Recurrence Oligodendroglioma Treated with Acupuncture and Pharmacopuncture

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Abstract

Acupuncture and pharmacopuncture have been shown to be effective in tumor treatment. However, their effectiveness for treating oligodendroglioma has not been reported yet. The purpose of this study was to provide an initial report on the effectiveness of acupuncture and pharmacopuncture for the treatment of an oligodendroglioma by presenting a case that was treated successfully. A 54-year-old man, who had experienced intracranial hemorrhage, was diagnosed with recurrent oligodendroglioma. His expected survival period was 3–6 months. The patient received daily acupuncture and weekly pharmacopuncture of mountain ginseng and bee venom. After treatment for 18 months, the tumor size was decreased markedly on brain magnetic resonance imaging, and severe seizures had disappeared. In this case, a combination of acupuncture and pharmacopuncture was shown to be effective for the treatment of recurrent oligodendroglioma.

1. Introduction

Oligodendrogliomas are high-grade primary brain tumors. Primary brain tumors generally differ from secondary brain tumors in that they develop from the glial cells that form the structural basis of the brain. Primary brain tumors are classified histologically and gliomas can be classified into four grades (I–IV). Gliomas invade the normal brain and cause pressure-induced symptoms such as headache, seizure, cognitive symptoms, muscle weakness, visual symptoms, and changes in sensation.

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For the diagnosis of oligodendroglioma, magnetic resonance imaging (MRI) and computed tomography are generally used and they are also used for prognosis in the follow-up studies [1]. Treatments of oligodendroglioma include surgery, radiation, chemotherapy, and symptom management. However, as with other brain tumors, it is not always easy to treat this disease. Furthermore, if there are severe accompanying symptoms like seizure or symptoms induced by cerebral edema, then more careful treatments are needed.

Nowadays, complementary and alternative medicine (CAM) such as acupuncture has been gaining interest for the treatment of diverse diseases including tumors [2]. Pharmacopuncture, a novel therapeutic method produced from a combination of acupuncture and herbal medicine [3], is performed by injecting a small amount of herbal medicine extract at acupoints [4]. An increasing number of research articles show the interest in pharmacopuncture [4,5]. Especially, mountain ginseng pharmacopuncture is often used for cancer treatments, and bee venom pharmacopuncture is also used for cancer [6] as well as brain diseases [7,8], owing to its anti-inflammatory effects.

Until now, many attempts to treat oligodendroglioma using CAM have been made, however, successful treatment using acupuncture and pharmacopuncture has not been reported yet. Here, we report a case of oligodendroglioma improved by acupuncture and pharmacopuncture.

2. Case report

2.1. History and examination

A 54-year-old man was admitted to Mun-Gyeong Hospital of our University on December 23, 2008 with recurrent oligodendroglioma accompanied by left-side hemiparesis (grade 2/5, 3/5), dysarthria, severe daily seizures, headache, drowsiness, constipation, and dysuria. Brain MRI showed increased lesion area in the right cerebral hemisphere as well as new nodular lesions in the right basal ganglia and temporal lobe (Fig. 1). On admission, the patient had been taking medication for seizures, analgesia, and prevention of secondary brain disease for 5 years.

![Figure 1](image-url) Brain magnetic resonance imaging on August 11, 2008 and December 1, 2008, before admission to our hospital. Enhanced lesion on the right side of the precentral gyrus increased in size with superior and inferior extension. Right cerebral hemisphere lesion sized 5.0 cm × 2.3 cm × 2.1 cm on August 11, 2008 and 5.8 cm × 3.5 cm × 4.5 cm on December 1, 2008. The tumor size was increased in 4 months. New enhancing nodular lesion on right basal ganglia and temporal lobe, rule out (r/o) brain metastasis is shown.
His past history was as follows. In 1995, he had a seizure attack. In 2004, he was diagnosed with oligodendroglioma (World Health Organization Grade II) at Dongsan Medical Center of Keimyung University, Daegu, Korea from the MRI scan and pathological examination, and also had an intracranial hemorrhage (Fig. 2). He had undergone surgical removal of the brain neoplasm and hematoma, as well as radiation therapy. In 2008, the tumor recurred and he was admitted to Dongsan Medical Center. The neurosurgeon that diagnosed his recurrent oligodendroglioma predicted a life expectancy of 3–6 months and was of the opinion that reoperation or radiation was meaningless.

2.2. Treatments and progress

Treatments given to the patient in our hospital are as follows. Acupuncture: daily at bilateral BL13, GV20, EX-HN1, and the three points that showed more sensitivity against the finger pressure examination. These three sensitive points were located 3-, 5-, and 7-cun above the lateral malleolus, on the midline between the Stomach and Gall Bladder meridians. Stimulation was delivered by twisting the needle bidirectionally twice per second during insertion and withdrawal, and needles remained for 30 minutes. Pharmacopuncture: 0.5 mL mountain ginseng (Korean Institute of Pharmacopuncture, Seoul, Korea) at BL13 and 0.2 mL bee venom (Korean Institute of Pharmacopuncture) at GV20 and EX-HN1, once weekly, respectively.

