



SIRODHARA AS A MANAGEMENT TOOL FOR NEURO-ENDOCRINE AND PSYCHO-SOMATIC DISORDERS – A COMPREHENSIVE REVIEW

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ABSTRACT *Sirodhara* is a time-tested Ayurvedic management tool for psycho-somatic and neuro-endocrine disorders. Its scope has been extensively utilized in different forms in diverse spectrum of disorders which is psycho-somatic and neuro-endocrine in character. The concept, exploration and administration of *Murdha taila* was developed with high importance in *Keraleeya Panchakarma*. In text books of *Keraleeya Panchakarma*, it is well utilized and thoroughly exploited with different medicinal combinations and procedural variations. It was proposed that when anything is poured upon forehead, the change in energy may create a momentum which will lead to the generation of voltage and nerve impulse generation and conduction may be accelerated. This will eventually increase neuro-transmitter - acetylcholine production and decrease the level of cortisone and streamline pathology of endocrine disorders

KEYWORDS : Panchakarma, Sirodhara, Psycho-somatic Disorders

INTRODUCTION:

Sirodhara is a time-tested Ayurvedic management tool for psycho-somatic and neuro-endocrine disorders. Its scope has been extensively utilized in different forms in diverse spectrum of disorders which is psycho-somatic and neuro-endocrine in character. In text books of *Keraleeya Panchakarma*, it is well utilized and thoroughly exploited with different medicinal combinations and procedural variations.

Sirodhara is one of the most relaxing therapies which is included under *bahya snehana* that help body and soul to reach to a level of perfect calmness. Medicine is poured in an even stream locally on head to get specific systemic results.

Review results:

1. Effect of *sirodhara* in psoriasis:

In psoriasis, *takra dhara* is commonly practised in which *takra* is processed with *musta*, *amalaki*, *aragwadha churna* etc according to symptoms. Psoriasis is counted as psycho-somatic illness always triggered by anxiety and stress. A study conducted by Dr. Kultar Singh et al. entitled as "Effect of *Takradhaara* on Glucocorticoid Hormone in Psoriasis – A Randomised Controlled Trial" has found out that, in *takradhara* group, 23.86% reduction was observed in cortisol level, which was significant at 1% level where as only 5.40% reduction was observed in control group which was insignificant ($p > 0.05$)^[1].

Effect of *Takra sirodhara* in psoriasis: a short case study

65 year old male patient was reported in OPD with scaly skin lesions with severe itching and redness with PASI score 32.8. He was administered *snehapana* with *Mahathiktaka ghee*^[2] for 15 days (since the patient was hypertensive, patient was unfit for *sodhananga snehapana*) and given *sadya snehana* and *virechana* with *Gandharva hastadi eranda tailam*. After that *samsarjana karma*^[3] was administered as per *madhyama sudhi* obtained for 7 days. After *samsarjana* he was given *takradhara* with *musta*, *amalaki churna* for a period of 14 days followed with *rasoushadhi karma*.

TABLE 01:

Parameter	Before Snehapana	After Snehapana	After Takradhara
PASI Score (Total)	32.8	39.6	13.7
Head & Neck	1.2	1.2	1.2
Upper extremity	10	12	4
Trunk	10.8	13.2	4.5
Lower extremity	10.8	13.2	4

2. *Taila Sirodhara* in General Anxiety Disorders: a short case report

45 year old male patient was presented with anxiety, stress and suicidal tendencies since 6 months. He was administered with *taila sirodhara* with *ksheerabala taila* for a duration of 45 minutes for a period of 14 days.

Ksheerabala taila is *vatapitta samana* in nature along with *sirodhara* has given better results. The efficacy of therapy has been assessed by Hamilton anxiety rating scale^[4] in which significant reduction of score has been observed.

3. *Kashaya Sirodhara* in Thyrotoxicosis:

In thyrotoxicosis, *Kashaya sirodhara* with *jadamamsi churna* and *amalaki* for a period of 7 days for a duration of 45 minutes is used to administer. Administration of *sirodhara* along with *pitta samana* drugs like *jadamamsi* and *amalaki* will lead to the decrease in *pitta vikara* as in thyrotoxicosis.

Exploration of *Sirodhara* from *Keraleeya Panchakarma* Literature:

The concept, exploration and administration of *murdha taila*^[5] was developed with high importance in *Keraleeya Panchakarma*. The method of administration of *sirodhara* has been told in detail in *Keraleeya Panchakarma* text books like '*Sirasekadi vidhi*', *Dharakalpa* in *Sahasrayoga*^[6] etc.

The Standard Operative Procedure (SOP) for performance of *sirodhara* has been explained in detail in *Keraleeya Panchakarma* literature. The height from which medicine has to be poured has been fixed as 4 *angula*. Height imparts specific pressure and imparts fast absorption of medicinal constituents into circulation. Also, the peculiar manner in which *sirodhara* should be done is mentioned as per Malayalam letters '᳚' (ka) '᳚' (ra) in the text book '*sirasekadi vidhi*'. *Sirodhara* done in this pattern will lead to absorption of medicinal constituents through sagittal, coronal and lambdoid suture as per cranial anatomy.

DISCUSSION:

Mechanism of action of *sirodhara*:

For the better utilisation of *sirodhara*, the mode of action of *sirodhara* should be understood first. The action of *sirodhara* is being contributed by the uniqueness of rules of performance of procedure.

