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# A REVIEW ARTICLE – PANCHAKARMA (DETOXIFICATION) SHODHAN KARMA

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## ABSTRACT

Panchakarma is a specialty of Kayachikitsa (medicine). Pancha means "five" and Karma means "action", so Panchakarma means five actions. Panchakarma (five main bio-purification therapies) a) Vamana, b) Virechana, c) Basti, d) Nasya, e) Raktastrav. These five procedures serve to cleanse the body internally in the closest possible way. In this article we discuss detoxification related to Ayurvedic Samhita.

**Keywords**: Panchakarma, Kayachikitsa, Shodan Karma

## INTRODUCTION

Ayurveda deals with the preventive and curative aspects of health. Panchakarma therapies are popular in Ayurvedic disease management. Although their effect and safety is well proven by the experience of many centuries. This therapy restores balance with natural laws to balance the doshas and stabilize the body's internal environment. Panchakarma helps to eliminate toxins in a more stable way, allows tissue healing, cleans the shrotas (channels), improves digestion and mental function. Panchakarma specialty of Kayachikitsa represents a unique approach of Ayurveda with specially designed five procedures of internal cleansing of the body in the closest possible way.1 Shodhana is suitable for persons who have good strength, mandagni and severity of illness. 2According to Ayurvedic texts, our body is a network of Srotasas. Diseases occur when toxins accumulate in the body and clog these Srotas. Accumulated toxins must be eliminated for the body to remain healthy. Through Panchakarma therapy, these toxic blockages are removed to restore the normal physiological process. Panchakarma therapy is not only for a sick person, it can also be given to a normal person to prevent diseases and keep their body healthy. Therefore, it is an important therapy for maintaining the health of individuals and also regulates using dosha imbalances to treat diseases. The word "Panchakarma" means five karmas. The word "Pancha" is a symbol of the blessing of the god called "Mangalam" and it means that all treatment procedures should require the presence of the god. There is a reference that all the components of the universe constitute the body or the Pancha mahabhuta are the main components of the body. All living and non-living things are a combination of pancha bhuta (prithvi, apa, thejas, vayu, akasa). To regulate the living body, the Acharyas shortened the pancha bhutas into three doshas (vata, pitta, kapha), and therefore the main goal of treatment is to stabilize the balance between these doshas. The word "karma" can be defined as method, procedures, techniques, etc. Here it can be described as procedures of treatment and preventive measures. According to Ayurveda, vādhi is defined as a state in which the body and mind are subjected to pain and suffering. This is a state of imbalance of the three doshas. Plants are the main source of medicine in Ayurveda. Several compounds have been isolated from medicinal plants and introduced to serve mankind; however, most of these drugs have been withdrawn due to their toxicity or side effects.[1,2,3] Traditionally, plants containing various classes of phytochemicals are still used either in their raw form or after proper processing. Although most herbal drugs are safe, few are toxic to human health. These poisonous/toxic plants are categorized as viṣa (poison) and upaviṣa (poisonous but not fatal to human health) in Ayurvedic texts[4] and also listed in Schedule E of Drugs and Cosmetics Act 1940 [5]. Therefore, to promote and establish their use in medicine, such herbal drugs must be detoxified or purified before use.[6]

The process of detoxifying or purifying any toxic material used for medicinal purposes is called "Śodhana". In Ayurveda, Śodhana has been in practice since the Caraka Saṃhita, but its use expanded with the development of Rasaśāstra from the 8th century AD. The Śodhana process is specially designed for medicines of mineral origin; however, for all kinds of drugs, it is recommended to remove their doṣās (impurities or toxic content). In Ayurvedic treatises, it is stated that viṣa can be transformed into amṛta (nectar) by proper processing, and on the other hand, by adopting inappropriate methods, non-toxic materials become toxic [7]. The concept of Śodhana in Ayurveda not only covers the process of purification/detoxification of physical and chemical impurities, but also includes the minimization of side effects and improvement of the potency/therapeutic efficacy of the purified drugs [8].

