



Case Study

AYURVEDA AS A CO-THERAPY IN THE MANAGEMENT OF OLIGOASTROCYTOMA: A CASE STUDY

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ABSTRACT

Anaplastic astrocytoma (AA) is a diffusely infiltrating malignant, astrocytic, primary brain tumour with a peak incidence between 40 to 50 years of age is a leading cause of cancer death. Though cancer chemotherapy is highly effective in many cancers, but side-effects of chemotherapy are severe in many patients like myelosuppression, anorexia, weight loss, mucositis, fatigue, nausea, vomiting and diarrhoea. It appears that side effects of chemotherapy are manifestations of aggravated *Tridosha* as *Raktadushti* (vitiated blood). Therefore, present case study was undertaken to find effectiveness of Ayurvedic medication as an adjuvant or co-therapy in the management of oligoastrocytoma as well as in minimizing the side effect of chemo-radiotherapy. A female patient of age 40 years with brain cancer (clinically diagnosed case of anaplastic oligoastrocytoma grade 3rd) undergoing oral chemotherapy by irinotecan 150 mg, avastin 400mg for 6 cycle and radiotherapy was taken. Patient was given classical Ayurvedic formulation of *Rasa sindur* 50mg+ *Abhrakbhasma* 250mg+ *Vachachurna* 500mg+ *Panchamritlauha guggulu* 250mg BD with honey, *Shatavarighrita* 5gm BD with milk, *Jyotishmatitaila* 5 drops BD with *Bataasha* and cap SNEC30 (liquid curcumin capsules). After the completion of 6th cycle there were very encouraging results observed with negligible side effects, improvement in all chief complaints, general health condition and quality of life of the patient. Ayurvedic medication appears to have significant effect on reducing side effect of chemo-radiotherapy and improving quality of life in the patient of brain cancer (oligoastrocytoma).

KEYWORDS: Oligoastrocytoma, *Tridosha*, *Raktadushti*, Chemo-Radiotherapy, Quality of life, *Rasa sindur*, *Abhrakbhasma*, *Vachachurna*, *Panchamritlauha guggulu*, *Shatavarighrita*, *Jyotishmatitaila*.

INTRODUCTION

Anaplastic astrocytoma (AA) is a diffusely infiltrating, malignant, astrocytic, primary brain tumour with a median age of onset of 40 to 50 years. AA constitutes 4% of all malignant CNS tumours and 10% of all gliomas^[1]. The survival of patients with AA varies depending upon molecular pathology. With conventional treatment, median overall survival (MOS) and 5 year survival rates are 3 years and 28%, respectively. Whereas very few children are diagnosed with Oligoastrocytoma. In modern medicine^[2] chemotherapy and radiotherapy is the main treatment modalities of cancer treatment. A considerable number of patients have to go through distressing treatments like chemotherapy and radiotherapy. Chemotherapy and radiotherapy are considered an effective way to help cancer survivors but chemotherapy drugs are highly toxic and produce myelosuppression and some serious side effects like nausea, vomiting, diarrhoea, mucositis, alopecia,

constipation etc^[3]. Whereas radiation therapy though administered locally, can produce systemic side effects such as fatigue, anorexia, nausea, vomiting, alteration in the taste, sleep disturbance, headache, anaemia, dry skin, constipation etc.^[4] These arrays of side effects have a devastating effect on the quality of life of cancer survivors. As modern science and medical advancement provide the rationale for the integration of various Alternative and Complementary Medicine to promote healing, health and longevity, present case study was undertaken to find effectiveness of Ayurvedic medication as an adjuvant or co-therapy in the management of oligoastrocytoma as well as in minimizing the side effect of chemo-radiotherapy^[5].

