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CLINICAL CASE OF SENSORY STROKE

Introduction

Stroke is a sudden onset focal or global loss of brain function with symptoms lasting more than 24 hours or leading to death with no apparent cause other than vascular in origin. A stroke occurs due to supply of blood in the brain becomes compromised. This can happen when the blood clot obstructing an artery and stopping blood flow to an area of the brain called an ischemic stroke (atherosclerosis, vasculitis, thrombophilia and cardio embolism) and an artery in the brain bursting and leading to bleeding inside the brain called a hemorrhagic stroke (AV malformation, aneurysm, hypertension and anticoagulants) [1].

There are 9 major sections of the brain that can be affected by stroke. Each area of the brain controls different functions. Frontal lobe stroke, Parietal lobe stroke, Temporal lobe stroke, Occipital lobe stroke, Cerebellar stroke, Brain stem stroke, Basal ganglia stroke thalamic stroke and internal capsule stroke these are the places of the brain where stroke occurs. During a stroke, the affected areas of the brain cannot receive enough oxygen-rich blood. As a result, brain tissue begins to die. Oxford shire classification of stroke can be 4 types: 1. Total anterior circulation syndrome (hemiparesis, hemianopia and higher cortical dysfunction/ dysphasia), 2. Partial anterior circulation syndrome (any 2/3 of TACS or higher cortical dysfunction), 3. Posterior circulation syndrome (isolated hemianopia or brainstem or cerebellar signs) and 4. Lacunar syndrome (pure motor, pure sensory, sensorimotor and ataxic hemiparesis). Depending on the area of the brain affected by stroke, this damage will cause changes in certain sensory, motor and cognitive functions [3].

The cerebral cortex (cerebrum) is a large part of the brain that includes 4 lobes: the frontal lobe, occipital lobe, parietal lobe and temporal lobe. Strokes in these regions are known as a cortical strokes. Aside from the cerebrum, there are subcortical structures that lie deep within the brain [4]. Strokes in these areas of the brain called as subcortical strokes. The arteries that supply the subcortical areas of the brain are smaller and more delicate. A hemorrhagic subcortical stroke can occur when these delicate arteries rupture due to high blood pressure or other complications.

When an ischemic stroke occurs in the subcortical regions, it's referred to as a lacunar stroke. There are many differences between cortical and subcortical strokes. For example, cortical strokes often impact higher level functioning; and it's uncommon for subcortical strokes to result in language difficulties. A stroke in the parietal lobe can affect the brain's ability to interpret sensory information and spatial awareness. As a result, parietal lobe stroke patients often struggle with piecing together their experiences [3]. A parietal lobe stroke mostly affects sensory interpretation along with language skills and spatial awareness. Some secondary effects of this cortical stroke include hemineglect, difficulty writing (agraphia), difficulty reading (alexia), and difficulty speaking (aphasia) [1]. A stroke in the parietal lobe occurs when a blood vessel in the parietal lobe either gets clogged by a blood clot (an ischemic stroke) or the blood vessel bursts (a hemorrhagic stroke). Parietal lobe stroke affects your ability to process sensory information and understand spatial awareness. There is hope for recovery. Through repetitive

practice, neuroplasticity is promoted, and parietal lobe functions can be reassigned to undamaged areas of the brain [1, 3].

A stroke in the occipital lobe often causes vision problems since this area of the brain processes visual input from the eyes. A stroke can be isolated to the occipital lobe, or it may be more widespread, affecting nearby brain structures such as the cerebellum, brain stem, thalamus, or temporal lobe. Many occipital lobe stroke survivors sustain hemianopia, or partial blindness. This can be remedied, at least to some degree, through vision restoration therapy [2]. The occipital lobe, the final type of cortical stroke, plays a large role in your vision. As a result, and occipital lobe stroke often results in vision difficulties like central vision loss, cortical blindness, visual hallucinations, or other secondary effects [1]. When an artery that supplies blood to the occipital lobe, located in the back of the brain, becomes compromised, an occipital stroke occurs. Common symptoms of a stroke include weakness on one half of the body, facial drooping, and slurred speech. An occipital lobe stroke, however, may not cause these symptoms. A stroke specifically in the occipital lobe is rare because the arteries in this area have a safety mechanism for blood flow called the «Circle of Willis». As its name suggests, the Circle of Willis refers to arteries in the brain that are connected in a circle, allowing blood to flow forward or backward to compensate for narrowed or damaged arteries [2].