Measures taken to rebalance doshikas are called chikitsa.3 In Ayurveda, chikitsa has been broadly classified into two groups: 1. Shamana: A treatment that does not eliminate doshas or elevate those in normal condition, but seeks to bring balance to imbalanced doshas, is he calls "Shaman". It can be done in seven ways4 1) Pachana 2) Deepana 3) Kshudha 4) Trushna 5) Vjayama 6) Aatapa 7) Maruta 2. Shodhana: The treatment through which the elevated doshas are expelled from the body is called "Shodhana". 5. Shodhan is considered a prominent process. Which doshas are treated by lahghana, pachana are rebalanced for some reason, but which doshas are eliminated by Shodhana, are not rebalanced.6 Five types of Shodhana:7 1) Basti 2) Vaman 3) Virechana 4) Shirovirechan 5) Raktastrav.

Panchakarma therapy of Ayurveda has attracted the attention of people all over the world because it is a unique kind of treatment for various chronic, autoimmune, hormonal, degenerative disorders etc. where other kinds of treatment do not have satisfactory response. Acharya Charaka emphasized the role of Panchakarma therapy by stating that an illness treated with Shodhana never returns, while treatment with shamanic therapy may recur over time [3].

Many species of the genus Aconitum viz., Aconitum ferox Wall., Aconitum napellus Linn. and Aconitum chasmanthum Holmes ex. Stapf. they are known collectively as "Vatsanābha" in Sanskrit and "Aconite" in English. The roots of all three plants are extremely poisonous but useful in the treatment of various diseases such as fever, rheumatoid arthritis, sciatica, hypertension, and act as "rasāyana" (immunomodulators) after detoxification [17,18,19]. Most of the alkaloids present in the roots of Aconitum species at higher doses are reported to have cardiotoxic and neurotoxic effects. Severe aconite poisoning is mainly caused by accidental ingestion of the wild plant or excessive consumption of a herbal decoction made from aconite roots [20,21]. An isolated compound (Aconite) from Vatsanābha at a dose of 2 mg can cause death, while 1 g of Vatsanābha is lethal to humans [22]. Vatsanābha root was used by tribes in

ancient times as a poison for hunting animals [23]. An overdose of traditional Ayurvedic formulations of Vatsanābha may cause hypotension, bradycardia, or bidirectional tachycardia.[22,24,25] For these reasons, the therapeutic dose of Vatsanābha mentioned in the Ayurvedic system of medicine is 8 mg to 16 mg/day [26]. . Its purification process involves svedana (boiling) in a dola yantra using Godugdha for 3 hours a day for three continuous days, followed by washing three times with water and drying under sunlight [27,28]. After the Śodhana process, total alkaloids decrease [11] but less toxic substances such as aconine, hypoaconine and benzylhypoaconine increase [29,30], probably due to conversion of toxic aconitine to aconine or hydrolysis of alkaloids to their respective amino alcohols after Śodhana process [31,32]. In another study, it was reported that a purified form of A. carmichaeli induces cholinergic stimulation that prevents hypothermia and immunosuppression induced by cold stress [18]. Additionally, crude A. napellus root has been reported to cause significant increases in heart rate and electrocardiogram changes compared to purified Aconite. Gomūtra was reported to convert Aconite into a compound with cardiostimulating properties, while raw Aconite showed cardiodepressant properties [19,29,33,34]. Śodhana from both Gomūtra and Godugdha renders Aconite devoid of cardiac and neuromuscular toxic effects without affecting its antipyretic effect [11]. A. chasmanthum is another species that is well known for its cardiac and neurotoxicity. According to Sarkar et al [35]. A. chasmanthum showed toxic effects, leading to kidney and liver dysfunction. Śodhana with Gomūtra significantly reduces the toxic effects of Aconite [30,35].

In vivo and in vitro studies on the frog heart have shown that A. ferox has a potential heart rate-reducing effect through its positive inotropic and negative chronotropic effects, and these effects may be mediated by cholinergic stimulation or direct action on cardiac muscle [36]. .