- Height from which *dhara* is performed.
- Temperature in which *dhara* is performed
- Oscillatory movements – Speed by which *dhara* is performed
- Structure of scalp, blood supply and nervous supply

Height:

Any substance situated at certain height possess Potential Energy (P.E. = mgh), and this energy is converted into Kinetic Energy when the

substance fall from that certain height according to “Law of Conservation of Energy”. So, *dhara* done from fixed height of 4 *angula*, leads to energy conversion in *taila*, that is potential energy inside *taila* is converted into kinetic energy.

Speed:

When a moving substance collides with a resting substance it generates acceleration i.e. momentum. When anything pour upon forehead from a certain height due to change in the form of energy it generates momentum and that momentum may cause change in voltage and stimulate nerve impulse generation or accentuate the nerve impulse conduction^[7]. The magnitude of momentum is the ultimate factor which decide the voltage difference for nerve impulse generation and conduction if its magnitude is small the energy is absorbed by the skull only.

The maintenance of fixed height and proper speed thus became extremely important while administering *dhara*.

Sirodhara produce a constant pressure and vibration which is amplified by hollow sinus present in frontal bone. The vibration is then transmitted inwards through the fluid medium of cerebrospinal fluid (CSF)^[7]. If prolonged pressure is applied to a nerve, impulse conduction is interrupted and part of body relaxes.

Acetylcholine is activated by a nerve impulse vibration produced due to constant pouring of *dhara* over forehead cause fall of blood pressure leading to decreased activity of central nervous system resulting in tranquility of mind decreases the brain cortisone and adrenaline level^[7]. This factor is also contributory in anti-stress effect of *Sirodhara*.

The scalp is formed by skin, Connective tissue, Aponeurosis, Loose areolar layer and Pericranium. The subcutaneous connective tissue has abundant supply of blood vessels.

The blood supply of the scalp is via five pairs of arteries, three from the external carotid and two from the internal carotid^[8].

- Supratrochlear artery
- Supraorbital artery .
- Superficial temporal artery
- Occipital artery
- Posterior auricular artery

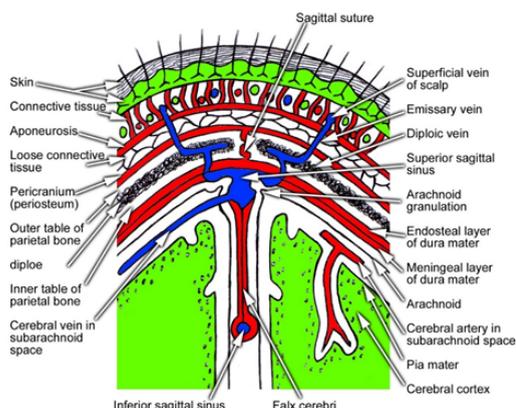
Venous drainage

The veins of the scalp accompany the arteries and thus have similar names, e.g. Supratrochlear and supraorbital veins, temporal vein, occipital vein .There are other veins, like the emissary vein and frontal diploic vein, which also contribute to the venous drainage.

Nerve supply

- Supratrochlear nerve and the supraorbital nerve from the ophthalmic division of the trigeminal nerve
- Greater occipital nerve (C2)
- Lesser occipital nerve (C2)
- Zygomaticotemporal nerve from the maxillary division of the trigeminal nerve supplying the hairless temple
- Auriculotemporal nerve from the mandibular division of the trigeminal nerve

Figure 01: Anatomy of scalp^[8]



Sirodhara with particular *dhara* medicines like *jadamamsi*, *amalaki*, *musta* etc done in particular manner through cerebral sutures with specified height will lead to proper speedy absorption of *dhara dravya* into these cerebral vasculature. Momentum created during the procedure of *sirodhara* will lead to nervous stimulation on the above mentioned neuronal structure and will lead to changes in neuro transmitters and thereby rectifying neuro-endocrinal pathologies.

CONCLUSION:

Murdha taila is a highly promising arena in the territory of Panchakarma research in which the procedural effect in combination with medicinal effect will contribute to desired effect in a spectrum of diseases ranging from depression, psoriasis to thyrotoxicosis. The research arena should be developed by doing efficacy documentations along with validation and standardization studies to bring the most desired results from this promising arena.

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REFERENCES

1. Manoj kumar A.K.(2013). Standard Operative Procedure of Panchakarma(1st ed)(pp.46). Kottakkal: Regional Offset Printers
2. Department of Indian System of Medicine and Homeopathy. (2003). The Ayurvedic Formulary Of India(Part – 1)(2nd ed)(pp.94). New Dehi : The Controller of Publications.
3. Acarya Agnivesa (1995). Upakalpaneeyam adhyaaya (15/16). In Jadavji trikamji Acharya (Ed.), Caraka Samhitha. Varanasi : Krishnadas Academy.
4. Hamilton M.The assessment of anxiety states by rating. Br J Med Psychol 1959; 32:50–55.
5. Acarya Vagbhata. (1995). Vatavyadhi chikitsitham (22/23). In Prof.K.R.Srikantha Murthy (Ed.), Ashtanga Hrdaya. Varanasi : Krishnadas Academy.
6. Krishnan , K.V.,Gopalapillai, A.S. (1985). Sahasrayoga (pp.472). Alappuzha: Vidyarambham Press.
7. Kajaria Divya et al., An Appraisal of the Mechanism of Action of Shirodhara. Annals Ayurvedic Med. 2013 ; 2(3) P. 114-117.
8. Christopher M Harris et al.,Scalp anatomy; emedicine.medscape.com/article/834808-overview.