Historical Review of Lead (Pb) based ancient Ayurvedic medicine Naga Bhasma

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Abstract:

Lead (Pb), known as Naga Dhatu, is one of the oldest metals used for medicinal purposes in human beings to treat many disease entities such as diabetes, obesity, joint disorders, eye diseases, skin diseases, anemia, sexual disorders, diseases of old age group, etc. The ancient scholars were well aware of its different types, toxicity, and management, pharmaceutical processes to remove its toxic effects and to make it safe for internal administration and their various formulations to manage disease conditions. In the present review, all the historical aspects of Naga have been discussed elaborately, and different ancient methods of preparation of Naga Bhasma by its Shodhan and Marana procedures with applications of the Naga and its medicinal forms have also been reviewed in the present article.

Key words: Naga, Lead, Shodhan, Bhasma, Marana

1. Introduction:

From the period of Atharveda (1200–900 BC) to the period of Rasatarangini (19th century), a metal known as lead (Pb) is used with the name of ‘Naga Dhatu’ for various medicinal uses. The history of the Naga can be traced from many ancient texts of Ayurveda. Naga has been used for many purposes in its different medicinal forms. Being a heavy metal, it has toxic manifestations. Therefore, Naga has been treated with diverse pharmaceutical processes to make it safe for internal administration. Naga has been used for external as well as internal uses. The ancient classification of metals also includes Naga in the then-classified groups of metals such as Dhatu Varga, Putiloha Varga, etc. Different types of Shodhan and Maran processes have also been...
mentioned in ancient texts. In the present review article, all the information related to Naga from various available texts of Ayurveda has been collected and discussed with its pharmaceutical and therapeutic aspects.

2. **Naga in ancient literatures:**

The use of metals in the Vedic period was prevalent, and this science was known as "Daksayani Vidya". Direct references in Atharvanaveda, Manusmriti, and Grahya sutra are available regarding the internal administration of Suvarna.

*Atharvana Veda* - A description of Naga is available along with Suvarana, Loha, Vanga, etc.

*Yajurveda* - A description of 6 metals is also available in Yajurveda.

3. **Naga in Samhitas:**

3.1 *Yagnavalkya Samhita* – There is a description of 6 metals such as gold, silver, copper, iron, tin, and lead. When metals are subjected to fire, there is decay in metals. In the case of lead, it is about four times more than the silver.

3.2 *Manusmriti* – There is a description of the common method of purification for metals by heating in fire and dipping in water.

3.3 *Charak Samhita* – *Sisa churna (Naga)* is indicated for mandal kustha for external applications. Tongue cleaners made out of different metals are also mentioned.

3.4 *Sushruta Samhita* – *Sisa (Naga)* is explained as krimihara under Trapwadi gana, and the properties are katu and lavana rasa, lekhana and bhedana action, vatahara and indicated in pandu and krimi roga. Further, a description of asta loha in sutrasahan is also available.

3.5 *Astanga sangrahā* – In this text, it is said that *sisa* (Naga) possesses tikta and lavana rasa, lekhana and bhedana action, vatahara and indicated in pandu and krimi roga.

4. **Rasendra Mangala:**

*Rasendra Mangala*, written by Nagarjuna, is the earliest authentic text of all the Rasa Shastra texts. The author has mentioned the purification process for all metals, including the general and specific purification of Naga. Also, marana of all the metals by general methods and specific methods and bhavana drugs to be used for marana have been described in Rasendra Mangal. In this context, the author has mentioned that for Naga Bhasma, manashila should be used as a medium and arkashira (Ravidugdha) as a bhavana dravya for marana. *Abhishyandahara varti* is one of the Naga preparations described in Rasendra Mangala.
5. **Rasa Hridya Tantra**: Govindapada has mentioned that all the essence of herbs gets into *Naga* and that of *Naga* into *Vanga*, of *Vanga* into *Tamra*, of *Tamra* into *Rajata*, of *Rajata* into *Swarna*, of *Rajata* into *Swarna* into *Parada*. So, *Naga* has the capacity to absorb all the herbs, and *parad* can ultimately absorb everything in it. *Naga* is purified by pouring melted *Naga* in *aranala* and repeating the same process one hundred times. *Naga* and *vanga* should be used for the transformation of metals (into gold and silver) and should not be used for *Rasayana* purposes. *Naga* is purified by immersing melted in *nirgundi swarasa*. *Naga Marana*, using *Parad* and *Manashila*, is also described.