Fermented red ginseng solution (40 mL per pack, 2 packs/d) was orally administered from December 2008 to July 2010. The fermented red ginseng was prepared with 75 g red ginseng and 100 g Ziziphus jujuba, fermented at 32°C for 24 hours with Lactobacillus acidophilus and Leuconostoc mesenteroides using 90 g fructo-oligosaccharide, 15 g yeast extract, and 15 g glucose for cultivation of the lactic acid bacteria.

On admission in December 2008, brain MRI showed recurrence of Grade II oligodendroglioma in the right temporal area (Fig. 1). The enhancing lesion in the right cerebral hemisphere had increased in size compared to the previous examination conducted on August 11, 2008, and the superior inferior extension had also increased in size to 5.8 cm × 3.5 cm × 4.5 cm. There was a new enhancing nodular lesion in the right basal ganglia and temporal lobe. However, after 18 months of our treatment, brain MRI showed markedly decreased tumor size in the right parietal lobe (Fig. 3).

Originally, the patient had daily severe seizures accompanied by occasional frowning. However, he has been free from seizures since September 2010. The left-side hemiparesis that had induced wheelchair dependence was

Figure 2  Brain magnetic resonance imaging at onset of ICH on November 1, 2004. Solid tumor at the right insular and frontotemporal lobe combined with a large ICH is shown. ICH = intracranial hemorrhage.
improved to walking with a stick, and the other symptoms disappeared satisfactorily with the change of visual analog scale (from 10 to 1 or 0).

On the follow-up confirmation, the patient has been notified to maintain the treated status without any deterioration until 2013.

3. Discussion

In this case, the patient received acupuncture at BL13, GV20, EX-HN1, and sensitive points. Acupuncture, a representative Korean Medicine therapy, has been gaining interest in many diseases including tumor [9–11].

The BL13 at which acupuncture treated is the Backtransporting-point of the Lung and can be used for not only respiratory disease but also disorders of the Qi, the vital energy [12]. Also, it can regulate breathing and be used for epilepsy, suicide desire, and fever [13]. Therefore, acupuncture at BL13 is thought to have improved the disorders of Qi energy related to the symptoms of left-side hemiparesis, dysarthria, drowsiness, constipation, and dysuria. The GV20 is located on top of the head where all Yang meridians converge. It is related to spiritual problems and controls Qi energy circulation. It is used for hypertension, headache, heavy feeling in the head, dizziness, epilepsy, loss of consciousness, and cerebral vascular accident [12,13]. Many studies have revealed the effectiveness of GV20 in brain damage [14,15]. Therefore, acupuncture at GV20 seems to have resulted in the tumor-decreasing effect by influencing brain circulation. EX-HN1 is a set of four points, which are 1-cun anterior, posterior, left, and right from GV20. It is used for brain diseases such as epilepsy, headache, and dizziness by supporting GV20 and calming the spirit [13]. Accordingly, acupuncture at EX-HN1 is thought to have contributed to these results by supporting GV20.

According to the Korean Medicine theory, if a patient has a disease, usually a more sensitive acupoint than the finger pressure examination exists and it is used for diagnosis and treatment [16]. Our patient exhibited sensitive points around the Gall Bladder and Stomach meridians of the leg and they contributed to the treatment. It is in parallel with the “seven points for stroke” theory [7,17] of Korean Medicine, suggesting that oligodendroglioma has a similar mechanism as stroke in acupuncture treatment. Thus, our acupuncture at sensitive points is thought to be reasonable and to have played a role.

Ginseng is one of the most widely used herbal medications as a restorative tonic in Asia for thousands of years. Many studies have demonstrated the effectiveness of ginseng on tumors [18–20]. Mountain ginseng exerts an anti-cancer effect on lung cancer via activation of tumor suppressors and modulation of nuclear factor-κB. So, mountain ginseng seems to have potential in cancer treatment by inhibiting tumorigenesis [21]. Therefore, mountain ginseng pharmacopuncture at BL13 seems to have played a role by modulating Qi energy and influencing brain with anti-tumor function in this case.

The bee venom used in this case contains an active component, melittin, which possesses anti-cancer effects, showing inhibition of tumor growth [6]. Recently, bee venom pharmacopuncture proved to even suppress the adverse effect of anti-cancer medication [22], and ameliorate brain diseases [7,8]. Therefore, bee venom pharmacopuncture at GV20 seems to have produced anti-inflammatory and anti-cancer effects.

This case study suggests that acupuncture combined with pharmacopuncture of mountain ginseng and bee venom can be useful for the treatment of recurrent oligodendroglioma, from the evidence of the change in MRI scan and amelioration of symptoms. Although the exact mechanism underlying these effects remain to be further investigated, acupuncture and pharmacopuncture treatments seem to be a useful CAM for brain tumor.

Disclosure statement

The authors declare that they have no conflicts of interest and no financial interests related to the material of this manuscript.
Appendix A. Supplementary data

Supplementary data related to this article can be found online at http://dx.doi.org/10.1016/j.jams.2015.03.004.

References