CASE REPORT

Ayurvedic Management of Oligodendroglioma: A Case Report

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ABSTRACT:

Oligodendroglioma is a type of glioma arising out of oligodendrocytes of brain and spinal cord with a poor prognosis. The treatments include surgery, followed by radiation therapy and chemotherapy. Because of the long course of treatment including surgery followed by chemo and radiotherapy and the adverse effects of the same, many patients seek *Ayurvedic* management. A case of Oligodendroglioma in a 54-year-old female was managed as *Vatakaphajaarbuda* (~tumor) complicating to *Asthi-majjagatavastha* (~involvement of bone and marrow) with *Shamana*(~pacifying) procedures and medicines. 14 days of *Shirolepa* (~application of medicated paste over head) with *Dhatradikalka* (~fruit paste of *Daturametellinn*) doat 4pm for a period of 45 minutes. This was followed by *Shiropichu* (~Application of oil-soaked wick on the vertex) with *Rasathailam* for 14 days in the evening 4pm-6pm. *Guggulutiktakakashaya* 15 ml+ 60 ml hot water twice daily, *Rasasinduram* Capsule 125 mg twice daily with hot water, *Nimbamrutadierandataila* 10 ml with 50 ml warm milk for 1 week and *Guggulutiktakaghruta* 10 ml with luke warm water were given. Patient reported significant reduction of symptoms like headache, seizure, general weakness etc and improved Quality of life with a positive mind within two weeks. MRI change was remarkable after the treatment as the MRI taken on 29/1/20 has shown that Cortical based right frontal lesion measures 1.7*1.8cm, which was reduced in size compared to the previous MRI 2.3*2.3 cm taken after 22nd cycle of Inj. Avastin on 29/11/19. Rational application of Ayurvedic medicines can contribute much to the management of Oligodendroglioma.

KEYWORDS: *Arbuda, Guggulutiktaka, Shirolepa, Dathuradikalka*

INTRODUCTION

Oligodendroglioma is a type of glioma arising out of oligodendrocytes of brain and spinal cord. Low-grade gliomas are primary brain tumors that arise from glial

cells. They are separated according to the glial type from which they arise, astrocytoma or oligodendroglioma. The World Health Organisation (WHO) classification divides astrocytoma into four grades (I–IV), from least to most

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malignant. Oligodendrogliomas are classified, as grade II.¹ Low-grade gliomas are often mistakenly thought of as benign neoplasm. Neurological morbidity and mortality and the potential for anaplastic transformation are often left disregarded.² Along with this, the optimum management of this type of tumor continues to be a matter of individual clinical judgment and subsequent debate due to the lack of sufficient data to inform the decision-making process.³ So, evidence based practice is a need of the hour in Oligodendroglioma.

Oligodendroglioma present with seizure, head ache, neurological deficit as per the location of the tumor. It is a slowly growing tumor with prolonged survival. The treatments include surgery, followed by radiation therapy and chemotherapy. Because of the indolent nature of Oligodendroglioma and the potential morbidity associated with neurosurgery, chemotherapy and radiation therapy, most neuro-oncologists will initially pursue a course of watchful waiting and treat patient symptomatically.

Because of the long course of treatment including surgery followed by chemo and radiotherapy and the adverse effects of the same, many patients seek *Ayurvedic* management. With the principles of management of *Arbuda* (~tumor), with special consideration of *Shiras* (~head) as *Kaphasthana* (seat of *Kapha*), modification of symptoms and improvement of Quality of life of the patients can be achieved.

Treatment considerations & Application

Hence, *Shamana* (~pacifying) drugs and procedure were opted for this patient. Considering *Mastulunga* (~brain) as *Kapalasthimajja* (~bone marrow of skull bones), we may identify Oligodendroglioma as an *Arbuda* (~tumor) complicating to *Asthi-majjagatavastha* (involvement of bone and marrow). So, the drugs with *Tiktarasa* (~bitter taste) with special action on deeper *Dhatu*s (~tissues) are to be selected. So, the following internal medicines were given as shown in the table No 1.