6. **Rasarnava**: In *Rasarnava*, six metals have been mentioned, *Viz. Swarna, Rajata, Tamra, Tikshna*, *Vanga*, and *Naga*. Metals when heated, there is a loss in the weight of metals. This loss is noted in ascending order. *Naga* and *vanga* are included under *Putiloha*. There is only one type of *Naga*. *Naga* of good quality is defined as soft, heavy in nature, and melts quickly. The purification of *Naga* is done by immersing it in elephants' urine with the powder of elephants' bones. In another method, the purification is done by immersing it seven times separately in juices or decoctions of *Haridra, Apamarga, Palasha, Tankana*, etc. *Marana* of *Naga* is done using *Manashila* and *Arkashira*, by *putpaka* method. In another context, the different colored fumes for different metals have been narrated. If the musha containing *Naga* is kept on fire, it will release dirty and smoky fumes. *Vajra, Makshika, Tikshna loha*, and *Abharak* are preferred for internal administration, and for the transformation of the metals, *Naga*, *Vanga*, and *Sowira* are employed.

7. **Rasendra Chudamani**: The author has explained the different preparations of *Naga* like *Loha Naga, Shulva Naga, Guhya Naga*, *Vara Naga, Naga sambhuta capala*, etc. The author has mentioned nine metals and classified *Naga* of good quality. It should have a foul smell, be heavy, black in appearance, and after taking the central section, it should be black and bright. The *Naga Bhasma* possesses *Tikta Rasa*, *Atiushna*, and *Snigdha Guna* and has *dipana* action, effective for *Vata, Kapha Prameha Roga, Jaladosha*, and *Amavata*. It is purified by melting and pouring into the decoction of *Nirgundi* and *Haridra Churna*. If it is not purified properly, causes *Murcha* (unconsciousness), *Sphota* (eruptions), etc. For *Marana*, a special type of *Yantra* has been mentioned known as *Bhrashtra Yantra*, the vessel which is smeared with except mouth portion, tilted, and kept on fire. This *Yantra* is supposed to be good for *Marana*. In *Bhrashtra Yantra*, 80 tolas of purified *Naga* is taken and melted on *Tivragni* (intense heat), when *Naga* is melted, one part of purified *parad* is added and stirred well. Then *kshara* of *Arjuna, Argwadha, Dadima*, and *Apamarga*, each four tolas (48 gms), are added and rubbed well with a strong, big, and long-handed iron ladle. This process is continued for twenty days.
Naga Bhasma is either Red or Pigeon in color. Thus, prepared Naga Bhasma is again converted into its original form (a process known as utthapana) and again subjected to the marana process. The process is repeated ten times. This Naga Bhasma, devoid of all doshas, acts as Rasayana. Naga Rasayana is a compound preparation of Bhasma of Naga, Swarna, Makshika, Tamra, Rajata, Kanta loha, Abharak-satva, and sphatika. In proportion, one part of Naga Bhasma, half part of Swarna Makshika Bhasma, and the rest each one-fourth of Naga Bhasma, triturated with Triphala decoction, subjected to puta using thirty aranyoupala (cow dung cakes) and repeated for 30 times. This rasayana is given in the dose of 2 rattis (240 grams) with Trikatu and Vidanga churna, four rattis each mixed with honey and ghee. Naga Rasayana is indicated in 80 types of Vata rogas, especially Dhanurvata, all Kapha rogas, Mutra roga, Swasa, Kasa, Pandu, Sotha, Sitajwara, Grahani, Amadosha, Agnimandya, Arsha, etc.

