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Review Article

CRITICAL REVIEW OF AYURVEDIC AND CONTEMPORARY CONCEPT OF *DUSHI VISHA* AND ITS TREATMENT

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ABSTRACT

Poisoning is a major public health concern that is becoming more common by the day. Poison can be consumed directly or indirectly from a variety of sources. Poisoning can now be found in a variety of areas, including junk food with chemical preservatives, various sorts of growing products like rice and wheat, and pesticide-laced veggies. As a result of diverse human behaviours, water, air, and soil have become contaminated, posing a hazard to human health. According to Avurvedic doctrine, there are several sources of obtaining of toxins i.e., either through animate, inanimate or Kritim (artificial). Such toxins are accumulated without eliminating through the body or remains with being the less potent inside the body for several years generally called Dushi Visha. All the sign and symptoms of Dushi Visha look like that of chronic poisoning and varies from organs to organs, where it becomes deposited. Such accumulated Visha then vitiates Dosha and that leads to vitiation of different kinds of Dhatus respectively, like, Rakta Dusti, Kitiva, Vrana, Kotha are the major manifestations that will see after prolong exposure to Dushi Visha. The main line of treatment of Dushi Visha is through detoxification (i.e., Vamana, Virechana, Raktamokshana karma) followed by Dushivisari Agad Paana, that has mentioned by Charak. Classical text book has mentioned different level of clinical manifestations including sign and Symptoms and its complication along and its management with specific Justification.

INTRODUCTION

In modern era, people are being much busy in their work and they are adopting western culture. They do not have time to make hygienic food for their better health. They are focusing on earning money. Because of the increase in industrialization and byproducts, directly or indirectly comes in contact with environment and food materials. Also, they form different variety of food materials that usually contains chemical preservatives to avoid form destruction of product. After intake for prolong period, such chemicals or toxic enters into the body via different routes which gets lodge inside the body for long period, without being complete elimination form the body.

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In long term, such lodged harmful substances will pollute our system and slowly produces different kinds of illness like skin manifestation or other systematic disorders. Thus, producing toxins inside the body is called *Dushi Visha*. So, different kinds of measures should apply in order to reduce or eliminate such accumulated *Dushivisha* by using the procedure of *Shodhan* (detoxification treatment modalities) and *Shaman Chikitsa* (pacification). In developing or welldeveloped country, people who are in regular contact with industries or regular consuming of preservative foods, are being more prone to develop with such toxicity. So, they should detoxify their body time to time through *Shodhan* and *Shaman Chikitsa*, that helps to eliminate the toxins from body.

AIM AND OBJECTIVE

- 1) To discuss, evaluate and elaboration of *Dushi Visha* in human being with Special reference to cumulative toxicity.
- 2) To discuss, evaluate and elaboration of the management of *Dushi Visha*.

MATERIAL AND METHOD

Material related with *Dushi Visha* has been collected from *Bhrittrayi, Laghuttrayi* and available commentaries of these textbooks. Different Modern text books, website has been used to collect information on this topic.

Classification of Visha

Aacharya Sushruta has classified Visha into two types i.e., Sthavar and Jangam.^[1] Similarly, Aacharya Vagbhat in his Astangahrdaya, has classified Visha into two groups i.e., Akritim and Kritim Visha where Sthavar, Jangam Visha comes under Akritim Visha and artificial poison comes under Kritim Visha.^[2]

Definition of Dushi Visha

Any poison either *Sthavar* (inaminate), *Jangam* (animate) or Kritim Visha (artificial), which has not eliminated completely from the body or partially nullified after the using of anti-poisonous remedies, after exposure to fire, the wind, the sun etc. and also the Visha devoid of ten qualities is called Dushi Visha. This Dushi Visha does not being fatal because of low potency and remains inside the body for several years, that is covered by Kapha.^[3] Similarly, Vagbhat in his Aastanga Hridaya stated that: When toxic becomes chronic inside the body, and after intaking *Visaahna* medicine, its potency and effect become weak or decreases after exposure to fire (heat), forcefully wind or sun. At that time toxic loses its properties and became inactive. Such toxin is called *Dushi Visha*.^[4] Commentary of Cakrapanidatta explain that such kinds of toxins which shows its toxic effect in the body after prolonged exposure is called *Dushi Visha*. It remains as an inactive state for a long period and that can extend for years. Sarangadhar has mentioned Dushi Visha as a type of *Kritim Visha*.^[5]

Hence, all types of poison being *Dushi Visha*, when natural properties of poison diminish and becomes less potency.

