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## PHARMACODYNAMICS OF *MURDHNI TAILA*

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### Abstract

*Murdhni Taila* is an important therapeutic procedure described in *Ayurveda*, in which medicated oil is applied over the head for preventive and curative purposes. The term *Murdhni* refers to the head and *Taila* means oil. The head is considered one of the most important regions of the body because it controls the sense organs, nervous functions, mental activities, sleep, memory, and overall coordination of the body. Therefore, procedures applied over the head have a direct and beneficial effect on *Shira*, *Indriya*, *Manas*, and *Kesha*. *Murdhni Taila* is mainly used to nourish the brain and nervous system, improve mental health, promote sleep, strengthen hair roots, and balance aggravated *Vata Dosha*. The present article explains the classical concept, types, indications, procedure, pharmacodynamic action, and clinical importance of *Murdhni Taila*.

### Keywords

*Murdhni Taila*, *Shiro Abhyanga*, *Shirodhara*, *Shiro Pichu*, *Shirobasti*, *Vata Dosha*, *Bahya Snehana*, *Panchkarma*, Pharmacodynamics

## Introduction

In *Ayurveda*, *Shira* is considered as a prime seat of *Prana*, *Indriya*, and *Manas*. Any disturbance in the function of the head may affect sleep, sensory perception, mental stability, hair health, and neurological balance. For this reason, special importance has been given to therapeutic procedures performed over the head. Among these procedures, *Murdhni Taila* is one of the most commonly practiced and clinically useful therapies. It is included under external oleation therapy and is mainly indicated in disorders caused by vitiation of *Vata* and *Pitta* in the head region.<sup>1</sup>

*Murdhni Taila* includes different methods in which medicated oil remains in contact with the scalp for a fixed duration. These procedures help in reducing dryness, stiffness, pain, burning sensation, hair fall, insomnia, stress, and other head-related disorders. The effect of *Murdhni Taila* is not limited only to the scalp or hair. It also acts on the nervous system, sense organs, mental health, and sleep physiology. Due to its *Snigdha*, *Sukshma*, *Ushna* or *Sheeta* nature according to the selected oil, it helps in pacifying aggravated *Dosha* and restoring normal function of the head region.<sup>2</sup>

## Concept of Pharmacodynamics

Pharmacodynamics refers to the relationship between drug concentration at the site of action and the resulting effect produced in the body. It explains how a drug acts after reaching its target site, including the intensity, duration, therapeutic effect, and possible adverse effect. In simple words, pharmacodynamics tells us what the drug does to the body.

In modern pharmacology, pharmacodynamics mainly includes drug-receptor interaction, dose-response relationship, mechanism of action, and therapeutic effect. In the case of *Murdhni Taila*, the pharmacodynamic action can be understood through both classical and modern views. From the Ayurvedic view, its action is based on *Snehana*, *Swedana*, *Dosha Shamana*, *Indriya Prasadana*, and *Manas Shamana*. From the modern view, it may act through transdermal absorption, local stimulation of nerve endings, improvement of blood circulation, relaxation of muscles, calming of the autonomic nervous system, and modulation of stress response.<sup>3</sup>

Pharmacokinetics explains the process of absorption, distribution, metabolism, and excretion, whereas pharmacodynamics explains the action produced after the drug reaches the site of action. In *Murdhni Taila*, medicated oil is applied externally, but its effect may be local as well as systemic due to the involvement of scalp vessels, nerve endings, hair follicles, and sensory pathways.

## Definition of *Murdhni Taila*

*Murdhni Taila* is a type of treatment in which various procedures are carried out by keeping medicated *Taila*, *Ghrita*, or decoctions in contact with the scalp for a fixed period of time. It is mainly performed over the head and is useful in diseases of *Shira*, *Kesha*, *Indriya*, and *Manas*.

