол головного мозга.