Diagnostic challenges in CNS neoplasms- Case Reports

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Background: Central nervous system neoplasms are a common finding in everyday neurological practice. CNS neoplasms account for about 1 percent of human body tumors, which can be primary or secondary, benign, or malignant, which intra-axial or extra-axial. A tumor in the central nervous system occurs when healthy cells shift in the brain or spinal cord and develop out of control, creating a mass. A tumor can be cancerous or can be benign. A cancerous tumor is malignant, which means it can develop and spread to other body parts. A benign tumor means that the tumor may develop but won't spread. A CNS tumor is particularly problematic because it can affect a person's thinking processes and movements. This type of tumor can be challenging to treat since the tissues around the tumor are often vital to the functioning of the body. For infants and young children, the diagnosis of CNS tumors can be especially difficult as their brain is still developing. Brain tumors account for over 25 percent of cancer-related deaths in children and are the single leading cause of cancer-related mortality. In addition, morbidity from both tumors and treatment continues to be important. However, through improvements in both diagnosis and treatment, overall survival has increased steadily over the past few decades to around 65%. There are several forms of CNS tumors. There are many types of tumors in the brain and the spinal cord. The tumors are formed by abnormal cell growth and can start at different parts of the brain or spinal cord. The tumors are either benign or may be malignant. Benign tumors of the brain and spinal cord develop and press on surrounding brain areas. They rarely spread and can recur into other tissues. Malignant tumors in the brain and spinal cord are likely to grow rapidly and spread to other brain tissues. When a tumor grows into or presses on a brain area it can stop that part of the brain from functioning as it should. Both benign and malignant tumors in the brain cause signs and symptoms and require treatment. Many are cancerous and can develop and spread very well. Those are also called high grade or very violent. There are less offensive forms too, often referred to as low grade. And other forms are not cancerous and are unlikely to develop and spread. Additionally, there are variations within each type affecting how fast the tumor will grow. Getting a sample of the suspected tumor is the only reliable way for the doctor to determine whether there is a tumor in a body region with certain forms of tumor. This can be done in a procedure called a biopsy, or by surgically extracting some or all of the tumor. During a biopsy, the doctor will take a small sample of tissue in a laboratory for examination. If not, the doctor may recommend other tests to help make a diagnosis. Imaging scans will help doctors figure out whether the tumor is a primary brain tumor, or if it is cancer that has spread to the brain from other parts of the body. Most brain tumors will not be identified until after symptoms arrive. An internist or a neurologist initially diagnose a brain tumor. The doctor can recommend tests, in addition to asking the patient for a thorough medical history and doing a physical examination. The tests are intended to help determine a brain tumor 's presence, and perhaps its type or grade. A neurological examination can involve testing the vision, hearing, balance, coordination, strength, and reflexes among other items. Difficulty in one or more areas can provide clues as to the portion of your brain that a brain tumor may affect. A variety of advanced MRI scan components — including functional MRI, perfusion MRI, and magnetic resonance spectroscopy — can help to determine the treatment for tumors. Other imaging studies, including computational tomography (CT), are also recommended. Positron emission tomography (PET) can be used for brain imaging but is usually not as effective as it is for other types of cancer to produce images of brain cancer. The Diagnosis of a brain tumor generally starts with magnetic resonance imaging (MRI). When MRI indicates that there is a tumor in the brain, the most common way to assess the type of brain tumor following a biopsy or surgery is to look at the findings from a tissue sample. The clinical presentation can vary depending on the localization of the tumor and its histopathological features. Many times the initial symptoms can be misleading, mimicking another neurological condition. Therefore, a thorough diagnostic investigation is of utmost importance for proper treatment and a good outcome for the patient.

Case presentation: We report three cases of different CNS tumors. The first patient was a 78-year –old woman with a clinical presentation of visual hallucinations. A pituitary macro adenoma was found on magnetic resonance imaging, making compression to the optic chiasm. The second patient was a man with a nasopharyngeal tumor, having a clinical presentation of a sinus cavernous syndrome. The third one is a patient with a spastic paraparesis and reduced sensory for all qualities below 10th thoracic level. The MRI showed an extramedullary subdural meningioma that underwent surgical treatment.

Conclusions: CNS tumors are an exceedingly heterogeneous group of diseases in terms of survival, with prognosis depending on the precise location potentially restricting surgical options and the histology of individual lesions. The CNS tumors are serious condition posing threat to the overall wellbeing of the patient. Therefore a detailed clinical and radiological examination has to be performed in order to have a correct diagnosis and proper treatment.