The classical importance of oil application over the head is described in *Charaka Samhita* as follows:<sup>4</sup>

नित्यस्नेहार्दशिरसः शिरःशूलं न जायते न खालित्यं न पालित्यं न केशाः प्रयतंति च॥

बलं शिरः कपालानां विशेषेणाभिवर्द्धते। दृढमूलाश्च दीर्घाश्च कृष्णाः केशा भवति च॥

इंद्रियाणि प्रसीदति सुत्वग्भवति चामलम्। निद्रालाभः सुखं च स्यान्मूर्ध्नितैलनिषेवणात्॥

(*Charaka Samhita Sutra Sthana 5/81-83*)

This reference explains that regular use of *Murdhni Taila* prevents headache, hair fall, premature greying, and weakness of hair roots. It strengthens the head and skull, improves the sense organs, promotes healthy skin, gives good sleep, and provides comfort.

## Types of *Murdhni Taila*

*Murdhni Taila* is mainly of four types:

1. *Shiro Abhyanga*
2. *Shiroseka* or *Shirodhara*
3. *Shiro Pichu*
4. *Shirobasti*

Each type has its own method, indication, duration, and clinical utility. Although all these procedures are based on application of medicated oil over the head, their depth of action and therapeutic strength are different.<sup>5</sup>

### 1. *Shiro Abhyanga*

*Shiro Abhyanga* means application and massage of medicated oil over the head. It is the simplest form of *Murdhni Taila*. In this procedure, herbal oil is applied over the scalp and gentle massage is done with proper pressure and direction.

The classical reference states:

तत्राऽभ्यंगं प्रयोक्तव्यो रौक्ष्यकंडूमलादिषु । (*Ashtanga Hridaya Sutra Sthana 22/24*)

According to this reference, *Shiro Abhyanga* is useful in dryness, itching, and accumulation of dirt over the scalp. *Sushruta* also explains that *Shiro Abhyanga* helps in removing diseases of the head, improves softness, length, thickness, blackness of hair, nourishes the head, improves facial skin, and provides satisfaction to the sense organs.<sup>6</sup>

### **Indications of *Shiro Abhyanga***

- *Rouksha*, meaning dryness of scalp
- *Kandu*, meaning itching
- Scalp roughness
- Mild headache
- Hair fall
- Premature greying
- Stress and mental fatigue
- Sleep disturbance
- Dryness due to aggravated *Vata Dosha*

### **Commonly Used *Taila Yoga***

- *Prapoundrikadi Taila* for all *Murdhagat Roga*
- *Brahmi Taila* for *Murdharuja* and *Urdhwajatru Vikara*
- *Asanabilvadi Taila* for *Netra Roga*
- *Nimbadi Taila* for *Darunaka*
- *Triphaladi Taila* for *Shiroroga*, *Khalitya*, and *Palitya*

### **Pharmacodynamic Action of *Shiro Abhyanga***

The action of *Shiro Abhyanga* is mainly due to the combined effect of oil and massage. Massage increases local blood circulation and helps better absorption of the medicated oil through the scalp. The *Snigdha Guna* of oil reduces dryness and pacifies *Vata Dosha*. The gentle pressure over the scalp stimulates nerve endings and relaxes the muscles of the head, neck, and shoulder region. This helps in reducing headache, stress, anxiety, and fatigue.

### **2. *Shiroseka* or *Shirodhara***

*Shiroseka*, also known as *Shirodhara*, is a process in which medicated oil, *Ghrita*, *Takra*, *Ikshu Rasa*, *Kashaya*, *Ksheera*, or other suitable liquid is continuously poured over the forehead and

scalp in a rhythmic manner. The continuous stream usually falls over the forehead and then flows over the scalp.

A classical reference of *Dhara* states:

धारोच्य चतुरंगुलं तु शिरसः सेके। अत्युष्णेऽपि च मंदकोपसमये मंदातपे शीतले॥ +(Dharakalpa)

### Indications of *Shirodhara*

- *Arunshika*, meaning boils over the head
- *Shirastoda*, meaning pricking pain in the head
- *Daha*, meaning burning sensation
- *Paka*, meaning inflammatory condition
- Insomnia
- Stress
- Anxiety
- Headache
- Mental irritability
- *Vata-Pitta* disorders of head

### Procedure of *Shirodhara*

#### Purva Karma

Before starting the main procedure, local *Snehana* is done over the face, neck, and shoulder region. A gauze band is tied around the head just above the eyebrows to prevent oil from entering the eyes. Cotton swabs are kept in both ears for protection.