CASE REPORT

A 54 years old female residing at Bangalore, Karnataka came to the OPD of an Ayurvedic Clinic on 8/12/2019 with the complaints of severe head ache, convulsions associated with severe loss of appetite, nausea, vomiting, and general debility for a period of 3.5 years. Her complaints had an acute onset with 3 episodes of generalized seizures with drooling of saliva, each lasting about 5 minutes associated with post ictal confusion on 14/7/2016 and was admitted nearby multispecialty hospital on 15/7/2016. She was started on intravenous antiepileptic Drugs (IV AED's) and supportive

medications. MRI brain showed mass lesion which measures 5.6* 4.4*3.5 cm in Anteroposterior, transverse and craniocaudal planes respectively (AP*TR*CC) in right frontal lobe in the middle and part of inferior frontal gyrus. On Multivoxel MR Spectroscopy, there was an elevated Choline peak with reduction of the normal N-acetyl Aspartate (NAA) and creatinine peaks. Imaging and MRS were keeping with an intermediate grade glioma, possibly representing grade II/I lesion. Right frontal craniotomy with biopsy of the Space occupying lesion (SOL) was done on 20/7/2016 and histopathological examination showed Oligodendroglioma grade II/III. The patient was referred to Oncology specialty hospital for further management. The patient underwent radiotherapy from 8/8/2016 to 13/9/2016 followed by Cyber knife from 14/10/2016 to 15/10/2016 following which she was started on Tab. Temozolomide 300mg once in 28 days, which she took from November 2016 to September 2017. DOPA PET CT scan done on June 2017 showed further interval regression of the mass lesion and perilesional edema. MRI scan done on 15/10/2017 showed mild interval progression of poorly marginated residual/recurrent cortical based mass in the right frontal lobe. Patient presented with deviation of face towards right side on 20.12.2017 and the MRI showed evidence of heterogeneous mass measuring 4.3*1.7cm, in the right frontal lobe, adjacent to the right lateral ventricle with extensive edema involving the white matter of right frontal lobe and parietal lobes with involvement of the genu of corpus callosum and effacement of the right lateral ventricle. The edema also involves the right basal ganglia, thalamus and right internal capsule. The lesion shows multiple blooming foci on Susceptibility weighted imaging (SWI) suggestive of hemorrhage. Afterwards, 4 cycle chemotherapy with Inj. Irinotecan till 13.2.2018 was done. MRI on 21.2.2018 revealed Progressive lesion measuring 6.2*3.8*3.3 cm and Cortical based mass- 2.2*2.2cm. After 2 more cycle chemotherapy with Inj. Irinotecan till 23.3.2018, MRI brain on 7/4/2018 revealed partial response. With 8 cycles of chemotherapy with Inj. Bevacizumab till 1.6.2018, 12 cycles of Inj. Bevacizumab till 27.7.2018, MRI brain on 6th August 2018 showed stable disease. MRI brain on 29/11/2019 revealed lesion- 3.4*2.0*1.9 cm and Cortical based lesion in right frontal cortex - 2.3*2.3 cm taken after 22nd cycle of Inj. Avastin. HBsAg was Positive during the hospital admission. Throughout the period of Chemotherapy and Radiotherapy, the patient had severe loss of appetite, nausea, vomiting even with intake of water, general debility and body pain. Even after the course, head ache was present and the patient approached *Ayurveda* for better management.

Patient assessment

Patient was a house wife with no history of co-morbidities, substance abuse and no family history of similar complaints. Bowel was constipated (once in 2-3 days) and sleep was disturbed. The patient was of *Vata-Kapha Prakruti* (constitution predominant of *Vata* and *Kapha* humors). No specific etiological factor (occupation related or life style related) was found in the history.

METHODOLOGY:

Dhaturadi Kalka is a formulation used by traditional Ayurvedic physicians of Kerala which is used for *Shirolepa* in *Vata- Kapha* predominant conditions of head. The medicine is prepared as per the guide lines given by an Ayurvedic practitioner with 40 years of experience as follows: - by filling rock salt in a ripen *Dhatura* fruit after removing the seeds from it. The salt-filled *Dhatura* fruit is wrapped in plantain leave and smeared with fine mud and allowed to drying. Then it is subjected to fire till it become red hot in low flame for around 1 hour. After removing the layer of mud, these fruits are taken out and grind into a fine paste and used for *Shirolepa*. Every day, the procedure was done at 4pm for a period of 45 minutes. On 22nd December 2019, *Shirolepa* procedure was completed without any complications

TIMELINE *Shirolepa* (application of medicated paste over head) with *Dhaturadikalka* (fruit paste of *Daturametel* Linn) for 14 days was started from 9/12/2019 TO 22/12/2019. No Seizure episodes were reported and head ache reduced from a scale of 10 to 8. Initially, patient was unable to take food due to severe loss of appetite, and nausea. After the treatment, she was able to take liquid food like fruit juice and rice gruel. She was advised to do *Shiropichu* (~application of oil-soaked wick on the vertex) with *Rasathailam*¹² for 14 days in the evening 4pm-6pm from 23/12/2019. *Guggulutiktaka Kashaya*¹¹ was stopped as the *Karshanasvabhava* (debilitating nature) of the formulation may deteriorate the strength of the patient. Instead *Guggulutiktakaghrita*¹⁴ was added.