Nidana (aetiology) of *Dushi Visha*: Through classical point of view, causative factors for *Dushi Visha* are *Sthavar, Jangam* and *Kritim Visha* while in traditional *Granth* through different references, *Virudha Aahara*,^[6] *Ajirna* and *Vegarodh*^[7] also acts as the causative factors for developing *Dushi Visha*. The role of *Manashika* has not been clearly defined but somewhere with bearing repeated stress may lead to pathological imbalances that results systematic manifestations. Thus, the causative factors of *Dushi Visha* have been summarized as:

- 1) Sthavar Visha
- 2) Jangam Visha
- 3) Kritim Visha
- 4) Virudhaahar
- 5) Ajirna
- 6) Vegarodha
- 7) Manashika Bhava [8]

Factors aggravating the effect of Dushi Visha

Sushruta mentioned that, Habitat (*Desha*), Season (*Kaala*), food (*Anna*) and day sleep (*Diwaswapna*)^[9] aggravates the effect of *Dushi Visha*.

Where commentator of *Sushruta* i.e., *Dalhan* elaborated about the different types of aggravating factors of *Dushi Visha* like: *Dushit Desha*: that includes, *Anupa Desha*, and for the area where most of the time excessive wind blow, cold and rain occurs. *Dushit Kaala*: having cold, rainy and windy season, *Dushit Anna*: *Sura*, *Teela* (sesame), *Kulattha*, *Dushit*, *Viruddha Aahara*, *Vihara*: including *Vyayama* (excess exercise), *Maithuna karma* (excess involvement in sexual activity), excessive angriness.^[10] *Diwaswapna* (day sleep) which causes pollution of *Dhatu*.

Similarly, Vagbhat in his *Aastangahrdaya* gave some different views regarding aggravating factors like Eastern blow of wind, Indigestion (*Ajirna*), excessive coldness (*Adhik Shita*), cloudy sky, day sleep (*Diwaswapna*), intake of unwholesome diet (*Ahitkar Aahara*).^[11]

Samprapti (Pathogenesis): Sushruta has mentioned Six stages of pathogenesis i.e., *Kshatkriyakaal* including *Sanchaya*, *Prakopa*, *Prasara*, *Sthansanshraya*, *Vyakta* and *Veda*.^[12]

Similarly, after daily intake of different types of Aahara that having chemical preservative, Viruddha Aahar, Vihara with repeated exposure to dusty or chemical producing industrial area or prolong exposure to pesticide, excessive anger or different kinds of activities for a long period, that causes accumulation of harmful chemical (toxic) substances inside the body with the process called Bioaccumulation or xenobiotic. This stage is called Sancaya (accumulation). The accumulated toxins after recurrent exposure with Aahara, Vihara, increase the level of toxicity inside the body, which then enters into the Prakopa stage (i.e., stage of aggravation). After that the accumulated toxins will move throughout the whole body is called Prasara Awastha. During the movement of these toxins, they will lodge to a weak or defective part of the body. Then aggravated toxins will vitiate Dosha followed by vitiation of related Dhatu respectively, where premonitory symptoms will appear, with the indication of the impending diseases. Then after long period of Sthana Samshraya, enters into Vvakta Awastha where whole clinical features of related diseases will see. If appropriate medication not performed in this stage, various kinds of complications will be seen with the stage of Veda Awastha including different symptoms like fever, burning sensation, hiccup, diarrheas, fainting etc. complications will be appeared.