#### Pradhan Karma

The patient is asked to lie on the table in supine position. The *Dharapatra* is adjusted above the forehead in such a way that the distance between the wick and forehead remains around four *Anguli*. Lukewarm herbal oil or other selected liquid is poured into the *Dharapatra*. A continuous stream is maintained over the forehead with rhythmic movement of the vessel. The stream is moved gently from one side to the other so that the whole forehead receives uniform flow.

## **Duration**

According to *Dharakalpa*, in dry and *Pittayukta Vata* conditions, the duration may be two and half *Prahar*. In *Snigdha* and *Kaphayukta Vata* conditions, the duration may be one *Prahar*. In clinical practice, duration is adjusted according to the strength of the patient, disease condition, type of liquid used, and physician's decision.

## **Time of Procedure**

The appropriate time for *Shirodhara* is *Pratahakala*, meaning morning.

## **Pashchat Karma**

After completion of the procedure, the head is wiped properly with a clean cloth. The patient is advised to take rest and avoid exposure to cold wind, direct sunlight, loud sound, mental stress, and heavy physical activity immediately after the procedure.

## **Selection of *Sneha***

Selection of *Sneha* depends on the condition of *Dosha Prakopa*.

- In *Vata* condition, *Tila Taila* is preferred.
- In *Pitta* and *Rakta* condition, *Ghrita* is preferred.
- In *Kapha* condition, *Tila Taila* is used.
- In *Vata-Pitta-Rakta* condition, *Tila Taila* and *Ghrita* are used in equal quantity.
- In *Vata-Kapha-Rakta* condition, one part *Tila Taila* and half part *Ghrita* may be used.

## **Commonly Used *Taila Yoga***

- *Himasagar Taila* for *Pitta* and *Raktaja Shiroroga*
- *Mahavishgarbha Taila* for *Vatajanya Shirobhighata*
- *Ksheerabala Taila* for *Daha* and *Paka*

## **Pharmacodynamic Action of *Shirodhara***

The continuous rhythmic flow of liquid over the forehead creates a calming effect on the nervous system. The forehead region is rich in nerve endings and is closely related to sensory and emotional responses. Continuous stimulation of this area may reduce sympathetic overactivity and promote parasympathetic dominance. This helps in relaxation, reduction of anxiety, better sleep, and mental calmness. From an Ayurvedic view, *Shirodhara* pacifies aggravated *Vata* and *Pitta*. The continuous flow produces a soothing effect, reduces heat,

relaxes the mind, and stabilizes disturbed *Manas*. The oil also provides nourishment due to its *Snigdha* and *Sukshma* properties.

### **3. Shiro Pichu**

*Shiro Pichu* is a procedure in which a cotton pad soaked in medicated oil is placed over the head and tied with a bandage for a fixed duration. It is a simple but effective method of keeping medicated oil in contact with a selected region of the scalp.<sup>4</sup>

The classical reference states:

पिचुः केशपात स्फुटन धूप नेत्रस्तम्भचा। (Ashtanga Hridaya Sutra Sthana 22)

#### **Indications of Shiro Pichu**

- *Kesha Shata*, meaning hair fall
- *Sputana*, meaning cracking or splitting
- *Netrastambha*, meaning stiffness of eyes
- Dryness of scalp
- Burning sensation of head
- Localized headache
- Insomnia
- *Vata-Pitta* disorders

#### **Procedure of Shiro Pichu**

##### **Purva Karma**

Before the main procedure, *Abhyanga* is done over the face, neck, and shoulder region. It may be followed by mild local *Swedana* according to the condition.

##### **Pradhan Karma**

The patient is asked to sit on a chair of knee height. A cotton pad of approximately 16 cm length and breadth is taken and soaked in lukewarm medicated oil. This pad is placed over the *Brahmarandhra* region of the patient and then tied properly with a bandage. The pad should remain moist with oil throughout the procedure.