FOLLOW UP AND OUTCOMES

Patient strictly adhered to the treatment and medicines and made regular follow-ups. The outcomes of follow-up was as Shown in table No: 2

MRI dated 29/1/2020 has shown that the Frontal lobe lesion- 3.4*2.0* 1.9cm (Size almost remains the same) and Cortical based right frontal lesion measures 1.7*1.8cm, which was

reduced in size compared to the previous MRI. Previous MRI brain on 29/11/2019 revealed lesion- 3.4*2.0* 1.9 cm and Cortical based lesion in right frontal cortex - 2.3*2.3 cm taken after 22nd cycle of Inj. Avastin.

DISCUSSION

Considering the symptoms like head ache and nature of Seizures, involvement of *Vata* is understood and from the other symptoms like nausea, vomiting etc involvement of *Kapha* is confirmed. The *Udbhavasthana* (site of origin) is *Shira* (~head) and it is *Kapha* predominant as it is a part of the *Urdhakaya* (upper part of the body). Considering the *Vyadhisvabhava* (nature of the disease), chronicity and multiplication also suggest *Vata- Kapha* involvement. In this case, *Rogabala* (strength of the disease) is *Pravara* (~severe/strong) and need *Shodhanachikitsa* (purification therapies) with drugs having *Chedana* (~excisive) and *lekhana* (~scarifying) qualities. But, the *Rogibala* (strength of the patient) is very less due to the continuous and invasive management like surgery, radiotherapy and chemotherapy. So *Shodhana* (purification therapies) cannot be attempted. Alongside, the *Agnibala* (~digestive power) was very less.

When *Shiras* (head), which is a *Pradhanamarma* (important vital spot) and *Pranasthana* (~seat of life) is affected by *Arbuda*, prognosis becomes even worse. *Oligodendroglioma* can be compared with *Vatakapahajaarbuda* affecting deeper tissues. Treatment of *Vatajaarbuda* includes *Upanaha* and use of *Vataharadravyas* (drugs which pacify *Vata*)⁴ and that of *Kaphaja* is with *Kaphaharadravyas* (drugs which pacify *Kapha*).⁵

In treatment of *Vata- related* disorders of *Shiras*, one of the treatments indicated is *Upanaha*.⁶ The word *Upanaham* derived from “*nahabandhane*” which means to tighten with the help of paste application. *Shirolepa* is done by the application of medicated paste and the head is covered with plantain leaf and tightened. This is a modified *Upanaha* and as it is a *svedakarma* (procedure of sudation), it will pacify *Kapha* also. The drug used is *Dhatura* which is having *Teekshna* (~potent ingredients), *Ushna* (~hot in potency) and *Sukshma* (penetrating) *guna* (qualities) which is potent enough to act on malignant lesions.⁷

Shiropichu is a simple and cost-effective treatment for *Shirovikaras* (diseases of head). *Rasathaila* is a patent product of *Vaidyaratnam Ouhadhashala*, prepared with *Karpasasthyadiyoga*⁸ and *Ajasiromamsa* (meat of the head of goat) along with milk and indicated in all *Shiroroga* (diseases of head) especially *Shirashula* (headache).⁹

This *yoga* is specific to the disease and after the initial strong medicine like *Dhatura*, an oil-based preparation will improve the strength of the tissues and ensure pacification of *Vata*. The internal medicines were selected due to their specific qualities in the order of *Anulomana* (~normalizing the direction of movements, especially the bowel movements), *Pachana* (Metabolizing the unwanted chemicals), *Doshahamana* (Pacifying the humors), *Snehana* (imparting unctuousness and nourishment to weak tissues) and *Rasayana* (rejuvenating) and as per the rationale as shown in the Table No: 3. *Nimbamrutadierandaitaila* used for the first week to cause *Anulomana* (~normalizing the direction of movements, especially the bowel movements) and *Pachana* (Metabolizing the unwanted chemicals), which was evident by the free bowel movement, improvement of appetite, lightness of body etc.¹⁰ *Doshashamana* (Pacifying the humors) and *Vyadhashamana* (managing the symptoms) were mainly obtained with *Guggulutiktakakashaya*¹¹ with its ability to act on deeper tissues and specific action on *Arbuda* (~tumor) along with *Rasasindura*.¹² *Shivagutika* possess *Rasayana* (rejuvenating) quality and maintains the health.¹³ *Guggulutiktakaghruta* is more *balya* (imparting strength) and specifically useful after treatment.¹⁴

Probable mode of action: With the treatment, new onset cortical based mass has reduced in size, which was not even achieved by Chemotherapy. *Vata- kaphashamana* measures with *Asthi-majjagataavastha* consideration of *Ayurvedic* treatment might have reduced the proliferation of abnormal cells and may lead to the destruction of them. The old lesion was not increasing in size, which itself is a remarkable change in Chronic Oligodendroglioma. Gradual shift of *Dosha*-specific measures to *Snehana- Brumhana-Rasayana* therapies maintained the status and prevented further aggravation of symptoms as well as mass formation. Hence, in the present case of chronic Oligodendroglioma, which was not responding to the conventional treatments and had multiple adverse effects from the same, had benefited very much with Ayurvedic management. Along with the improvements in Symptoms and Quality of life, MRI also shown mass reduction.