Case Report

The present case study is a successful Ayurvedic management as a co-therapy in a case of anaplastic oligoastrocytoma. A 40-year-old Hindu female patient having history of anaplastic oligoastrocytoma since 6 years presented with complaints of weakness in right upper limb, difficulty in speaking, decreased appetite, weight loss, anaemia and fatigue. Her MRI brain revealed that she was a known case of anaplastic oligoastrocytoma grade III, in postoperative status, she was advised radiotherapy and chemotherapy by her oncologist. She had completed her radiotherapy cycle of 52 days (from 19-11-2018 to 09-01-2019). Then she was advised for chemotherapy (6 cycles from 24-02-2019 to 03-06-2019). But patient was not willing to take chemotherapy due to fear of side-effects such as alopecia, severe nausea, vomiting, lack of appetite and fatigue. Post-radiotherapy the patient reported to National Institute of Ayurveda, Jaipur for Ayurvedic medication on 27/02/2019. This is a single case study and consent was taken from the patient and study was in accordance with ICH-GCP guidelines.

Table 1: Showing complaints of patient

Sr.no	Chief complaints	duration
1	Weakness in right upper limb	15 days
2	Difficulty in speech	15 days
3.	Generalised weakness	6 month
4	anorexia	4 month
5	Weight loss	4 month

Associated complaints: none

Past history – K/c/o-oligoastrocytoma operated in October 2018

Table 2: Showing medication taken by patient (chemotherapy drugs for 6 cycles from 24-02-2019 to 03-06-2019)

S.no	Name of medicine	Dosage/frequency
1	Irnocam	150mg
2	Avastin	400mg
3	Neukine	300mcg

Table 3: Personal history

Appetite	good
Sleep	disturbed
Micturition	4-5 times a day
Bowl	Twice a day
Addiction	Tea 2 times a day

On physical examination

Weight - 60kg

Height - 160cm

BMI - 23.4 kg/m²

Blood pressure - Lying right arm 140/90mmHg

Sitting right arm 130/90mmHg

Pulse- 82bpm, regular; Respirations 20/min

Thyroid: non palpable

Lungs: clear to auscultation

Heart: Rate and rhythm regular, no murmurs or gallops

Vascular assessment: no carotid bruits, femoral popliteal and dorsalis pedis pulses 2+ bilaterally

Neurological assessment: Diminished power and motor activity in right upper and lower limb

Astavidhapariksha

Nadi– Kaphaja, Guru nadi

Mala– Saama, Shushkamala, Alpapravritti

Mutra– Samyakpravriti

Jihwa – Shwetaliptata

Sparsha- Snigdha

Shabda- Gambheer

Drik- Prakrat

Akriti–Samanya

General Examination

Consciousness – Conscious

General appearance – Normal

Built – Moderate

Pallor – present

Icterus – Absent

Cyanosis- Absent

Clubbing – Absent

Oedema – Absent

Lymphadenopathy – Absent

Gait – Normal

Table 4: Therapeutic intervention

S.no	Contents
1. <i>Rasa Sindure</i>	<i>Parad and Gandhaka</i>
2. <i>Abhraka Bhasm</i>	Purified <i>Abhraka</i>
<i>Vacha Churna</i>	<i>Vacha</i>
<i>Panchamrita Lauha Guggulu</i>	<i>Shuddhaparad, Shuddhagandhaka, Raupyabhasma, Abhrakabhasma, Swarnamakshikbhasma, Lauhabhasma, Shudhaguggulu</i>
Cap. Snec 30	Liquid Curcumin (Arbro pharmaceutical product)
<i>Jyotishmati Taila</i>	<i>Tilataila</i> processed with <i>Jyotishmati</i>
<i>Shatavari Ghrita</i>	<i>Shatavari, Goghrita</i>

Table 5: Follow-up and outcomes

Subjective finding (chief complaints)	B.T	A.T
Weakness in right upper limb	Present	Mild present
Difficulty in speech	Present	Mild present
Generalised weakness	Present	Absent
Anorexia	Present	Absent
Weight loss	Present	Absent
Subjective findings (chemotherapy side effect)		
Nausea & vomiting	Present	Absent
Fatigue	Present	Mild present
Alopecia	Absent	Absent
Xerostomia	Present	Absent
Tastelessness	Present	Absent
Weight loss	Present	Absent

Assessment criteria**Table 6: QQL in Oligoastrocytoma (Brain Cancer)^[6]**

QOL Parameters	27/02/2019	14/03/2019	29/03/2019	13/04/2019
physical Well-being	20/28	15/28	13/28	10/28
Social/Family Well-Being	19/28	17/28	15/28	15/28
Emotional Well-Being	19/28	17/28	15/28	12/28
Functional* Well-Being	4/28	7/28	11/28	11/28
Additional Concerns	54/92	45/92	40/92	40/92
	116/204	101/204	94/204	88/204