Prodromal features (Poorvarupa)

Excessive sleepiness, heaviness of the body, yawing, laxity of joints, horripilation (*Romaharsha*) and body ache (*Angamarda*), catalepsy. ^[13]

Sign and symptoms (Lakshana)

According to various classical texts, different kinds of clinical features of *Dushi Visha* have mentioned in table no: 1

Charak Samhita ¹⁴	Sushruta Samhita ¹⁵	Astanga sangraha ¹⁶	Astanga hrdaya ¹⁷	Bhavaprakash 18	Yogaratnakar ¹⁹	
Rakta Dushti	Avipaka	Bhinna pureesha	Bhinna Purisha	Bhinna Purisha	Bhinna Purisha Varna, Annamada	
Vrana	Arocaka	Bhinna varna	Bhinna Varna	Bhinna Varna	Mukha Daurgandhya	
Kitiva	Anna mada	Rakta dushty	Rakta dushty	Vigandhi	Arocaka, Avipaka	
Kotha	Mandala	Trit	Trik	Vairasya	Mandala	
	Kotha	Arocaka	Arocaka	Pipasi	Kotha	
	Moha	Moorcha	Moorcha	Moorcha	Tikshna, Moha	
	<i>Padhasopha</i> (swelling of lower extremities)	Vami	Vami	Bhrama	Vamana, Atisara	
	<i>Kara Sopha</i> (swelling of upper extremities)	Gadgadavak	Gadgadavak	Gadgadavak	Mamsa kshaya	
	Ashya sopha (swelling of oral cavity)	Moha	Moha	Vami	Pada sopha	
	Dakodara (ascietes)	Dooshyodara	Dooshyodara	Vicheshta	Pani sopha	
	Chardi (emesis)	nal	Jahr. In Class	Arati (restlessness)	Akshi sopha	
	Atisara (diarrhea)	220	P		<i>Chardi,</i> Murcha	
	Vaivarnya		an		Kustha	
	Moorcha (fainting)	Ke la	72		Swasha	
	Vishamajwara	Feel S	S NE		Trikshna	
	Trishna (thirstiness)	1. Inter	4218		Jwar	
	Unmada(psychosis)		ALPIC		Jathara	
	<i>Aanaha</i> (distention of abdomen)				Unmada	
	Sukrakshaya				Aanaha	
	Gadgadya				Sukrakshaya	
	Kustha				Gadgadya	

Similarly, *Sushruta* separately Mentioned, different kinds of clinical manifestations of *Dushi Visha* when lodge in the deeper Dhatu, given in table:^[20]

S.N	I. Dhatus	Clinical features		
1	Rasa	Annadwesh (loss of appetite), Ajirna, Angamarda (body ache), Jwar (fever), nausea, Tripti		
		(fullness of abdomen), feeling of heaviness, cardiac manifestation, Pandu, Srotavarodh,		
		Karshya (thin), Birasata (salivation), tiredness, wrinkling of skin, Palitya		
2	Rakta	Visarpa, Kustha, Nikika, Tilkalak, Vyanga, Indralupta, splenomegaly, Raktaj Gulma, Arsha, Arbud, Raktapitta, Raktapradara, Mukhapaak, Lingapaak, Gudapaak		
3	Mamsa	Arsha, Arbud, Adhimamsa, Adhijivwa, Upajivwa, Galashundika, Upakusha, Mamsasamghat, Galaganda, Gandamala, Oshtha Prakop		
4	Medo	Medovriddhi, Galaganda, Arbuda, Granthi, Madhumeha, Atisthaulya, Atisweda		
5	Asthi	Adhyasthi (osteoma), Adhidanta (odontoma), prickling pain in bone (Suchibheda in Asthi), Asthishool, Kunakh		
6	Majja	Darkness in front of eye, <i>Murksha</i> (fainting), <i>Bhram</i> , feeling of bulkiness on joint, <i>Netrabhishyandi</i>		
7	Sukra	Klaibya (sterility), Apaharshan (impotence), Sukrashmari (spermolith), Sukrameha		

Similarly, when vitiated *Dosha* enter into *Mala* (excreta), various clinical features like *Twak Vikar*, obstruction of *Mala*, *Mutra*, *Adhik Utsarga* (increase frequency of defecation) or *Neuna Utsarga* (incomplete evacuation) will be seen.

Likewise, according to the involvement of predominancy of *Dosha*, different kinds of *Dushi Visha* related clinical features (mentioned in table no.3) will be observed.