CONCLUSION

Careful analysis of Oligodendroglioma signs and symptoms and planning of treatment will bring about considerable changes in neuropathological domain and Quality of Life domain. Further researches should be planned to obtain sufficient and consistent data for the efficacy of Ayurvedic treatment modalities. The main strength of this case report

is able to expose the efficacy of Ayurvedic approach and medicines in a case where disease is not responding positively to the Allopathic line of treatment and medicines. Scientific validation of results is another strength.

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Tables:**Table No: 1: Internal medicines given**

Date of administration	Drug	Dose & Anupana	Sevanakala
9/12/2019- 22/12/2019	GuggulutiktakaKashaya	15 ml+ 60 ml hot water	6am & 5 pm before food
9/12/2019- 22/12/2019	Rasasinduram Capsule	125 mg capsule, twice daily with hot water	9 am & 7 pm After food
9/12/2019- 16/12/2019	Nimbamrutadierandataila	10 ml with 50 ml warm milk	Bed time
23/12/19 onwards	Guggulutiktakaghrita	10 ml with luke warm water	6 am, before food.

Table No: 2: Follow up and outcomes

Date	Outcome	Remarks
5/1/20	a) Improvement of appetite and no nausea in the last two weeks. So the patient had started taking solid foods and fruits. b) Her general feeling of wellness and energy improved. c) Head ache reduced markedly in such a way that the frequency reduced to 2 or 3 days in a week and intensity reduced from a scale of 8 to 5. d) Mental status improved in different domains. Her subjective and objective mood was happy and she felt hopeful, less of irritability and anger, more concentration for doing prayer etc.	She was advised to continue the internal medicines.
19/1/20	Improvement was stable and the patient became more active and started doing household works like cooking etc	Shivagulika, which is having Rasayanaguna (rejuvenating) was introduced in a dose of 125 mg twice daily after food with hot water.

Table No: 3: Internal medicine and the rationale for their use

SlNo	Formulation	Main Qualities and Action (Guna- Karma)	Rationale for use
1	<i>Nimbamrutadierandataila</i>	<i>Saraguna</i> (~mobilty)	Initial <i>Vatanulomana</i> to relieve <i>Udavarta</i>
2	<i>GuggulutiktakaKashaya</i>	<i>Guggulutiktakakashaya</i> is a modified form of <i>GTGhruta</i> contains 31 drug which have the following actions- <i>Tridoshashamana</i> (pacify three doshas) especially <i>Vata-kaphahara</i> , <i>Raktaprasadana</i> (clarifies blood) <i>Asthibalya</i> , (Strengthens bone) <i>Srotoshodhana</i> (Clears the channels), <i>Chedana</i> (excisive), <i>lekha</i> (Scarifying) qualities <i>skledahara</i> and <i>pakahara</i> (Cures inflammation).	<i>Asthi- Majjagata Vata vyadhi</i> , (Neurological disorders) <i>Kushta</i> (leprosy) etc. and <i>vranaropana</i> (healing ulcers), <i>granthivilayana</i> , (manages benign tumor) <i>Sophahara</i> (cures oedema) properties are useful in <i>Arbuda</i>
3	<i>Rasasinduram Capsule</i>	Originally indicated in <i>Jwara</i> with properties of <i>Kapha Shamana</i> , <i>Srotoshodhana</i> , <i>Sophahara</i> (reduces oedema), <i>Arbuda- pitaka- antarvidradhi- Vataroga</i> , <i>shula</i> , <i>aruchi Chardi</i> (Cure tumor- pustules- internal abscess- pain- anorexia- vomiting) etc.	Due to the <i>guna-karma</i> (Pharmacological actions)
4	<i>GuggulutiktakaGhruta</i>	Compared to <i>Kashaya</i> (decoction), <i>ghruta</i> is <i>balya</i> , <i>ojasya</i> , <i>brumhana</i> and <i>deepana</i> .	Based on the principle “ <i>Snehamante balayacha</i> ”
5	<i>Shivagulika</i>	Main ingredient is <i>Shilajatu</i> . It is indicated in <i>Rasayanaprakarana</i> with indications of <i>Arbuda</i> , <i>Vidradhi</i> , <i>Apasmara</i> , <i>Aruchi</i> , <i>Vatarakta</i> etc	Due to the <i>guna-karma</i>