Gunjā

The roots, seeds and leaves of Guñjā (Abrus precatorius Linn., Family: Fabaceae) have traditionally been used for their purgative, emetic, tonic, aphrodisiac and hair growth promoting properties when processed with Śodhana [37,38]. Since ancient times, it has been used as fish poison, arrow poison, and also for the criminal purposes of poisoning people and livestock [39]. Abrus seeds contain toxic lectin, abrin (albumotoxin), fat-splitting enzyme, glucoside (abrusic acid), urease, abarnine, trigonelline, choline, hypaphorin, and steroid oil, which have abortifacient effects [40,41,42]. . Abrin has a fatal human dose of 0.1–1 µg/kg, and boiling the seed is reported to render it harmless [43, 44]. In the Śodhana of Guñjā seeds, they are subjected to seduction in the dolā yantra with Godugdha or Kāñja for 3–6 hours. The Śodhita material is then subjected to hot water washing and shade drying [28]. During the process of Śodhana, the color of the medium changes due to the removal of colored materials from the

endosperm of the seeds and subsequently weight loss occurs [45]. According to Singh et al [46]. A high-performance liquid chromatography (HPLC) study of Guñjā extract before and after the Śodhana process showed that the level of the toxic hypaphorine decreased while the less toxic alkaloid abrine increased. Perhaps during the Śodhana process, much of the hypaphorin may have undergone transformation to abrin by reduction of its tertiary amino group to its primary amino group. The percentage of protein present in Guñjā also decreases after Śodhana [46]. In another study, chromatographic evaluation confirms the absence of steroid oil in the seeds of Śodhita Guñjā, which is responsible for the abortifacient effect. The LD50 of Guñjā has been reported to increase from 2 to 5 g/kg (aśodhita) to ≥5 g/kg (Śodhita). Studies on hair growth efficacy and antibacterial effect of Śodhita Guñjā show a significant result [45, 47].

**Kupīlu**

*Kupīlu (Strychnos nux-vomica Linn.,* Family: Loganiaceae) is widely used in various conditions such as nervous weakness, paralysis and weakness of limbs, sexual weakness, dyspepsia, dysentery and rheumatism after proper Śodhana [48, 49]. It is used as a powerful rasāyana drug for problems in old age [50]. Kupīlu has been reported to contain active alkaloids (strychnine and brucine) that are highly poisonous [51,52]. Various techniques have been used for the analysis and quantification of strychnine and brucine in its raw and processed seeds [53,54,). After processing, Kupīlu is used not only in Ayurveda, but also in Chinese and Unani medicine. There are several specific Śodhana procedures adopted to purify toxic materials from Kupīl seeds. The classic purification method involves soaking Kupīlu seeds in a liquid medium (one at a time) for 3-20 days. Liquid media include kāñji (soaking for 3 days), Godugdha (boiling for 3 hours), Gomūtra (soaking for 7 days) and Goghṛta (fried to a brownish-red color and swollen) [3] while traditional practitioners use castor oil (Eraṇḍa taila ) instead of grits for frying, soak the seeds for 15 days in extracts scraped from fresh aloe vera leaves and stems (ghṛtakumārī) and then ginger juice (Ārdraka svarasa) for 7 days for purification. After the Śodhana process, the seeds are washed with lukewarm water where the outer seed coat and embryo are removed from the cotyledons. Similarly, in the Chinese system of medicine, nux-vomica is fried with sesame oil for detoxification. Kupīlu po Śodhana shows a low percentage of total alkaloid content (strychnine and brucine); and the toxic loganin glycoside is eliminated. Detoxification of Kupīl may be caused by chemical changes that cause increased N-oxidation and conversion of strychnine and brucine to less toxic derivatives such as isostrychnine, isobrucine, strychnine-N-oxide, brucine-N-oxide and reduced levels of loganic acid. seeds. A preliminary phytochemical survey also shows significant changes in the level of phytoconstituents in different methods of Śodhana. Being acidic in nature, kāñji is a better extraction medium as it can facilitate the extraction of alkaloids and

other phytochemicals. *Ādraka svarasa* also produces better results in reducing the toxic constituents (alkaloids) present in the seeds [9]. Although larger doses of strychnine are known to be fatal, in lower doses it is known as a stimulant. Gomūtra Śodhita Kupīlu shows better pharmacological efficacy than raw seeds. The processes of Śodhana Kupīla have also been reported to enhance its hepatoprotective power.

