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EXPLORING CHEMICAL TOXICITY THROUGH THE LENS OF AGAD TANTRA: AN AYURVEDIC PERSPECTIVE ON SKIN DISORDER

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ABSTRACT:

Lifestyle disorders are rising globally, not just due to poor diet, lack of exercise, and stress, but also because of chronic exposure to harmful chemicals—an often overlooked factor. These toxins, found in the air, food, and everyday products, can disrupt nearly every system in the body, with the skin being especially vulnerable due to its direct exposure. Conditions like atopic dermatitis, melasma, vitiligo, chemical-induced folliculitis, and acne are increasingly linked to such exposure. Ayurveda addresses this through Agad Tantra, one of its eight core branches, which specializes in toxicology. It introduces concepts like Gara Visha and Dushi Visha to explain the impact of chronic toxins, and offers treatment through Gara Visha, Dushi Visha Chikitsa, and Vishajanya Kushta Chikitsa. Preventively too, Agad Tantra offers a promising and holistic approach to protecting against toxin-induced skin disorders.

Keywords: Agad Tantra; Chemical toxicity; Gara Visha; Dushi Visha; Vishajanya Kushta; Skin disorders; Lifestyle disorders; Environmental toxins; Detoxification; Ayurvedic toxicology; Vamana; Virechana; Herbal cosmetics

INTRODUCTION:

Lifestyle disorders are a growing global health concern, profoundly impacting quality of life and contributing significantly to morbidity and mortality. While often attributed to modern diets, sedentary living, and psychological stress, a critical yet frequently underestimated factor is the insidious influence of chronic chemical exposure. From the air we breathe to the products we use, toxic exposure are all around us.

According to Ayurveda, Agadtantra is one of *Ashtangas* of Ayurveda. It deals with medical toxicology. Scope of agad tantra includes, protection of healthy individuals from poisoning and management of individuals affected with poison.

Chemical exposure can cause diseases in each system in the human body for eg :

Cardiovascular diseases like arrhythmia, atherosclerosis and stroke, Metabolic disorders like diseases like Obesity, Type 2 Diabetes, Metabolic Syndrom, Non-alcoholic Fatty Liver Disease, Respiratory disorders like Asthma, COPD, Acute Respiratory Distress Syndrome, pulmonary fibrosis, Neurological disorders like ADHD, Autism Spectrum Disorder, Learning Disabilities, Cancers like Leukemia, Adenocarcinoma Mesothelioma All these lifestyle disorders caused due to exposure of PM2.5, NO₂, SO₂, BPA, phthalates etc

Skin disorders arise due to exposure to strong acids, alkalies, Alcohol, turpentine, acetone, nail polish remover, industrial degreasers, Soaps detergents, pesticides, herbicides, formaldehyde etc

Skin being the largest organ and having direct exposure to chemicals compared to other systems in our body I would like to elaborate on the skin.

Skin disorders affected by chemical exposure eg : Atopic dermatitis, melasma, vitiligo, chemical induced folliculitis, chemical induced acne.

ATOPIC DERMATITIS:

Atopic dermatitis (AD) is a chronic, relapsing, inflammatory dermatosis characterized by intensely pruritic, erythematous, and eczematous lesions

As a part of Systemic Analysis of Global Burden of Disease study 2021, Atopic dermatitis cases consistently rose from 107 million in 1990 to 129 million in 2021. compelling evidence has increasingly highlighted the pivotal role of chemical exposure as a core driver in the rising incidence of AD cases.

Air pollutants (PM, VOCs, NO_x,) and chemicals in personal care products (preservatives, fragrances, dyes, surfactants) irritate and weaken the skin barrier, contributing to AD. Pesticides and synthetic fabric chemicals also cause irritation. Genetic factors and immune dysfunction further influence AD development.

Chemical exposure exacerbates AD through a tripartite pathogenic mechanism

Exogenous chemicals disrupt the epidermal barrier by damaging lipids and intercellular structures, increasing trans epidermal water loss and reducing filaggrin expression. This enhances skin permeability to irritants and allergens, triggering immune dysregulation, inflammation, and microbial dysbiosis.

MELASMA:

Melasma is a chronic, symmetrical hyperpigmentation disorder marked by irregular brown macules and patches on sun-exposed facial areas, especially the forehead, cheeks, nose, chin, and upper lip; less commonly, it affects the forearms and neck.

A study published in the *Indian Journal of Dermatology, Venereology, and Leprology* (2020) analysed worldwide Google search behaviour related to melasma from 2010 to 2019. It found a

"mean 54.4% increase in global interest in melasma in the last decade."

Certain chemicals in cosmetics and sunscreens (e.g., furanocoumarins, oxybenzone) and photosensitizing drugs can worsen melasma by increasing skin sensitivity. Irritating skincare ingredients like alcohols, sulphates, fragrances, dyes, exfoliants, and strong acids can cause inflammation and post-inflammatory hyperpigmentation, aggravating melasma.