##### **Pashchat Karma**

After completion, the *Pichu* is removed and the head is wiped completely. The patient is advised to avoid cold exposure and head bath immediately after the procedure.

## Duration

*Shiro Pichu* may be given for 30 to 90 minutes. It may be repeated for 7 or 14 days depending on the disease condition and physician's advice.

## Commonly Used Taila Yoga

- *Triphaladi Taila* for *Khalitya* and *Palitya*
- *Naradiya Taila*
- Suitable medicated oils in *Ardita* and other *Vata* disorders

## Pharmacodynamic Action of *Shiro Pichu*

The main action of *Shiro Pichu* is prolonged contact of medicated oil with the scalp. This allows slow absorption of active principles through the skin and hair follicles. It provides local nourishment, reduces dryness, improves scalp circulation, strengthens hair roots, and reduces *Vata* aggravation. Since the oil remains in contact for a longer duration, it gives a deeper and more sustained effect compared to simple oil application.

## 4. *Shirobasti*

*Shirobasti* is one of the strongest and most effective procedures of *Murdhni Taila*. In this procedure, medicated oil is retained over the head inside a special chamber made around the scalp for a fixed duration. It allows maximum contact of medicated oil with the head region.

The classical reference states:

बास्तिस्तु प्रसुप्त्यादित जागरो नासास्य शोषे तिमिरे शिरोरोगेश्चदारुणे ।

(*Ashtanga Hridaya Sutra Sthana 22/26*)

## Indications of *Shirobasti*

- *Ardita*
- *Nasasyashosha*
- *Daruna Shiroroga*
- Insomnia
- Severe headache
- Facial palsy
- Neurological disorders of *Vata* origin
- Dryness of nose and mouth

- Stiffness and pain of head region

### **Procedure of *Shirobasti***

#### **Purva Karma**

The patient may be purified by suitable *Shodhana Karma* such as *Vamana* and *Virechana* whenever required. After that, local *Abhyanga* and *Swedana* are performed. These steps prepare the body and head region for better action of the medicated oil.

#### **Pradhan Karma**

The patient is made to sit on a chair of knee height. A leather strap of about 12 *Angula* height and equal to the head circumference is wrapped around the head and tied just above the ears. The joints and gaps are sealed with paste of *Masha* to prevent leakage of oil. Lukewarm medicated oil is poured into this chamber up to a height of one *Angula* above the scalp. The oil is retained until secretions appear in the nose and mouth or according to the prescribed duration.

#### **Time and Duration**

- In *Vataja Vyadhi*, duration is 1000 *Matra*.
- In *Pittaja Vyadhi*, duration is 800 *Matra*.
- In *Kaphaja Vyadhi*, duration is 600 *Matra*.
- In *Swastha Vyakti*, duration is 1000 *Matra*.

#### **Pashchat Karma**

After completion of the procedure, the oil is removed with a spoon or sponge from the chamber. The head is wiped properly and the patient is made dry. The patient should take rest and avoid cold exposure, day sleep, heavy food, and mental strain immediately after the procedure.

#### **Commonly Used *Taila Yoga***

- *Mashabaladi Taila* for *Kampavata*
- *Ksheerbala Taila* for *Ardita* and *Shirashoola*