Assessment of the effect of therapy on quality of life was carried out on the basis of FACIT Questionnaires {Functional Assessment of Chronic Illness Therapy or Cancer Therapy (FACT)}. The general cancer specific questionnaire consists of five domains:

- Physical
- Social/Family
- Emotional
- Functional Well-Being
- Additional Concerns

In the above table decreasing score is showing improvement in the physical, social/family, emotional well-being along with additional concerns while increasing score showing improvement in functional well-being in the patient with the treatment.

DISCUSSION

Chemotherapy medicines produce side-effects like diarrhoea, loss of appetite, weakness, vomiting, constipation, fever, stomatitis, burning sensation, weight loss, alopecia, myelosuppression and affects the quality life of patients. Through Ayurvedic perspective, it appears that side effects of chemotherapy are the manifestations of aggravated *Tridosha* under the group of disorders as *Raktadushti* and as mentioned in Ayurveda classics.^[7] *Shoola* is the sign of aggravated *Vatadosha*, *Daha* (burning sensation) *Davathu* (acid regurgitation), *Mukhapaka* (stomatitis), *Payupaka* (urethritis), *Gudapaka* (proctitis) etc. are the sign and symptoms of aggravated *Pitta dosha*, *Aruchi*, *Chhardi*, *Vibandh* etc., are the sign of aggravated *Kaphadosha*. Chemotherapy drugs also vitiates *Jatharagni* causes *Annavaha Srotodushti Lakshana* viz., *Aruchi*, *Anannabhilashanam*, *Chhardi* etc. The principle behind selection of these drugs and *Tridosh-shamaka* regimen was to restore and support functioning of gastro-intestinal system, reducing pain and promotes strength to patient.

Formulations	Karma (Pharmacological Effect)
<i>Abhrakabhasma</i>	<i>Ushnavirya</i> , <i>Balya-rasayan</i> effect, <i>Ojovardhak</i> , <i>Tridosh-shamak</i> , <i>Raktavardhak</i> , <i>Yogvahi</i> , <i>Agnivardhaka</i>
<i>Ras sindur</i>	<ul style="list-style-type: none"> • <i>Ushnavirya</i>, <i>Balya</i>, <i>Rasayan</i>, <i>Rakta-shodhaka</i> • Behave as a Protease inhibitor by inhibiting the proteolysis of BSA by trypsin proves its anticancer activity.^[8] • This Ayurvedic drug also shows antioxidant property
<i>Vachachurna</i>	<p>Ayurvedic properties- <i>Ushnavirya</i>, <i>Katutikta rasa</i>, <i>Vacha</i> has a special potency (<i>Prabhava</i>) as a nervine tonic (<i>Medhya</i>), <i>Vacha</i> is <i>Agnivardhaka</i>, <i>Mala-Mutravishodhaka</i>, <i>Lekhana</i></p> <p>Chemical constituents</p> <ol style="list-style-type: none"> 1. The ethanolic extract of <i>Acorus calamus</i> has anti-proliferative and immunosuppressive properties. This extract causes the tumour necrosis which inhibits the proliferation of mitogen, antigen stimulated peripheral blood mononuclear cells in humans, nitric oxide and interleukins^[9] 2. Anticancer activity of <i>Acorus calamus</i> rhizomes was evaluated, hydroalcoholic extract of <i>Acorus calamus</i> rhizome showed anti-proliferative activity on anticancer cell.^[10] 3. Methanolic extract of <i>Acorus calamus</i> showed analgesic and anti-inflammatory effect.
<i>Panchamrit Lauha Guggulu</i>	<p>Act as antiseptic, anti-bacterial, astringent, anti-spasmodic, anti-inflammatory agent. <i>Abhrakbhasma</i> which is one of the ingredients is known for treatment of various chronic diseases.</p> <p><i>Roupyabhasma</i> known for its <i>Vatashamak</i> property acting on kidney, brain and nerves has analgesic activity and useful in many condition like pain, neuralgias, inflammation, anxiety, convulsion.</p> <p>Memory loss etc.</p> <p><i>Swarnamakshik Bhasma</i> is indicated in the effective management of <i>Mandagni Anidra</i>, <i>Apasmara</i>, <i>Pandu</i> etc.</p> <p><i>Loha Bhasma</i> is useful in treatment of various conditions like <i>Pandu</i> (anaemia), <i>Shotha</i> (oedema).</p> <p>So <i>Panchamrit Loha Guggulu</i> has analgesic and anti-inflammatory properties.</p> <p>It improves blood circulation to the brain and act on brain, nerves, blood vessels, heart muscles, bones and joints. It is commonly used in the treatment of mental disorders, symptoms associated with nervine weakness, neuralgia, neuritis etc.</p>