Chemical exposure plays a key role in melasma development through photosensitization and post-inflammatory hyperpigmentation. When photosensitizing agents on the skin are exposed to UV light, they cause damage and overstimulate melanocytes, leading to excess melanin production. Additionally, irritating chemicals induce skin inflammation and trigger cytokine release from keratinocytes, which further activates melanocytes and worsens pigmentation.

AIM & OBJECTIVE:

To understand the role of Agad tantra in life style skin disorders linked to chemical exposure

MATERIAL AND METHORDS:

The study being a literary review, the sources of data collected from all contemporary text books relevant journals and websites.

Conceptual Review

In ayurveda chemical exposure aligns with ayurvedic understanding of visha, Gara visha, Dooshivisha and Vishajanya Kushta

Tvakroga samanya samprapti

When external chemicals,(Agantuja Nidana)contact the skin, their visha nature primarily vitiates Pitta Dosha due to their hot potency, severely impacting Rakta Dhatu causing raktadushti. This vitiation if compounded by jadragnimandya may lead to production and accumulation of ama. This ama causes rasavaha and raktavahasrotodusht impairing skin nourishment and causing disruption in the skin barrier.

Management

In Ayurveda, such toxins are referred to as *Gara Visha*, which, after prolonged exposure, behave like *Dooshi Visha*.

Gara visha chikitsa

According to charaka

- Patients having garavisha should be given Vamana
- Swarnaprashana-by Swarnaprashana poison does not adhere to body
- Agadapana: Nagdanti, trivritta, dantidravanti cooked with buffalo ghee Milk latex of snuhi and madanphal along with one adaka of cow's urine is useful in curing patients suffering from poisons of snake's insects and garavisha.
- Acharya vagbata explains that we should consider Agni of patient while treatment, incase of

patient with mandaagni, Murvadi yoga along with buttermilk.

- ojakshaya should be treated with Apamarg, haladi, neem, manjistha, chandan, pippali,
- Treatment of damaged by Application on the skin of lepa of chandan, priyangu, renuka, khas on skin.
- Milk and ghee is supposed to be the best diet in garavisha.

Dooshivisha

- Visha in a weakened form that remains in the body after a long time can become dooshivisha

A patient afflicted with the effects of Dushi visha inherent in the system should be given swedana

Vamana

virechana.

Daily Agadapan should be done with dushivishari agad

Agad yogas in dushivisha, garavisha chikitsa

- o Dushivisharigutika, Anjana, Pana, Nasya
- o Vilwadigutika - Anjana, Pana, Nasya
- o Ajeya ghrita-Pana

While treating chemical exposure on skin, we also have to think about concept of kushta as well.

Vata kushta-sarpipanam

Pithakushta-virechanam,

Kapha kushta-vamanam

Snehapanam

Snehapanam 1st line of treatment for all kushta, Snehapana is given according to condition

- Acharya Charaka has described Vishajanya Kushta

"कुष्ठे विपाके विषप्रदोषे विषेष्ठायां विरेचनां प्रथमां साधनां"

(Cha chi 7/74)

In Kushta, where there is aggravated vitiation of toxins and doshas, Virechana is the foremost therapeutic measure.

Yogas for virechana: Trivrit Leha, Triphala Churna, Avipattichurna, Nimbadi Virechana Yoga, Avartani Virechana Yoga

Agada prayoga

लेपोऽविकविनपरुषे सुप्तकुष्ठे स्थिरे पुराणे च

पीऽगदस्य काये विषैः समन्त्रोऽगदश्च अनु

(Ah chi 19/57)

Hard, rough insensitive static and long standing kushta Apply agad lepanas after chanting mantras that mitigate poisons

- In Kushta Chikitsa, Forvishajanya Kushta Ayurvedic formulations (*yogas*) are indicated for their Vishaghna, Raktashodhaka, and Kusthaghna properties

- Vishajanya Kushta Important yogas

Kaivisha Parihari Gutika Garnashan Rasa

Gandhaka Rasayana

Putrajiv Majja Yoga

Arogya Vardhini Vati

Panchatikta Ghrita Guggulu

Manjishthadi Kwatha / Kashaya

PREVENTION:

सङ्क्षेपिःवियायोगोवन्दानपरिर्जनम् ॥

(Susru Uttara 1/25)

Susruta Uttara sthana, Oupadravika Adhyāya essence of treatment is avoiding the causative factors of the disease."

