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The curious case of commitment to religion and prayer in extreme long term survival anaplastic astrocytoma patient

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ABSTRACT

Anaplastic astrocytoma WHO (World Health Organization) grade 3 represents about 7% of all primary brain tumours in the adult population. The standard treatment protocol involves safe surgical resection, chemotherapy and radiotherapy. Advances in therapeutic protocols have been noted over the past few decades, but the prognoses are still poor with a median survival of 31 months.

We present a case of a male patient who is alive 25 years after the initial diagnosis and treatment of anaplastic astrocytoma WHO grade 3. The patient was operated and reoperated two times due to local tumour recurrence in the first two years after the initial diagnosis. After the last operation, the patient abandoned medical therapy and started praying. The patient is still alive without any clinical or radiological signs of tumour recurrence.

INTRODUCTION

Anaplastic astrocytoma WHO (World Health Organization) grade 3 represents about 7% of all primary brain tumors in adults. The standard protocol for its treatment involves safe surgical resection, chemotherapy and radiotherapy. Advances in therapeutic protocols have been noted over the past few decades, but the prognoses are still poor [1]. Median survival is 31 months, and relative 5-year survival is about 23.6% and 10-year survival is only about 15.1% [2, 3]. However, it has been observed in clinical practice that some patients live longer than expected.

We present a case report of a patient who is alive even 25 years after the initial diagnosis and treatment of anaplastic astrocytoma WHO grade 3, without any symptoms. and neurological deficits.

CASE REPORT

We present a case of a male patient who was examined for the first time in our institution when he was 23 years old. Patient present with

Keywords

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prayer,
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epileptic seizure and headache, in early spring 1998. After a few seizures, brain computer tomography (CT) was performed and it showed infiltrative expansive lesion in the right temporal lobe and basal ganglia (Figure 1). Patients had left homonymous hemianopsia. After standard preoperative preparation, the patient was operated on in 1998, and maximal tumor reduction was achieved. The histopathological finding showed anaplastic astrocytoma WHO grade III (Figure 2). A few weeks after the operation he was on chemotherapy with Lomustine (CCNU), 200 mg/m², and radiotherapy with 60 Gy in 30 fractions, which was well tolerated. Patient had excellent recovery.

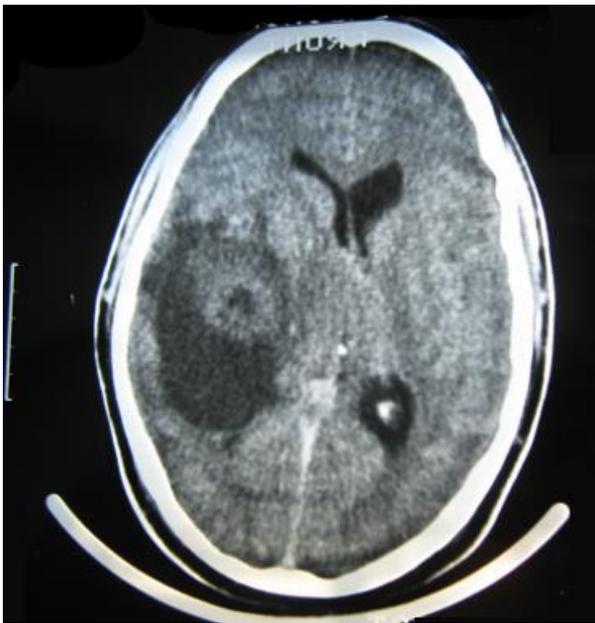


Figure 1. Initial brain computed tomography (CT) performed right before first operation in 1998 showing expansive lesion of the right temporal lobe with peritumoral edema.

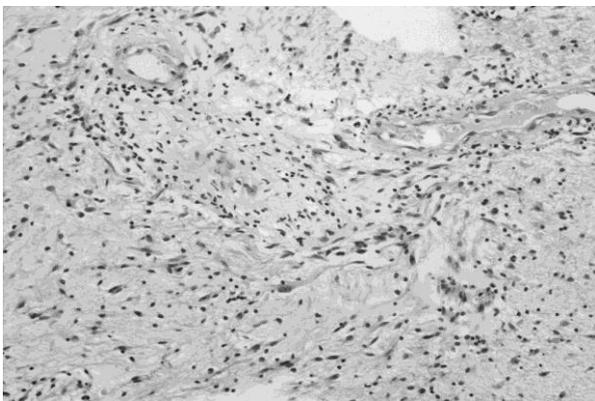


Figure 2. Histopathological finding of anaplastic astrocytoma WHO grade 3 (after first operation).

