LETTER TO THE EDITOR

Breaking bad: barriers in the timely diagnosis of brain tumors

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Dear Editor,

Today I am writing to you on a very important but quite overlooked domain of cancer medicine in Pakistan: the central nervous system (CNS) or brain tumors. Globally, the month of May is celebrated as brain cancer awareness month to create cognizance regarding this disease among the masses. The global incidence of CNS tumors is 2%-3% of all malignancies. Its incidence in children is 25%, making it the most common malignancy globally after leukemia.[1] According to GLOBOCAN 2020, an incidence of 1.6% of new cases of CNS tumors, with an increase in death rate by 2.5%, is reported around the world.[2] In Pakistan, the Shaukat Khanum Cancer Registry 2020 has ranked CNS tumors as the 10th most common malignancy among patients of all ages and genders.[3]

CNS tumors are classified based on the cell types from which they originate and are broadly categorized as gliomas and nongliomas, the former being 70% of all brain tumors. Gliomas include astrocytoma, oligodendroglioma, ependymoma, and medulloblastoma, while nongliomas include, but are not limited to, craniopharyngioma, meningioma, schwannoma, and lymphoma.[1]

Prolonged exposure to high-dose radiation, advanced age, relevant family history, and various hereditary syndromes have been implicated as some of the major risk factors involved in the pathogenesis and development of brain tumors.[1]

These tumors present with a wide variety of clinical manifestations, depending upon their type, location, and growth rate. They can cause focal neurological deficits as well as symptoms of raised intracranial pressure. Layered diagnosis has become the standard of choice in reporting CNS tumors. Layer 1 is the final integrated diagnosis based on the interpretation of histological classification (Layer 2), World Health Organization grade (Layer 3), and molecular information (Layer 4).[4]

According to our experience, the most common presenting complaints reported in the outpatient department of Lahore General Hospital, Lahore, were headache, nausea, vomiting, blurred vision, and seizures.

Patients having CNS tumors present in hospitals at a later stage of the disease when the symptoms have worsened. There are many reasons for this delay. The most frequent reason found to the hindrance of timely diagnosis is the lack of awareness of the clinical symptoms with which the space-occupying lesions of the brain can present. The usual clinical manifestations of headache, nausea, and vomiting are traditionally associated with work stress and/or gastrointestinal upset, respectively. More importantly, the population living in rural areas is highly prone to cater the refractory headache, visual disorders, and episodes of unconsciousness as a part of some witchcraft for which their priority for consultation is the local spiritual healers and "pirs," thus leading to inordinate delay in reaching the healthcare delivery centers.

The common man takes no second to consume over-the-counter drugs to self-medicate his symptoms, instead of getting them checked and consulting the relevant doctors, despite the recurrence of such symptoms. Ignoring the symptoms is a usual norm of people inhabiting society. This may result in unrestricted growth of the primary tumors in the brain before the patients consult any specialist. Many brain tumors might become inoperable due to this delayed presentation.

In addition to the socioeconomic constraints, being a developing country, the patients are reluctant to proceed with advanced diagnostic modalities like brain computerized

tomography scans or magnetic resonance imaging. The thought of the financial burden of medical care is thus another important factor held causative of the delay in diagnosis of brain tumors. In addition, the unavailability of these technological investigations in remote areas of our country with only a few hospitals having these facilities and already overburdened with patient influx, further leads to delays in the investigational appointments and diagnosis of brain tumors in these underprivileged areas. Most of the patients are subsequently referred to other tertiary care hospitals where the facility for such investigations is available. The stress of prevailing symptoms, the hectic struggle of moving from city to city for a complete clinical workup, and the financial constraints thereof render the patient tired and torn away, creating despair and low motivation for fighting the disease.

There are only a few patients who know about the clinical course and outcome of brain tumors and their surgical management. But the fear of undergoing highly risky brain surgery is itself a paramount factor for delay in the early presentation. The traditional proverb, *all keys hang not on one girdle*, relevantly suits the thoughts and perception of a common man regarding the brain tumor and its natural way of progression, contrary to the fact, that not all brain tumors are malignant and neither all have the same sinister postoperative outcome.

The in-patient neurosurgical departments also face another major issue, which is loss to follow-up. Many patients having their primary brain tumors removed surgically do not show up for follow-up. Some of these patients do not comply with the adjuvant chemotherapy and radiotherapy guidelines due to the associated adverse effects and many of them lack the financial resources to continue with the treatment regimen. This can lead to high recurrence rates of brain malignancies in such patients and has been observed in our setup too.

Dear Editor, early diagnosis and treatment of primary brain tumors is the need of the hour. Awareness regarding brain diseases and their early management should be created and associated taboos should be unveiled. This can be done by educating the public in general and utilizing the influential social and mass media for this overlooked entity also. The need to consult clinical doctors when having any kind of symptoms should be thoroughly described, and relevant health education and awareness should be initiated at the grass root levels. Detailed counseling should be offered to the patients diagnosed with CNS tumors and their concerns should be addressed. The government should ensure the disbursement of appropriate funds to the secondary and tertiary care hospitals for making advanced diagnostic facilities and trained manpower available for the early detection of this malignancy. Doctors and healthcare workers should be encouraged to participate in educational seminars regarding brain tumors and their management. Advanced diagnostic laboratories should be upgraded with the latest histological and molecular testing facilities for the appropriate diagnosis of CNS tumors and their timely management.

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List of Abbreviations

CNS Central Nervous System

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Authors' contributions

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HMQ: Design and concept of the study, acquisition of data, and drafting of the manuscript.

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