<i>Jyotishmati</i> ^[11] oil	This oil extracted from <i>Celastrus paniculatus</i> is known to have effect on central nervous system. It has reported activities like anti-inflammatory, anti-fatigue, analgesic, sedative, laxative, nervine tonic. ^[12]
Cap. Snec30	Its chief component curcumin derived from rhizome of <i>Curcuma longa</i> has potent Antioxidant activity- The water soluble protein turmerin- a polypeptide act as an antioxidant
<i>Shatavarighrit</i>	Anti-inflammatory activity ^[13] Anti -cancer activity- curcumin has anti-cancer activity due to free radical scavenging activity, blocking of NFkB, anti-mutagenic activity and antioxidant activity. ^[14] <i>Shatavari</i> (<i>Asparagus recemosus</i> Wild) is the famous drug of <i>Balya Gaṇa</i> which promotes strength to patient and has adaptogenic and anti-oxidant property.

All above drugs are potent digestive, absorbent, *Raktapittashamaka*, *Tridosh-shamaka* and carminative and having *Rasayan* effect. The principle behind selection of these drugs having *Tridosh-shamak* and *Agnivardhaka* properties was to restore and support functioning of gastro-intestinal system and promotes strength to patient.

Aggravated *Tridosha* is the fundamental basis for management of cancer and preventing chemotherapy side-effects and the *Rasayan* drugs which are used in above treatment have the ability to reduce imbalances related to *Tridosha*. The case study concluded that, *Rasayana* drugs and *Tridosh-shamak* regimen is an effective adjuvant therapy in protecting the patient from the disease and adverse effect of chemotherapy drug in cancer. As, the recent researches have shown that a number of *Rasayan dravyas* mentioned in Ayurveda classics have proven anti-cancer properties.^[15] This Ayurvedic medication certainly improves the strength of patient, quality of life of the cancer patient, and may enhance the life expectancy.

Over the past several decades, cancer treatment includes multimodal treatment regimens (surgery, chemotherapy, radiation) and palliative therapy administered by various routes and innovative procedures have added longevity and symptomatic relief in a large number of cancer survivors. However, the quality of life of these survivors during and even after the treatment period is pitiable. At this juncture, following the concept of integrative oncology drugs like *Haridra*, *Rasa sindur*, *Abhrak bhasma*, *Shatavarighrit* etc. By virtue of its anti-cancer potential, it can offer a lot of aid in improving and augmenting the quality of life of cancer patients.

Experimental data of this case study suggest that these drugs act at each stage of promotion and progression of oligoastrocytoma and prevention of chemo-radiotherapy side effects as well. So in this case study we can conclude that above drugs can be used in following aspects:

1. To supplement anti-cancer treatment
2. To reduce side effects of chemotherapy and radiotherapy.
3. To reduce pain and complications

CONCLUSION

Besides *Shatavarighrit*, *Jyotishmati* oil have chemo-radiotherapy side effects preventive potential. Due to shortcomings of conventional chemotherapy in the advanced stages of cancer and its adverse effects, *Haridra* (curcumine), *Rasa sindur* and *Abhrakbhasma* with a defined molecular target approach will play an important role in future in palliative treatment. Role of these drugs as a chemo-radiotherapy side effects reducing agent will Prevent oligoastrocytoma (cancer) and its side effects and thus the number of deaths caused by this disease.

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