8. Anand kanda:

The author has explained 12 types of loha. He has counted Naga as one of the twelve types. For purification, different methods have been mentioned:

(1) Melted Naga is poured into a liquid containing Nirgundi, Mulachurna, and Arkadugdha. It is repeated seven times.

(2) Melted Naga poured into a decoction containing Haridra, Tumburu bija, Kokilaksha, kuberaksha, Gauriphala, and Mallika.

(3) Melted Naga poured with mahisa asthi churna into Mahisamutra for seven Times.

The different Marana processes described are as follows: In the first method of marana, it is advised to treat with one-fourth quantity of manashila and triturated with jambira swaras, and finally subjected to puta. The process is repeated 60 times, but after the first puta, 1/20th of manashila is used for subsequent putas. Bhasma prepared is known as Shastiputa Naga Bhasma.

In the second method, the Naga is treated with citraka drava stirred with Arjuna Danda for sixteen yamas (48 hrs). Then it is triturated with citraka drava and subjected to six putas.

In the third method, Naga is treated with Cinca, Bhallatak, Apamarga, Arjuna, Aswattha, etc., and stirred with palasa danda for seven days.

In the fourth method, a paste of Agastya and Bhunaga is smeared on the inner surface of the utensil, melted Naga is poured and treated with vasa and cinca kshara and stirred with vasa danda for one yama (3hrs), then mixed with manashila and vasa kshaya Bhavana is given and subjected to puta. For subsequent putas ¼th of manashila should be used. The process is repeated for 21 times.

9. Rasaprakasa Sudhakara:

In the fourth chapter, specific purification of Naga is mentioned by the dhalana of melted Naga in Haridra Swarasa. Two types of Marana have been explained. In the first method of purification, Naga is converted into thin sheets, Manashila in ¼th quantity of Naga is added and triturated with vasa patra swarasa for three hours, and this paste is smeared on Naga Patras and subjected to three Varah putas.
The second method, wherein Naga is melted in an iron bowl and mixed with palash mula churna, is rubbed with a long-handled iron ladle, where it is completely converted into bhasma. The fire intensifies and results in red-colored Bhasma. The author Yashodara has said there are many other methods to prepare Naga Bhasma. However, the strong notion is that the marana of Naga, Parad, and Sambhu (lord Shiva) is impossible. Various Naga yoga are described in it. The use of Naga and different processes have been narrated in detail in the context of lohavada. Regarding the preparation of Naga Bhasma, another reference is available in the context of lohavada. In this method, Marana of Naga is done using Manashila and kumari swarasa.

10. **Rasa Ratan Samuchaya:**

The author has followed the authors of Rasarnava (12th century), Rasendra chudamani (12th century), and Rasaparakash Sudharkar (13th century). A good number of Naga yogas have been mentioned, especially in the context of Prameha Chikitsa. The preparation of Naga Bhasma by using Parada in the context of Prameha has been explained under the name of Rasendra Naga Rasa.

11. **Rasendra Chintamani:**

The purification of Naga is done by melting Naga and immersing it in Nigundi Rasa. Different methods of Naga Marana have been explained.

In the 1st method, Naga is mixed with Manashila, Gandhak and triturated with Nimbu Swaras, and subjected to puta.

In the 2nd method, Haratala is taken instead of Manashila, and the rest is the same as that of the 1st method.

In the 3rd method, Naga is smeared with Agastya patra kalka. Then, it is melted, and Vasa and apamarga in ¼th quantity are added. Finally, it is subjected to fire for 3 hrs and rubbed well with Vasadanda. Then, it is triturated with Vasa Kwatha and subjected to seven putas. Through this process, it gets Sindura varna Naga Bhasma.

