

ROLE OF ANUVASAN BASTI IN SYMPTOMATIC MANAGEMENT OF PRIMITIVE NEUROECTODERMAL TUMOUR – A CASE STUDY

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ABSTRACT

Primitive Neuroectodermal Tumours (PNETs) are rare, highly aggressive malignant tumours of the central nervous system, commonly affecting children and young adults. Skull PNET is extremely uncommon and poses significant diagnostic and therapeutic challenges. Conventional management includes surgery, chemotherapy, and radiotherapy; however, long-term prognosis and quality of life often remain compromised due to disease aggressiveness and treatment-related morbidity. Ayurveda, through its holistic principles, offers supportive and adjuvant therapeutic approaches aimed at Dosha balance, neuroprotection, and enhancement of quality of life. The present paper conceptualizes skull PNET from an Ayurvedic perspective and explores the role of Panchakarma therapy, specifically *Anuvasana Basti* with *Mahāpaiśācīk Ghṛta*, in

symptomatic management. A single case study is presented to highlight the therapeutic rationale and clinical relevance of this integrative approach.

KEYWORDS: PNET, Anuvasana Basti, Mahāpaiśācīk Ghṛta, Panchakarma, Gut–Brain Axis.

INTRODUCTION

Primitive Neuroectodermal Tumours (PNETs) are rare, highly malignant neoplasms arising from primitive neuroectodermal cells. They belong to the Ewing's sarcoma family of tumours and are characterized by rapid growth, early metastasis, and significant angiogenesis. Skull PNET is exceptionally rare and is associated with poor prognosis despite aggressive multimodal therapy. Classical Ayurvedic texts do not describe PNET explicitly; however,

such conditions can be understood under the concepts of *Arbuda* and *Granthi*, involving predominance of *Vata–Kapha Dosha* vitiation along with *Rakta Dushti*. Involvement of *Mastishka* indicates disturbance of *Prana*, *Udana*, and *Vyana Vata*, with impairment of *Majja Dhatu*. Panchakarma therapies, especially *Basti*, are considered the most effective modality for *Vata* disorders and neurological conditions.

CASE PRESENTATION

Patient Information

A 20-year-old male patient presented to the OPD with complaints of headache, seizures, pain in both extremities, and impairment of memory and cognitive functions.

Chronology of Illness

At the age of 8 years, the patient developed recurrent headaches, seizures, severe pain in both extremities, and memory disturbances. PET-CT evaluation confirmed the diagnosis of Primitive Neuroectodermal Tumour. The patient underwent multiple neurosurgical interventions aimed at tumour excision and histopathological diagnosis. This was followed by seven cycles of chemotherapy and four cycles of radiotherapy. Post-treatment, the patient experienced partial symptomatic relief. However, after two years, recurrence of neurological symptoms was observed. Seeking further supportive management, the patient approached an Ayurvedic physician.

Overview of Primitive Neuroectodermal Tumor of the Skull

20 years male patient came to OPD. He was having complaints of Headache, multiple joints pain, hair loss, loss of appetite, tremors of both hands and Constipation. He was diagnosed as PNET of skull at the age of 10 years. He had undergone through couple of surgeries, 10 chemotherapy cycles and 8 Radiotherapy cycles.

PNETs are small round blue cell tumours of neuroectodermal origin. Skull PNETs may be primary or secondary and are often associated with calvarial destruction and intracranial extension. Clinical manifestations include headache, seizures, focal neurological deficits, and palpable skull masses.

Diagnosis is based on radiological imaging such as computed tomography (CT) and magnetic resonance imaging (MRI), histopathology, immunohistochemistry demonstrating CD99 positivity, and molecular confirmation of EWSR1 gene translocation. Standard management

involves multimodal therapy including surgery, chemotherapy, and radiotherapy.

Angiogenesis means the formation of new blood vessels from pre-existing blood vessels. In normal conditions, angiogenesis is required for healing and growth, but in cancer, it becomes uncontrolled. In Primitive Neuroectodermal Tumour, angiogenesis plays a major role in its pathophysiology.

Because PNET grows very rapidly, the tumour tissue outgrows its blood supply. This results in local hypoxia, or lack of oxygen. Hypoxia stimulates the release of angiogenic factors, such as vascular growth factors.