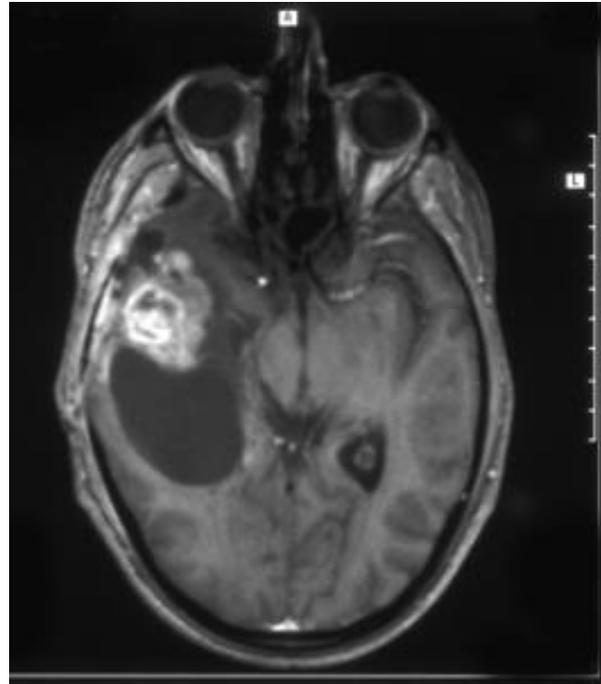


Figure 3. Magnetic resonance imaging (MRI) before third and last operation in 1999 showing tumor recurrence.

However, five months after the first operation, patient was reoperated due tumor recurrence with a significant compressive effect and clinical and radiological signs of the brain herniation. After this operation, the patient was in good condition for another 5 months, after which he was again hospitalized because of the exacerbation of epileptic seizures with poor seizure control. The magnetic resonance imaging (MRI) was immediately performed, and showed a tumor recurrence in the frontal part of the right temporal lobe with significant peritumoral edema (figure 3). Patient was reoperated once again with maximal tumor reduction. The histopathological finding again showed anaplastic astrocytoma WHO grade 3 without signs of further malignant progression. The oncologist prescribed Carmustine (BCNU), 100 mg/m², but patient rejected any further therapy. His neurological status improved significantly, with only residual left sided homonymous upper quadrant-anopsia at hospital discharge. Instead of any other therapy, the patient turned to prayer, and agreed only to further clinical controls. During the next few months, the patient only had occasional headaches, and control MRI in 1999 indicated small residual tumor with 1 cm in diameter. Next year, the control MRI showed a stationary finding without tumor progression.

Patient was symptom free, without epileptic seizures. Patient also abandoned antiepileptic therapy, and continued only praying. He went to a monastery and soon became an Orthodox Christian monk within the Serbian Orthodox Church.

In 2014, i.e. 14 years after the last control, patient visited our hospital due to symptoms of sciatica, and brain and spine MRI was performed, and there were no signs of tumor presence (figure 4). Spine MRI showed degenerative changes without significant duroradicular compression, so the patient received conservative treatment, which led to a complete resolution of symptoms, and after a year, the patient was without any complaints, with completely normal neurological finding.

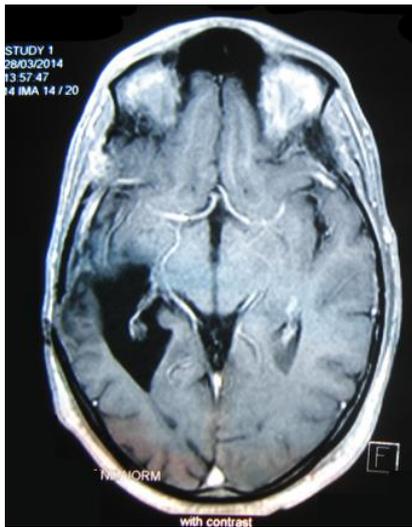


Figure 4. Control magnetic resonance imaging (MRI) from 2014 without signs of tumor presence.

Today, almost 25 years after the initial treatment, the patient lives at the Chilandar Monastery on the Mount Athos in Greece (figure 5A). He spends about 8 hours per day in a prayer, and every day he drinks two drops of oil from a cresset placed in front of the Icon of Virgin Mary (Greek: Panagia Tricherousa, meaning “Three-handed Theotokos”), one of the most revered icons of the Serbian Orthodox Church (figure 5B).



Figure 5. Picture A is showing the Chilandar Monastery on the Mount Athos in Greece. Picture B is showing the icon of Virgin Mary. Pictures are downloaded from the open-access internet.

DISCUSSION

Our patient's survival period after the treatment of anaplastic astrocytoma WHO grade III is significantly longer than the median survival time. Furthermore, he has been living without any symptoms for more than a 2 decades. What makes this case particularly noteworthy is the role of religiousness in the patient's recovery. Patient started praying following the third operation. Subsequently he started practicing prayer for several hours per day. After the initial period of living as a novice in a monastery, he became a Serbian Orthodox Church monk.