#### **Pharmacodynamic Action of *Shirobasti***

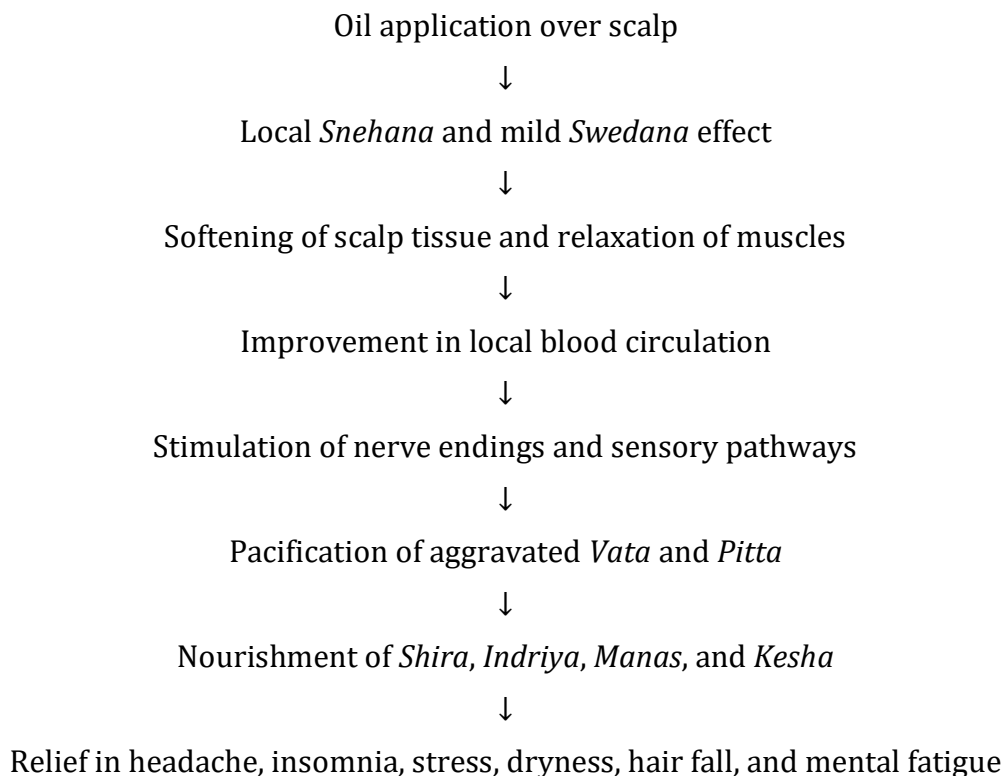
*Shirobasti* gives intense and prolonged *Snehana* effect to the head. Retention of warm medicated oil over the scalp provides deep nourishment and relaxation. Due to the warmth, local blood circulation increases and the oil gets better opportunity for absorption. It pacifies

aggravated *Vata*, reduces dryness, improves nerve function, and provides strength to the head and sense organs. Clinically, it is useful in chronic headache, insomnia, facial palsy, neurological weakness, and severe *Vataja Shiroroga*.

### **Mode of Action of *Murdhni Taila***

*Murdhni Taila* acts as a *Snigdha-Sweda Yukta* procedure. It has the combined benefits of *Snehana* and *Swedana*. The medicated oil provides unctuousness, nourishment, and *Vata Shamana*, while mild warmth improves circulation and relaxes muscles.

The probable mode of action can be understood in the following way:



### **Ayurvedic Pharmacodynamics of *Murdhni Taila*<sup>5</sup>**

The Ayurvedic pharmacodynamic action of *Murdhni Taila* depends on the properties of the selected oil and the method of application. Most medicated oils used in this procedure possess *Snigdha*, *Sukshma*, *Sara*, and *Vata-Shamaka* properties. These qualities help in reducing dryness, roughness, stiffness, pain, and instability caused by aggravated *Vata Dosha*.

The head is an important seat of *Prana Vayu*, *Alochaka Pitta*, *Tarpaka Kapha*, *Indriya*, and *Manas*. When medicated oil is applied over the head, it nourishes these functional components and restores balance. *Snigdha Guna* reduces *Rukshata*, *Sukshma Guna* helps deeper penetration, and *Mridu Guna* provides softness and relaxation. The warmth of oil improves circulation and supports the action of *Swedana*.

In *Vataja* conditions, oil reduces dryness, pain, tremor, stiffness, and sleep disturbance. In *Pittaja* conditions, suitable cooling oils or *Ghrita* reduce burning sensation, irritability, and inflammation. In *Kaphaja* conditions, proper selection of oil with warming properties helps in reducing heaviness and stagnation.