These factors activate endothelial cells, which then proliferate and form new blood vessels. The newly formed blood vessels supply oxygen and nutrients to the tumour, allowing it to:

- Grow rapidly
- Invade surrounding tissues
- Spread to distant organs (early metastasis)

Thus, angiogenesis helps the tumour **survive, progress, and recur**, making PNET an aggressive malignancy.”

“Angiogenesis is the formation of new blood vessels. In PNET, rapid tumour growth causes hypoxia, which activates angiogenic factors. These new blood vessels nourish the tumour, leading to rapid growth and early metastasis.”

Ayurvedic Conceptualization of Skull PNET

Classical Ayurvedic texts do not directly describe PNET; however, the condition may be understood under Arbuda or Granthi, with predominant Vata–Kapha Dosha vitiation and Rakta Dushti. Involvement of the brain (Mastishka) indicates disturbance of Prana, Udana, and Vyana Vata along with impairment of Majja Dhatu. Chronic Dosha vitiation, Srotorodha, Dhatvagnimandya, and Dhatu Kshaya may result in abnormal proliferative growths resembling Arbuda. The aggressive nature of PNET reflects severe Vata aggravation.

TREATMENT PROTOCOL

The following Panchakarma and supportive therapies were administered

- **Sarvāṅga Abhyanga** – Bala Taila
- **Śāṣṭika Śāli Piṇḍa Sveda** – Bala Pottali

- **Anuvasana Basti** – Mahāpaiśācīk Ghṛta

Mahāpaiśācīk Ghṛta is a classical formulation described in *Charaka Samhita*, indicated in severe neuropsychiatric disorders such as *Unmada* and *Apasmara*. The formulation possesses *Medhya*, *Rasayana*, *Balya*, and *Vatashāmaka* properties.

MODE OF ACTION OF ANUVASANA BASTI

According to Ayurvedic classics, *Pakvāśaya* is the principal seat of *Vata Dosha*. *Anuvasana Basti* administered in the colon spreads its potency throughout the body via *Srotas*, analogous to water nourishing a tree from its roots. Acharya Dalhaṇa explains that *Puriṣadhara Kala* is related to *Asthidhara Kala* and *Pittadhara Kala* to *Majjadhara Kala*, indicating the direct influence of Basti on *Asthi* and *Majja Dhatu*. Thus, Anuvasana Basti exerts a nourishing and neuroprotective effect.

GUT–BRAIN AXIS: MODERN CORRELATION

Modern science recognizes the gut–brain axis through the Enteric Nervous System (ENS), which contains over 100 million neurons and produces major neurotransmitters such as serotonin, dopamine, norepinephrine, and nitric oxide. Basti therapy may stimulate chemo- and mechanoreceptors in the gut, thereby influencing central nervous system functions and promoting neuroregulation.

THERAPEUTIC RATIONALE OF MAHĀPAIŚĀCĪK GHṚTA

Mahāpaiśācīk Ghṛta, being *Yogavāhi* and *Sūkṣma*, facilitates deeper tissue penetration and effective delivery of therapeutic compounds to the nervous system. Its administration through Anuvasana Basti enhances *Majja Dhatu Poshana*, improves *Smriti* and *Buddhi*, and supports overall neurological function.

CLINICAL SIGNIFI

Concept of Depletion (*Dhātu-kṣaya*) and Vāta Prakopa

According to Ayurvedic principles, **Vāta Doṣa is the primary regulator of degeneration, movement, and neurological function.** Any pathological condition characterized by **progressive tissue depletion (*Dhātu-kṣaya*)**, rapid cellular turnover, and loss of structural integrity leads to **secondary or primary aggravation of Vāta.** In Primitive Neuroectodermal Tumour, the **aggressive proliferative activity** of tumour cells results in:

- Continuous consumption of **Rakta, Māmsa, Asthi, and Majjā Dhātu**

- Progressive depletion of **Ojas**, leading to reduced *Bala* and *Vyādhi-kṣamatva*

This state of depletion forms a classical **Vāta-vardhaka nidāna**, as described in *Caraka Samhitā*, where **kṣaya, rukṣatā, and dhātu-śoṣa** directly aggravate Vāta.

