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Clinical Case: Vomiting Syndrome: Gastritis or Brain Tumor?

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Annotation: The article describes a case of a 16-year-old child with a brain tumor with clinical manifestations in the form of vomiting syndrome. The frequency of occurrence in the population, the initial clinical signs, and the advantages of neuroimaging methods to confirm the diagnosis are considered.

Key words: child, vomiting, gastroduodenitis, brain tumor.

Vomiting is a frequent symptom of many pathological conditions in children, sometimes single, not posing a danger to the child, and sometimes multiple, often indicating a threat to the patient's life. In all situations, to clarify its causes, it is necessary to conduct a thorough anamnesis and, if possible, conduct a full examination of the child [1]. Collecting anamnesis, clinical, instrumental, and laboratory examination of a sick child is carried out, the doctor should strive to determine the main pathogenetic mechanism of vomiting and, depending on this, choose a diagnostic and treatment plan. It should be remembered that repeated vomiting often leads to serious clinical and metabolic disorders, threatening the life of the child. Vomiting is known to be preceded by nausea[1,2,3].

The vomiting center is located at the bottom of the IV ventricle of the medulla oblongata, it is activated directly by afferent impulses arising in various parts of the body, whereas many drugs and toxins affect the chemoreceptor zone. So, the gag reflex can be both on the periphery (receptors of internal organs) and in the medulla oblongata (chemoreceptor zone).

There is vomiting of visceral (peripheral, reflex) and central genesis (nervous), as well as hematogenic-toxic. Vomiting, which has a visceral genesis, can be esophageal, gastric, and reflex [3,4]. Vomiting of central origin can occur with increased intracranial pressure, hypertensive crisis, brain cancer, cerebral circulation disorders, traumatic brain injury, migraine, damage to certain structures of the inner ear, and seasickness[4,6]. Vomiting of central genesis is observed when the baroreceptors of the brain are irritated. With this type of vomiting, headache is characteristic. Such vomiting occurs during the volumetric process of the brain, meningitis, hemorrhages, cerebral edema, hydrocephalus, and other conditions accompanied by an increase in intracranial pressure[6].

So every year more than 200-260 patients come to Bukhara Regional Children's Multidisciplinary Medical Center with complaints of vomiting. The causes of vomiting are different. In most cases, these are diseases of the gastrointestinal tract, sometimes pathologies of the central nervous system. In very rare, unfavorable cases - brain tumors.

Case from practice: A boy, 16 years old, complained to his mother about nausea, vomiting, severe

heartburn, and headaches. Ill for the last 2 weeks. Vomiting without nausea was observed at times. Within 3-4 days, he received outpatient treatment at his place of residence, and the effect of the therapy was temporary. After that, the mother turned to the Bukhara Regional Children's Multidisciplinary Medical Center. The child was examined, and fibro gastro duodenoscopy was performed. With the conclusion of FGDS, the child was hospitalized in the gastroenterology department. From the anamnesis of life: a child from second pregnancies, born on time, weighing 3900.0 grams, breastfeeding up to 2.5 years, grew and developed according to age, vaccinated on time, had acute respiratory diseases, pneumonia. Headaches were often observed. The marriage of the parents is not related, and hereditary diseases in the family were not observed. Allergoanamnesis is not burdened. With an objective examination at the time of admission: the general condition of the child of moderate severity. Consciousness is preserved. The physique is correct. The musculoskeletal system without deformities. The skin and mucous membranes are clean and pale. Peripheral lymph nodes are not palpated. Breathing through the nose is free, vesicular breathing in the lungs. The heart tones are rhythmic and clear. The boundaries of the heart are normal. Pulse of medium filling and tension. Appetite is lowered, and the tongue is slightly overlaid at the root. Swallowing is saved. The abdomen is rounded, participates in the act of breathing, and soreness is noted with deep palpation in the epigastric region. Vomiting was observed without nausea, in small portions, with mucus, and with an admixture of food. The child has been prescribed treatment by the protocols of diagnosis and treatment. The next day, during the examination, the patient had horizontal nystagmus, photophobia, and shaky gait. Vomiting increased, complained of headaches. The child was urgently examined by a neurologist, neurosurgeon, oculist, surgeon, and oncologist.

Laboratory data: **clinical blood analysis:** erythrocytes $3.0 \times 10^{12}/l$, Hb-134 g/l, Ht-52%, Tr-210000, CI (color indicator) – 1.2, leukocyte-1, $9 \times 10^9/l$, rod - shaped neutrophils -0, segmentonuclear-63, lymphocytes -33, eosinophils-4, monocytes -0, erythrocyte sedimentation rate– 4mm/hour, blood clotting time 3:45-3: 55

Biochemical blood test: total bilirubin – 15.0 mmol/l; direct bilirubin – 5.5 mmol/l; indirect bilirubin – 12.5 mmol/l; AST – 5.8 E/g, ALT – 6.3 E/g; total protein – 62.0 g/l, urea - 6.0 mmol/l, creatinine – 82.5 mmol / l, blood glucose – 4.2 mmol / l, diastase 32 units.