S.No	Dosha predominancy	Symptoms	
1	Vata	Moha, Arati, Trishna, Murccha, Galagraha, Phena Chardi	
2	Pitta	Kasa, Jwara, Vamadhu, Trishna, Klama, Daha, Atisara, Tama	
3	Kapha	Shwasa, Kandu, Lala Vamana, Galagraha	

Table 3: Shows the Symptoms of *Dushi Visha* according to *Dosha* predominancy^[21]

Other associated clinical manifestation of *Dushi Visha* when taken through different Routes

When fumes of toxic food got inhaled, it causes pain in chest region, unsteady movement of eyes and headache.^[22] When poison containing food touches with hands, may produces burning sensation of palm and falling of nail etc.^[23] If toxic food is ingested, causes *Moha*, laziness (*Aalashya*), hardness of tongue, Scrotum (*Aasthila*), insane of taste, prickling type of pain, excessive salivation, etc. will be seen.^[24] When noxious oil is anointing for *Abhyanga* or any purposes is apply, it will causes the stickiness and colorless of body, eruption of blister, pain, discharge, sweating, blistering and rip of skin from *Abhyanga* site.^[25]

Prognosis

The effect of immediately consumed *Dushi Visha* to well-judged and judicious person is *Sadhya* (curable) and 1 year old poison is *Yapya* for the consumption of *Dushi Visha* irrespective of time is *Asadhya* (incurable) for weakling and ill dietary person.^[26]

Complication (Dushi Visha Upadrava)

- 1) Jwar (fever)
- 2) *Daha* (burning sensation)
- 3) *Hikka* (hiccup)
- 4) Anaha
- 5) *Sukra Kshaya* (decrease in sperm count)
- 6) *Sopha* (inflammation)
- 7) *Atisara* (diarrhea)
- 8) *Murksha* (fainting)
- 9) *Hridroga* (cardiac manifestation)
- 10) Unmad (psychoisis)
- 11) *Kampana* (tremor)

Contemporary view of Dushi Visha

Toxin is any poisonous substance that is produced by a biological organism like microbe, animal, plant, or fungus, e.g., tetrodotoxin, botulinum toxin, pyrrolizidine alkaloids, venom or amanitin. ^[27]

Some kinds of poisons like arsenic, mercury lead, digitalis, barbiturates, carbon monoxide which slowly eliminates from the body and may remain accumulated in the body is called cumulative poison. Thus, repeated intake of these poisons even in small amount may results chronic poisoning. Those poisons are in the form of physical state, chemical combination and mechanical combination.^[28] In modern science, the exact definition of cumulative toxicity is not found but due to its accumulation in steadily degree into the body and its chronic toxicity effects, it can be corelated with chronic poisoning. So, after exposure to those organic or inorganic substances for a long period, will show different kinds of toxic effects in different organs which may lead to the stage of failure. Different kinds of heavy metals like chronic arsenic poisoning may show different kinds of disease conditions like icterus, hyperkeratosis of soles, peripheral neuropathy,

In modern science, *Dushi Visha* is known as bioaccumulations, where chemical substances like pesticide etc. interferes with normal functions of the body that has been obtained from different sources either directly or indirectly that get enters inside the body.

Bioaccumulation occurs when organism absorbs a toxic substance at the rate greater than that at which substance is lost. Thus, toxic substances whose biological half- life remains long, becomes the greater risk of chronic poisoning.^[29]

Treatment modalities of *Dushi Visha* Classical Aspects

Sushruta has mentioned the treatment principle for *Dushi Visha* with *Swedana karma* followed by *Shodhan karma* i.e., *Vamana, Virechana Karma* according to the priority of *Dosha* involvement. Then after *Shodhan Karma*, advised to take *Dushi Visari Agad Paana* daily (anti-toxic Drugs) which contains *Pippali*, *Kattrin, Jatamamsi, Shavar Lodhra, Ketavimotha, Suvaichika, Sukshmaela, Swarnagairik*.^[30] All the treatment modalities of *Dushi Visha* that has been recommended by various classical text is given in table no.4.