A detoxification study of S. nux-vomica seeds was conducted by Katiyar et al. traditional methods using aloe juice and ginger, frying in cow ghee and cooking in cow milk. All treated samples were extracted with ethanol. Ethanol extracts were used to evaluate spontaneous motor activity (SMA), pentobarbitone-induced hypnosis, pentylenetetrazol (PTZ)-induced convulsions, diazepam-assisted protection, and morphine-induced catalepsy. The content of strychnine and brucine in the treated seed decreased up to 67.40% and 46.58%, respectively, compared to untreated seeds. In another experiment, Mitra et al.[75] also conducted a nux-vomica seed detoxification study using cow urine, cow's milk, and both. After processing, strychnine and brucine contents were determined by HPLC. The maximum reduction in alkaloid content was found when the seeds were purified in cow's urine (soaking for 7 days) followed by boiling in cow's milk for 3 hours.

Moreover, if the Shamana drugs are administered after the proper course of Shodhana, then they provide additional relief and thus help in the complete eradication of diseases. Changes in lifestyle, irregularities in eating habits have become major problems in the current situation and are responsible for the manifestations of a number of diseases. The importance of lifestyle and diet, etc., have been well recognized in Ayurvedic classics and emphasis is placed on the fact that following the guidelines for Dinacharya, Rutucharya in eradicating various diseases can be easily observed in them [9-14].

**Deepana and Pachana**

*Panchakola Churna* increases the *Agni* and then helps in *Ama Pachana*.

**Snehana**

*Snehapana* with *Panchatikta Ghrita* as a *Purvakarma* subsides the symptoms like *Rukshata*, *Daha*, etc., Similarities in chemical and physiological nature in *Ghrita* and human cell membrane intensifies the penetration of *Sneha* (*Panchatikta Ghrita*) in to deeper tissues causing partial rejuvenation of cell, smoothing of vitiated *Dosha* (stagnated metabolic wastes).

**Vamana and Virechana**

The pacified doshas become liquefied and reach up to the Koshtha of Swedana, which can be easily removed by the action of Vamana and Virechana. So it is clear that the toxins or nitrogenous waste materials that accumulate in the cells of the lower intestine are removed with Virechan, thereby cleansing the lower passage and rejuvenating every cell of the lower GIT.

These shodhana (Vamana and Virechana) probably can lead to certain

endogenous changes in the body responsible for alleviating the psoriatic pathological process.

Dermo Care (Kalpit Yoga)

Most of these drugs have the following properties – Kushthaghna, Krimighna, Rakta Shodhana, Kandughna, Amapachana, Medhya, Rasayana, Kaphagna, Twachya, Yakriduttejaka, Agni Vardhak and also Tridoshaghna. The synergistic action of the dominant herbs and minerals of Tikta and Kashaya Rasa is likely to check the etiopathogenesis of Mandal Kushtha (psoriasis) and stop its progression. induration of leg, trunk, arm and head; leg, trunk and head scales; torso and arm coverage area; Mandala of Rupa and Shoka. Only Dermo-Care is more effective for controlling Krodha. Neotrexate (methotrexate) is more effective for controlling erythema in the trunk and head; arm weights; leg and head coverage area; Kandu and Cinta. Shodhana independently demonstrated much better results than patients treated with shaman therapy (Dermo-care yoga). Neotrexate (methotrexate) independently demonstrated much better results than patients treated with Shodhana alone or with Shamana therapy alone (Dermo-care). Shodhana followed by shamanic therapy showed better results than patients treated with shodhana, shamanic therapy or modern medicine alone.

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