Hemostasis indicators: PTI–78%, fibrinogen- 3.4 g/l

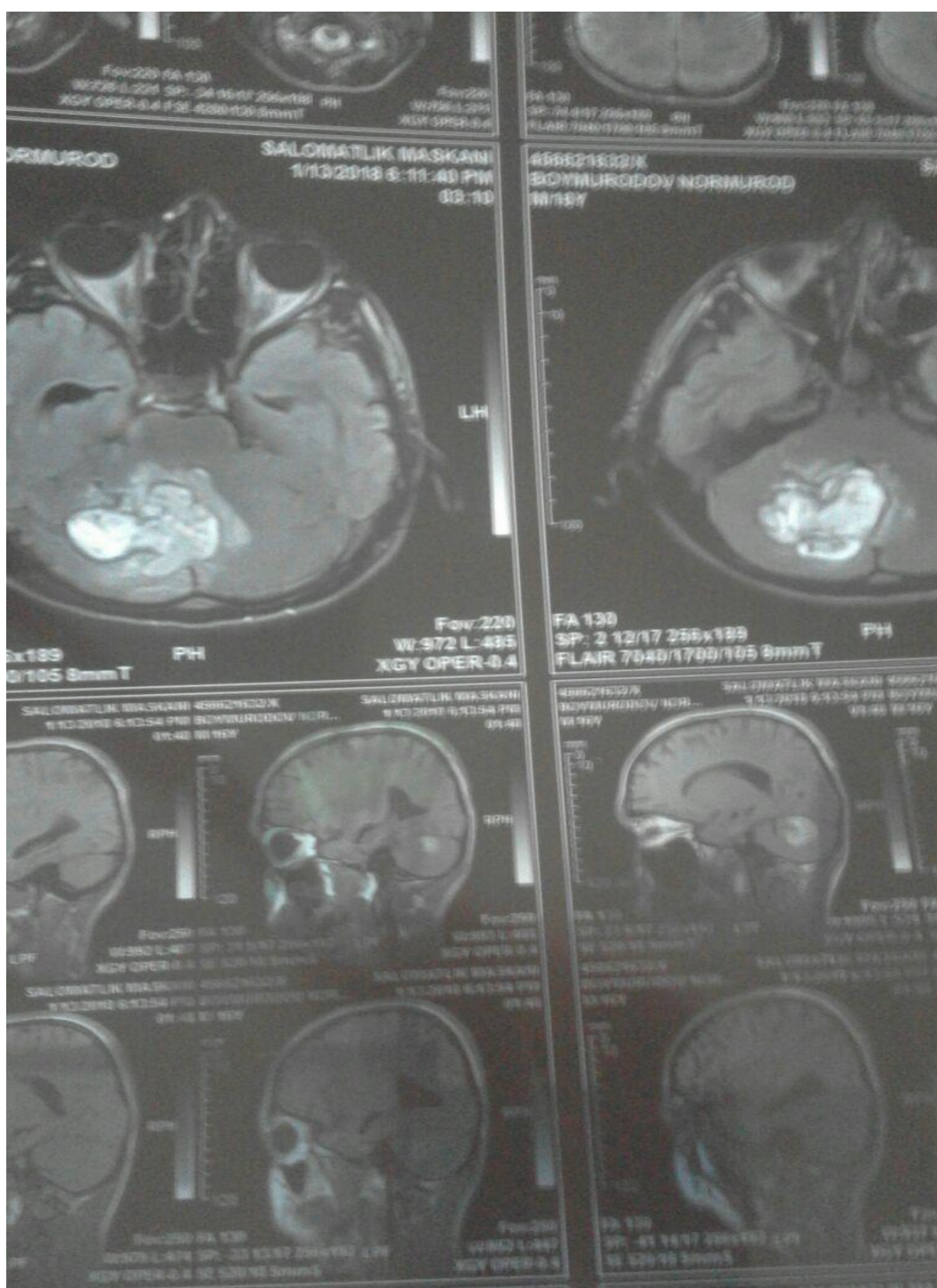
Clinical analysis of urine: light yellow, transparent, specific gravity -1016, acid reaction, no sugar, no protein, leukocyte 2–3 in sight, epithelium – flat single in the field of vision.

Analysis of feces without features.

Conclusion of ultrasound of internal organs: cholecystocholangitis.

Conclusion of FGDS: gastroduodenal reflux.

MSCT –signs of the volumetric formation of the right hemisphere of the cerebellum with deformation and narrowing of the fourth ventricle. Moderate internal hydrocephalus, indirect signs of Increased intracranial pressure, single polyps of the mucous membrane of the bottom of the left maxillary, cysts of the right maxillary, and main sinuses.



All of the above made it possible to establish a clinical diagnosis in the child: A tumor of the right hemisphere of the brain. Secondary occlusive hydrocephalus.

Later, the child was transferred to an oncological center and underwent surgery to remove a brain tumor.

Conclusions:

1. Brain tumors in children are one of the most common malignant diseases in children affecting the central nervous system [3]. So, vomiting may not always be a sign of diseases in the digestive system.
2. By localization, tumors of the posterior cranial fossa predominate in children 67.9%. Of these, 63.2% are intracerebral tumors of the hemispheres or cerebellar worms. The disease occurs in boys 2 times more often than in girls [6].

3. If a child has symptoms of vomiting, immediately carry out a differential diagnosis with diseases accompanied by vomiting.
4. Increased intracranial pressure, frequent headaches, vomiting that does not bring relief, and coordination disorders can speak for brain tumors.
5. A feature of brain tumors in children is a pronounced hypertension syndrome with occlusive hydrocephalus, manifested in the form of headaches, vomiting, and in infants - a progressive increase in the circumference of the head.
6. The main and reliable method of diagnosing brain tumors is MRI (MSCT) with a contrast agent, where the image is enhanced and shows the volume and structure of neoplasms.
7. The germination of tumors into the brain stem can lead to compression of vital brain structures, which in turn can lead to fatal outcomes.

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