In another method of purification, melted Naga or Vanga is poured into Arkakshira seven times.

Naga Bhasma increases Kanti, Virya, Ayu, alleviates diseases, Trishna, Ama, Sotha, Shula, Arsha, Kustha, Pandu, Meha, etc. It is Guru, Caksusya, Medo hara, and Vata hara. The properties of Naga are similar to that of Vanga (Tin).

12. **Rasendra Sara Sangraha:**

The process of shodhan, methods of marana, and properties of Naga bhasma are mentioned in the text. The purification of Naga is done by pouring melted Naga into a utensil containing Arkakshira. The vessel is covered by a lid with a small hole in the center. Melted Naga is poured through this hole. This process is repeated three times. For Marana, Nagapatra smeared with Agastya patra Kalka is melted, wherein 1/4th of the quantity
of Vasa and Apamarga are added and rubbed with Vasa Danda for one Prahara (3 hrs). It is then triturated with Vasa Swarasa and subjected to Puta. It gets Sindura Varna.

In the second method, Naga is triturated with Manashila and Vasa swarasa and subjected to Gajaputa three times.

As regards the properties, it is used in Loha Vada for Tara ranjan, and in Deha Vada, it is said that it gives strength, and increases vitality, longevity, and complexion. It is Mehahara, Vata, Pitta, Kaphahara, Visahara and used in Grahani, Kustha, Gulma, Arsa, Sosha and Vrana.

13. Rasa Kamdhenu:

The author has compiled the subject matter of Rasa Sastra from different texts. For the process of Marana compilation from Vaidya Kalpadruma, he has mentioned that Naga treated with Aswattha and Cincha Kshara should be mixed with half the quantity of Gandhaka and half of Manashila, triturated with any Amla dravya and subjected to sixty Laghu putas.

For the second method, a compilation from Rasa Sara, he has said that Naga is treated with Palasa and Vasa Kshara, each one-fourth quantity, and stirred with Vasa danda for three days. Then it is washed with water and mixed with one-fourth of Manashila, and Kumari Rasa Bhavana is given, subjected to thirty Laghu Putas. This method is supposed to be the best one.

From Rasa Manjari, the author has compiled a process of Naga smeared with Agastya Kalka and treated with Vasa and Apamarga kshara and stirred well with Vasa Danda for one Prahara. Then it is triturated with Vasa swarasa and subjected to seven putas. It gets Sindura Varna. This is again triturated with Kumari Svarasa and subjected to one hundred Putas in Gajaputa.

14. Ayurveda Prakash:

The author has grouped the metals under Dhatus (seven in number). He has included Yasada also in them. Hence the Sapta Dhatus are Swarna, Rajata, Tamra, Loha, Vanga, Naga and Yasada.

The properties of Naga are Vata Pitta Kaphahara, Sarva Pramehara, Usna, Sara, etc. It is supposed that it gives strength of one hundred elephants. The harmful effects of consuming improperly purified and improperly prepared Naga Bhasma are also mentioned.

In one of the methods of Marana, he has advocated Tambula Patra Swarasa Bhavana and Manashila as a medium and thirty-two Putas should be given to get the final bhasma.

He refers to a quotation from Rasa Paddati in the context of the administration of Naga Bhasma, “It has always been the opinion of physicians that Naga Bhasma, Rajata Bhasma, and Bhasmas of Upadhatus should not be used individually” if used it will not be much effective. Hence, they should be used in combination with other drugs. He has also mentioned about Nageshvara Rasa, a preparation of Naga Bhasma.
15. Rasa Tarangini:

Purification of Naga is described by pouring melted Naga into Nirgundi Mula Rasa seven times and another by pouring into Curnodaka (lime water) seven times.

Various processes of Marana are also described. The properties of Naga Bhasma are madhura and tikta, snigdha, ushna, guru, lekha, sara, agni dipana. It can be used in prameha, grahani, arsa, kapha roga, vrana, gulma and Rakta pradaara.