Religion, medicine, and healthcare have been interrelated in all population groups since the beginning of history [4, 5]. Over the past 50 years, different studies have found aspects of religiousness to be positively associated with well-being, considered in a nonclinical sense as life satisfaction or happiness. Feelings of optimism and hope have been speculated to be potential mediators of the influence of religiousness on well-being. The positive aspect of religiousness is characterized by “a secure relationship with God, a belief that there is meaning to be found in life, and a sense of spiritual connectedness with others” [6]. Numerous studies discuss the influence of religion and spirituality not only on mental health, but also on health behavior. Besides, there is growing evidence that reducing stress and negative emotions paired with the involvement of religiousness and spirituality should have a favorable impact on a host of physical diseases and on the response of those diseases to treatment [7-9]. Until recently, religiousness and spirituality were set aside in clinical practice. But in the last two decades some of articles on the relationship of religiousness and health have been published in academic literature [10]. It has been shown that religiousness and spirituality are significantly related to positive physiological functions. A positive effect of prayer has been shown on cardiovascular functions in the population with a high risk for cardiovascular disease. It has also been found that those who are more religious have a lower blood pressure [5]. Also, despite the difficulty in defining and measuring spirituality, a growing literature describes its importance in cancer patients and is connectivity with survivorship. Religious beliefs influence patients' decision-making with respect to both aggressive care at the end of life as well as complementary therapies during treatment

[11]. In our case, the patient refused all therapy and turned exclusively to religion, and he grew stronger in his faith, so that today he spends more than 8 hours a day in prayer. Furthermore, given the fact that the intact immune function is critical for health maintenance and disease prevention, including the control of malignant disease, particularly significant are the findings of a positive relationship between religiousness/spirituality and immune functions [12, 13]. High religiousness and spirituality has been related to significantly higher white blood cell count, total lymphocyte count, total T cells, and cytotoxic T cell activity [5]. In light of such findings, we can presume that in the case of our patient his intense prayer, as an aspect of religiousness and spirituality, contributed significantly to maintaining a good condition of his immune functions. Also, to our knowledge, this is the first case of spontaneous regression of anaplastic astrocytoma WHO grade 3 tumor recurrence. Although extremely rare, similar scenarios are described in literature as isolated case reports, such as significant regression of grade IV astrocytoma or glioblastoma multiforme (GBM). In this case authors hypothesized a plausible antineoplastic role of levetiracetam and dexamethasone [14]. Although a similar explanation could be given in our case, since our patient was also treated with similar combination of drugs. However, our patient stopped all his drug therapy, including antiepileptic drugs while the tumor was still radiologically present. Therefore, the clear temporal association between this therapy and the absence of tumor in our patient cannot be fully explained in this way.

Kumar and Koshy described a case of a middle age women with a high-grade glioma of corpus callosum, e.g. a grade 3 anaplastic oligodendroglioma, who was operated and treated with chemotherapy and radiotherapy. The patient presented with tumor recurrence 5 years after the first operation. After another surgery the patient refused radiation therapy, and was given temozolomide and dexamethasone intermittently, with continuation of levetiracetam therapy. MRI performed at 10-month follow-up showed significant remission [15]. Although in this case a significantly longer survival than expected was achieved, a complete remission of the disease was not achieved, and the patient receives therapy all the time, which is assumed to have an antineoplastic effect as well,

while in our patient any form of medical therapy is completely ruled out, and most importantly, there are no signs of tumor recurrence, neither clinical nor radiological.

Cancer is usually considered to be the worst of all illnesses and most people equate cancer with death [16]. Numerous studies have examined relationships between religiousness and spirituality and either the onset or the outcome of cancer, including cancer mortality. Most of these studies have found that those who are more engaged in religion, spirituality, and pray have a lower risk of developing cancer or have a better prognosis [5]. For example, one study exploring the influence of religiousness on breast cancer survival has shown an association between the lack of religiousness and poor breast cancer survival among African American women [17]. Another study revealed an association between low levels of religious involvement and the risk of colon cancer [18]. In our case patient's overall health, and especially length of survival is far beyond those expected for the given disease, since he is in good condition, without any signs or symptoms of tumor presence.

However, the most impressive research on the relationship between religiousness/ spirituality and physical health is in the area of mortality. Namely, it has been found that religiousness/spirituality is a predictive factor of greater longevity in 75% of all cases [5]. It has also been shown that prayer is one of the most frequently used forms of complementary and alternative medicine [11]. Prayer can be defined as "the raising up of one's mind to God". Also, prayer may be considered as the conscious act of opening oneself or activating a connection to a higher being. Several types of prayer have been described, including: a) petitioner prayer, which is considered to be some specific request either for oneself or for others; b) colloquial prayer, i.e. a conversational type of prayer in which someone may ask for personal guidance, forgiveness, or general blessings; c) ritual prayer, which includes prayers from books; and d) meditative prayer, which includes reflection upon and adoration of the divine. Specifically, it has been shown that one of the most frequent prayers is disease-centered prayer, which is directly related to patients' illness [11]. Based on the account of our patient, we can observe that his prayer comprises aspects of all the above-mentioned types.

Our patient's case shows that prayer, as an additional way of positive personal attitude to one's illness, could be considered as a possible supplementary suggested method, parallel to conventional medical treatment. Based on this particular case and on the previous studies on the relationship between religiousness/spirituality and health, we can presume that prayer may have positive influence on the overall physical and psychological health state in cases of brain malignancies as well as in other cases of malignant diseases.

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