### **Modern Possible Mechanism of Action**

From a modern point of view, the effect of *Murdhni Taila* may be explained through the following mechanisms:

- The scalp has rich blood supply, so massage and warm oil application may improve local circulation.
- Stimulation of cutaneous nerve endings may produce relaxation and reduce pain perception.
- Gentle rhythmic stimulation during *Shirodhara* may calm the autonomic nervous system.
- Warm oil may reduce muscle tension in the head, neck, and shoulder region.
- Relaxation response may help in lowering stress hormones and improving sleep quality.
- Prolonged contact of medicated oil may support transdermal absorption of lipid-soluble active components.
- The procedure may reduce sympathetic activity and promote parasympathetic dominance, giving a calming effect.
- Thus, the therapeutic effect of *Murdhni Taila* can be understood as a combined effect of medicated oil, touch, warmth, pressure, duration, rhythm, and psychological relaxation.

### **Benefits of *Murdhni Taila***

According to *Acharya Vagbhat*, *Murdhni Taila* is highly beneficial for the brain, nerves, sense organs, and hair. It controls vitiated *Vayu* and *Pitta* in the head region. The main benefits are:

- Prevents and relieves headache
- Reduces dryness and itching of scalp
- Helps in hair fall and premature greying
- Strengthens hair roots

- Improves quality and texture of hair
- Improves sleep
- Reduces stress and mental fatigue
- Nourishes sense organs
- Promotes calmness of mind
- Improves scalp health
- Helps in *Vataja* and *Pittaja Shiroroga*
- Supports neurological and psychological wellbeing

## Discussion

*Murdhni Taila* is an important external therapy of *Ayurveda* that works on the principle of *Snehana* and *Swedana*. The head is a sensitive and vital region where many important structures like brain, cranial nerves, sensory organs, blood vessels, and scalp tissues are present. When medicated oil is applied over this region, it produces both local and systemic effects. The local effect includes nourishment of scalp, strengthening of hair roots, improvement of blood circulation, reduction of dryness, and relaxation of muscles. The systemic effect includes calming of mind, better sleep, reduction of stress, and improvement in sensory functions.

Among the four types of *Murdhni Taila*, *Shiro Abhyanga* is simple and can be used regularly for prevention and maintenance of health. *Shirodhara* is more effective in stress, insomnia, anxiety, burning sensation, and *Vata-Pitta* conditions. *Shiro Pichu* is useful when prolonged local contact of oil is required, especially in hair fall, scalp dryness, and localized head disorders. *Shirobasti* is the strongest among these procedures and is indicated in severe *Vataja* disorders such as *Ardita*, chronic headache, insomnia, and neurological conditions.

The pharmacodynamics of *Murdhni Taila* can be explained on the basis of *Guna*, *Virya*, *Vipaka*, *Prabhava*, route of application, duration of contact, and method of procedure. Since medicated oil is lipid-based, it has the ability to nourish tissues and reduce dryness. Its *Sukshma* property helps in deeper action. The massage and warmth promote circulation and absorption. The gentle and rhythmic application especially in *Shirodhara* produces a soothing effect on the nervous system.

Clinically, *Murdhni Taila* is very useful in present-day lifestyle disorders where stress, insomnia, anxiety, headache, excessive screen exposure, hair fall, and mental fatigue are

common. It is safe, simple, non-invasive, and can be selected according to *Dosha*, disease, age, strength, and season. However, correct selection of oil, proper procedure, suitable duration, and patient-specific assessment are necessary for better results.<sup>6</sup>

## **Conclusion**

*Murdhni Taila* is an important *Bahya Snehana* therapy of *Ayurveda* that primarily acts on *Shira*, *Manas*, *Indriya*, and *Kesha*. By virtue of its *Snigdha*, *Sukshma*, and *Vata-Shamaka* properties, it nourishes the scalp and brain tissues, strengthens sense organs, promotes mental calmness, and improves sleep. The four types of *Murdhni Taila*, namely *Shiro Abhyanga*, *Shirodhara*, *Shiro Pichu*, and *Shirobasti*, have different levels of therapeutic action and can be selected according to the disease condition. It is highly effective in *Vata*-dominant disorders of the head such as headache, insomnia, stress, hair fall, dryness, and neurological weakness. Thus, *Murdhni Taila* plays a vital role in maintaining *Shiro Swasthya* and overall wellbeing.

## **CONFLICT OF INTEREST -NIL**

## **SOURCE OF SUPPORT -NONE**

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