Vāta Subtypes Involved in PNET

Involvement of the central nervous system (*Mastiṣka*) indicates dysfunction of specific Vāta subtypes

- **Prāṇa Vāta** – Responsible for higher cortical functions, cognition, memory, and autonomic regulation → Manifested as seizures, cognitive impairment, and headache
- **Udāna Vāta** – Governs strength, confidence, speech, and upward movements → Manifested as lack of confidence, reduced endurance, and mental fatigue
- **Vyāna Vāta** – Controls coordination, circulation, and neuromuscular activity → Manifested as tremors, gait imbalance, and movement disorders

Thus, the symptomatology of PNET demonstrates **multi-axial Vāta involvement** rather than isolated neurological pathology.

3. Rakta and Majjā Dhātu Involvement

Angiogenesis in PNET represents abnormal and continuous nourishment of pathological tissue. From an Ayurvedic standpoint, this may be correlated with **Rakta Dushti**, wherein vitiated Rakta supports abnormal growth (*Arbuda-poshana*).

Simultaneously, depletion of **Majjā Dhātu**, the structural and functional correlate of the nervous system, results in:

- Impaired neural conduction
- Reduced neuroprotection
- Heightened Vāta sensitivity This creates a **vicious cycle**

Rakta Dushti sustaining abnormal growth + Majjā Kṣaya aggravating Vāta

Therapeutic Logic of Vāta-Shāmana and Bṛ̥ṃhaṇa

Given that

- *Dhātu-kṣaya* is the primary pathology
- Vāta is the dominant Doṣa
- CNS and Majjā are the principal sites involved The therapeutic approach must focus on:
- Vāta-śāmana

- Bṛmhaṇa and Rasāyana
- Majjā Dhātu Poshana

Anuvasana Basti is classically described as the **best therapy for Vāta disorders**, with Pakvāśaya as the main seat of Vāta. Administration of **Mahāpaiśācīk Ghṛta**, a *Medhya-Rasāyana* formulation, through Basti allows:

- Direct Vāta pacification
- Nourishment of Majjā Dhātu
- Restoration of Bala and Ojas

DISCUSSION

The integrative application of Panchakarma therapies in neuro-oncological conditions highlights Ayurveda’s supportive role in cancer care. By addressing Vata imbalance and Dhātu depletion, Anuvasana Basti contribute to symptomatic relief and improved tolerance to aggressive conventional treatments.

DOSHA, DHATU	NORMAL FUNCTIONS	MANIFESTATION
PRANA	Higher cortical functions, cognition, memory, autonomic regulation	Cognitive impairment and headache
UDANA	Governs strength, confidence and speech,	Lack of confidence, reduced endurance, mental fatigue
VYANA	Controls co ordinations, circulation, neuromuscular activity	Tremors, gait imbalance, movement disorders.
MAJJA	Neuroprotection	Impaired neural conduction, reduced neuroprotection
RAKTA		Responsible for angiogenesis in PENT

PARAMETER	BEFORE TREATMENT	AFTER TREATMENT	IMPROVEMENT
Headache (VAS)	Severe (7–10)	Mild (1–3)	Significant
Joint Pain	Severe (3–4)	Mild (1)	Marked
Memory Disturbance	Frequent forgetfulness (3)	Occasional forgetfulness (1)	Moderate
Lack of Confidence	Severe (3)	Mild (1)	Improved
Balance & Movement	Moderate imbalance (2)	Mild imbalance (1)	Improved
Tremors	Moderate (2)	Mild (1)	Reduced
Weakness	Severe (3)	Mild (1)	Marked

The integrative application of Panchakarma therapies in neuro-oncological conditions demonstrates Ayurveda’s potential role in supportive cancer care. By addressing Vata

imbalance, tissue depletion, and neurodegeneration, Anuvasana Basti may help reduce symptom burden and enhance overall well-being. However, systematic clinical studies are required to validate these observations.

CONCLUSION

Skull PNET is a rare and aggressive malignancy with limited success through conventional treatment alone. Ayurvedic Panchakarma therapy, specifically Anuvasana Basti with Mahāpaiśācīk Ghṛta, offers a holistic supportive approach by regulating *Vata*, nourishing the nervous system, and stimulating the gut–brain axis. An integrative treatment strategy may enhance quality of life and overall patient care.

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