DISCUSSION

Out of many factors that enhance the production of toxicity, the most common is the illsuited purification of formulations mainly containing poisonous herbs, metallic medicine. The rate of production of cumulative toxicity in the body depends upon the concentrations of chemical substances inside the body. Inside the body during the time of metabolism process that occurs either short term, or long term, local or systemic, reversible or irreversible. certain amount of toxicity will be precipitated. At those stages certain measures of treatment should apply in order to inhibit the production of toxicity or to decrease the toxic compound formations. As in Avurveda, different kinds of medications (herbalmetals-minerals etc.) either single or combined medicines had been used since thousands of years ago. similarly, now days also many of the Ayurvedic institutions, organizations are also promoting for combined therapy for quick relief, but repeated using of such formulations after many years will help for the accumulation of cumulative toxins. These toxins are slow acting poison, which has not been completely eliminates from the body, which remains inside the tissues for many years. Thus, it impairs the natural cellular functions. Hence, bioaccumulation of such toxins will bring several topical or systematic illness. From various researches, it has been found that people who are exposing with such xenobiotics in more or less quantity, are being high to suffered from life threatening non-communicable diseases including Diabetes mellitus, hypertension, cancer etc. So, in order to inhibit the formation of such toxins, before taking them, appropriate purification of poisonous herbs or minerals should be performed and take an appropriate amount as a therapeutic dose for curing the diseases, avoiding of unnecessary consuming products that contains preservatives, coloring agent or any chemicals that affects normal heath.

Avoiding of unnecessary using of pesticides during crop production and avoiding of various chemicals have been used as a preservative. Similarly different types of measures can apply in order to prevent environmental pollution which contains toxic substances like application of different rules and regulations for diminishing the production of toxic substances. Using of various Ayurvedic Herbs as Fumigation in that environment which decreases the load of toxins in air that helps in purification of air.

Through Ayurvedic view, the main role of avoiding from the accumulation of toxic substances is *Nidana Parivarjan* (avoidance of etiological factors). That means reverse of all these process or activities either in the form of *Aahara* or *Vihara* that leads to accumulation of toxin inside the body.

As in Sushruta, it has been clearly described that any type of toxins that obtained from any kinds of sources like either Sthavar, Jangam or Kritim, which is not completely eliminate from body and being less potent or inactive after exposure to sun, wind or application of medicine. poison that has been lodged, which is not eliminated from the body, that have been formed from either plant, animal or any artificial sources that gets accumulated without being inactive or being less potent after exposure to sun, wind or after using medicines. Such poison is known as Dushi Visha. Even Dushi Visha also formed after the ingestion of different kinds of Viruddha Aahara, Ahitkar Aahara, *Vihara*, intake of different kinds of drugs like steroids, NSAIDs, food containing heavy metals, pesticide containing Vegetables, which in long term results in the formation of Dushi Visha.

So, completely elimination of these *Dushi Visha* has been mentioned in classical text books.

S.N.	Procedure	Charak	Sushruta	Aastangasangrah	Aastangahridaya
1	Sudation (Swedan)	-	\checkmark	\checkmark	\checkmark
2	Induced emesis (Vamana)	-	✓	\checkmark	\checkmark
3	Purgation (Virechan)	-	\checkmark	\checkmark	✓
4	Bloodletting (Raktamokshan)	✓	-	-	-
5	DushiVisari Agad (anti-toxic Drugs)	-	✓	-	-

Table 4: shows the general Treatment principles by Different Classical Text

CONCLUSION

After exposure to these toxins directly or indirectly, leads to the accumulations of toxins called *Dushi Visha*, which brings different kinds of disease conditions including non-communicable diseases like Hypertension, Diabetes mellitus, Cancer etc. So, these toxins must eliminate from the body by using different measures, mentioned in classical text. Thus, it has been concluded that these treatment measures like *Swedan*, *Vamana*, *Virechana*, *Raktamokshana* play the role in elimination of toxins or helps in the detoxification of body and residues toxins that is not eliminated, are counteract or pacify by using some formulations like *Dushi Visari Agad* (anti-toxic drugs), mentioned in classical text.

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