Air pollution is a major source of chemical exposure to harmful substances in the environment. Methods to improve Air quality

Ayurveda offers several ways to neutralize the harmful effects of polluted air, with dhoopanyogas playing a central role. During dhoopan of medicinal drugs which have antibacterial, antifungal, and broader antimicrobial properties—are burned to purify the surrounding air. Commonly used fumigants include laksha (shellac), haridra (turmeric, *Curcuma longa*), ativisha (*Aconitum heterophyllum*), abhaya (*Terminalia chebula*), musta (*Cyperus rotundus*), harenuka (*Vitex negundo*), ela (cardamom, *Elettaria cardamomum*), tamalapatra (*Cinnamomum tamala*), kushta (*Saussurea lappa*), and priyangu (*Callicarpa macrophylla*).

Aparajitha Dhooma Choorna is an Ayurvedic fumigation formulation used for air purification. It contains herbs like Vacha (*Acorus calamus*), Mayooraasikha (*Actinopterys dichotoma*), Agaru (*Aquillaria agallocha*), Nimba (*Azadirachta indica*), Arka (*Calotropis gigantea*), Devadaru (*Cedrus deodara*), Guggulu (*Commiphora mukul*), and Saala (*Shorea robusta*). Studies have shown that regular fumigation with this formulation for five days can significantly inhibit microbial growth, completely eliminating coliforms and reducing fungal presence in the environment.

In a study on agnihotra (fire ritual), which is part of rituals has proven that it is a non conventional solution to air pollution. Performance of agnihotra with cow's ghee, pipal wood (*Ficus religiosa*), and guggulu (*Commiphora mukul*) has shown 51% reduction in SO₂ and 60% reduction

in NO.10 Non degradable heavy metals like Hg, Cr are yet another potential threat to ecosystem.

Ayurveda approach of prevention of cosmetic toxicity

1. Most cosmetics may contain chemicals like parabens, phthalates, and synthetic fragrances that may lead to skin damage, allergies, and long-term toxicity, While selecting cosmetics read ingredients carefully, check the certifications before selecting cosmetics
2. Ayurveda offers natural, toxin-free alternatives that nourish the skin from within, balance the Doṣas, and prevent the buildup of Dūṣī Visha. Embrace Ayurveda for safe, sustainable, and holistic beauty care.

Face wash	Licorice, sandalwood, manjsta, lemonpeel withmilk, yogut
Face scrub	Powderdoats, neem, manjista, ricebran, tulsī
Moisturizer	विलिल- Charaka Samhita नारके ल िल-bhava prakasha बदामिल- Bhava Prakasha Nighantu एरांडिल- Sushruta Samhita बलािल- Ashtanga Hridaya
Facepack	Herbal facewash with Lodradigana Eladi gana Varnyamahakashaya
Anjana	Sahadevimulaswarasa (Vernonia cineria juice)

➤ In Ayurveda, Twak Svasthya arises from balanced Doṣas, strong Agni, and pure Rakta Dhātu. Proper nourishment of Saptadhātus, regular elimination of Malas, and a calm Satva (mind) are essential. Thus, true skin health reflects overall Sharīra and Manasika Svasthya, not just external care. Therefore, healthy skin is a reflection of the overall health and balance of all bodily systems in Ayurveda. Food with vitamin A, vitamin C, vitamin D, vitamin E, vitamin B Complex should be included in the diet. Following dinacharya, ritucharya, satvrita, achararasayana imparts good health, skin and overall well being.

DISCUSSION:

The rising incidence of skin disorders from chronic chemical exposure necessitates a holistic approach, where *Agad Tantra*—Ayurveda's toxicology branch—offers valuable insights. Concepts like *Gara Visha* and *Dushi Visha* parallel modern environmental toxins, with pathogenesis involving *Pitta Dosha*, *Rakta Dhatu*, and *Ama*. Detox therapies such as *Vamana*, *Virechana*, *Snehapana*, and

formulations like *Dushivishari Agada* and *Vilwadi Gutika*, ajeyaghrita support healing. Preventive measures including *Dhoopana*, herbal cosmetics, and seasonal regimens enhance protection, making Agad Tantra a comprehensive Ayurvedic strategy for managing chemically induced skin diseases.

CONCLUSION:

Lifestyle disorders are increasingly linked to chronic chemical exposure from air, food, and cosmetics, with the skin being one of the most affected organs. Ayurveda, through Agad Tantra, provides a holistic framework to understand and manage these toxin-induced disorders by relating them to the concepts of Gara Visha and Dūṣī Visha—chronic accumulations of subtle poisons that disturb Pitta and Rakta Dhātu. Detoxifying therapies like Vamana, Virechana, and Snehapāna, along with formulations such as Dūṣīviṣhārī Agada and Vilvadi Gutika, help eliminate toxins and restore balance. Preventive measures including Dhoopana Karma, herbal skincare, and adherence to Dinacharya and Ritucharya strengthen resistance against environmental toxins. Thus, Agad Tantra offers a practical and sustainable Ayurvedic approach to prevent and manage chemically induced skin disorders while promoting overall wellbeing.

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