Lacunar strokes are strokes caused by the occlusion of a small branch of a larger blood vessel. Because of the way blood vessels divide in the brain, lacunar strokes tend to occur in areas located in the deeper parts of the brain, where many of the smaller blood vessel branches are located [4]. As their name implies, pure sensory lacunar strokes are strokes in which the only symptoms are sensory abnormalities, such as numbness or unusual perception of pain, temperature, or pressure. The overwhelming majority of pure sensory lacunar strokes affect a brain area called the thalamus, an area that is heavily involved in processing the senses from all over the body. Sensations affected by a pure sensory stroke include touch, pain, temperature, pressure, vision, hearing, and taste [4]. Most cases of pure sensory lacunar stroke produce an absent or abnormal sensation in the face, arm, leg, and thorax, but only on one side of the body. In many cases, however, different body parts such as the fingers, the foot, or the mouth on one side are affected in isolation. A common type of pure sensory lacunar stroke is called Dejerine Roussy, which is an example of central pain syndrome [4]. Pure sensory stroke (PSS) is a welldefined clinical entity in which hemisensory symptoms predominate without other major neurological signs. Pure sensory stroke, initially described by Fisher almost 50 years ago, especially when tract-specific, may easily be explained away as a functional disorder. The strokes may be very small, located anywhere in the sensory pathway from the pons to the parietal cortex. Pure sensory strokes are characterized by subjective symptoms with no evidence of weakness, speech difficulties, or other classical symptoms of cerebral infarction or hemorrhage. Symptoms may be subtle and progress within hours, may include positive phenomena like tingling, and may thus lack the characteristic apoplectic loss of function. Improvement and normalization within weeks is considered to be the rule. However, central pain, which usually involves damage to the spinothalamic tract or the thalamic ventro-posterior nucleus (VPN), has been known for more than a century. Here we describe a unique case with a vascular lesion in the posterolateral part of the thalamus on both sides, developing both an incomplete and a complete sensory hemi-syndrome with post-stroke pain accompaniment [5].

Goal

To study occipital and parietal areas of the brain can be affected by sensory stroke, along with common secondary effects.

Material and methods of research

We present to your attention a clinical case of sensory stroke. Patient M, 60 years old, was admitted to the stroke department of the Gomel University Clinic with complaints of clumsi-

ness in the left limbs. Acutely ill at home in the evening, when the patient developed dizziness and clumsiness in the left limbs, due to which he fell. Was taken by ambulance to the hospital.

In neurological status: In a clear mind. Somewhat uncritical to his condition, euphoric. There are no speech disorders. Reflexes of oral automatism are negative on both sides. Pupils D=S, 3 mm. The mobility of the eyeballs in full. There were no sensory disorders on the face, the exit points of the trigeminal nerve were painless. The face is symmetrical. Hearing and vestibular function are not changed. The soft palate is mobile, symmetrically phonates. Swallowing solid and liquid food is free. Tongue in the midline. Deep reflexes from arms and legs above on the left. There are no power cuts. Muscle tone D=S, not changed. St. Babinsky + on the left. Superficial and deep sensitivity is significantly reduced in the left limbs. Sensitive ataxia of the left limbs. Coordination violations were not revealed. Stable in the Romberg position. There is no pathological muscle fatigue and myotonic delay. Tremor and other extrapyramidal disorders were not detected. Violation of the function of the pelvic organs denies. There are no meningeal signs. On CT scan of the brain: the focus of cerebral infarction is 1.5 cm in the right parietal lobe. The analysis and generalization of modern medical scientific literature on this topic. (NCBI, Pub-Med and journals).

The results of the research and their discussion

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Conclusion

Small strokes only affecting the somatosensory system should not be underestimated. Neuropathic pain may result. Probably unique in the present case is the demonstration of bilateral thalamic pain secondary to two almost identical thalamic infarcts. Small vessel disease (microatheroma or lipohyalinosis) was the most likely cause of the lacunes. One can only speculate if there was an occlusion in two separate thalamic perforators, or in a single dominant artery supplying the bilateral thalami.

LITERATURE

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THE LATEST TREATMENTS FOR BRAIN TUMORS (GLIOBLASTOMA)

Introduction

A brain tumor is a growth of abnormal cells in the brain. The anatomy of the brain is very complex, with different parts responsible for different nervous system functions. Brain tumors can develop in any part of the brain or skull, including its protective lining, the underside of the brain (skull base), the brainstem, the sinuses and the nasal cavity, and many other areas. There are more than 120 different types of tumors that can develop in the brain, depending on what tissue they arise from.

Goal

To provide an overview on the current treatment methods used to treat brain tumor globally and to provide a better understanding on the advances of new treatment methods used to treat brain tumor and to show how successful these treatment methods are, using clinical trials which have been carried out globally as examples.

Material and methods of research

The search of information was conducted through the research of scientific articles and systematic literature and the results were screened for the relevance review topic and also new articles were added based on the clinical knowledge of the author on the specific area. Statistical information was also obtained from clinical trials conducted on the area of review.

The results of the research and their discussion

Glioblastoma (GBM), also referred to as a grade IV astrocytoma is a fast-growing, aggressive and deadly brain tumor. It invades the nearby brain tissue, but generally does not spread to distant organs. GBMs can arise in the brain de novo or evolve from lower-grade astrocytoma. In adults, GBM occurs most often in the cerebral hemispheres, especially in the frontal and temporal lobes of the brain. GBM is a devastating brain cancer that can result in death in six months or less, if untreated; hence, it is imperative to seek expert neuro-oncological and neurosurgical care immediately, as this can impact overall survival.

Prevalence and Incidence

Glioblastoma is the most common malignant brain and other CNS tumors accounting for 47.7 % of all cases.

Table 1 – Indicates prevalence and incidence of the neuroglioblastoma

Incidence	Age	Gender
3.21/100,000 population	Older > young	Male > female