The dose mentioned is ¼ ratti to one ratti (30-120mg) with suitable anupana, which should be used for treating different diseases. For example, in prameha, haridra and amalaki churna with honey, and in vataj prameha, guduchi satwa with honey are advised for internal administration.

A few preparations of Naga are also mentioned. Shuddha gandhak is mentioned as an antidote for various untoward reactions if caused by consuming improperly prepared Naga Bhasma.

16. Rasamrita:

Naga is treated with 1/4 of Parad and triturated with an equal quantity of manashila with vasa swaras Bhavana. Finally, subject to seven laghu putas.

In siddha yoga sangraha, the author has followed the general method of purification by immersing melted Naga seven times in each of the liquid media such as tila, takra, gomutra, kanji, and kulattha kwatha.

For Naga Marana, melted Naga is treated with ashwattha and cincha bark and later treated with 1/8th of gandhak till it gets red coloured. Then triturated with 1/12th of manashila with Vasa swaras bhavana. It is subjected to forty-one putas. Agni should be gradually increased as the number of putas increases, Naga gets the capacity to resist the temperature. Manashila is added for first ten putas only. Thereafter, sandhi bandhana is also not recommended. By this process, Bhasma becomes red color. The quantity of Naga for Marana should be 40-60 tolas and should not exceed that. The dose of Naga Bhasma is ½ Ratti (60mgs). The shilajatu is used as anupana for Madhumeha.

17. Rasa Tantra Sara & Siddhaprayoga Sangraha:

For the process of Marana, melted Naga is treated with an equal amount of manashila added little by little and stirred with vasa danda. A portion that is not converted into bhasma is removed (by sieving it through cloth). Bhasma triturated with an equal quantity of gandhak and triturated with nimbu swaras and subjected to puta. For subsequent puta 1/8th of Manashila with vasa swaras bhavana was given for twelve hours and subjected to Gajaputa. It is repeated twenty-one times. The dose is ½ -1 Ratti (60-120mg). The shilajatu is used as anupana for Madhumeha.
18. Sharangdhar Samhita: For Marana, Naga patras are smeared with kalka made out of equal quantity of manashila using tambula Rasa and subjected to two putas. In the second method, melted Naga is treated with ¼th of aswattha and cincha bark, and it is triturated with an equal amount of Manashila and kanji and subjected to Gajaputa for 60 times.

19. Bhav Prakash Nighantu: Bhava misraha classified metals under the heading Dhatus. He has described Naga (similar to vanga), diseases caused by consuming ashuddha Naga, sources of Naga, and general therapeutic effects.

Discussion:

The literary review reveals that Naga is an ancient metal known since the Vedic period. During the early era (before the 10th century A.D.) of Rasa Shastra, Naga was employed more in alchemy than in medicine. It was only after the 12th century A.D. the Naga bhasma was practiced after the proper purification and incineration of the Naga. Parad and Manashila are also used for the marana procedure of Naga with Gandhak. In ancient textbooks of Rasashastra, the common method of samanya shodhana of Naga is done using Tila tail, Takra, Gomutra, Kanji, etc. Then Churnodaka was employed for shodhana of Naga. The common method of jarana is by using Manashila and Apamarga panchanga churna. The common method of marana is by using Manashila and Nimbu swarasa as bhavana dravya. Other methods of marana are mentioned using Parad, Gandhak, Hartala, Ghritakumari, etc. Many diseases can be produced by consuming ashuddha or apakwa Naga Bhasma. The chief antidote is shuddha Gandhak and Swarnabhasma with Haritaki and Sita. The dose of Naga Bhasma is ¼-1 ratti (30-120 mg).

Conclusion:

Although Naga comes under highly toxic heavy metals, it is being used as a medicine in Ayurveda since many centuries. The pharmaceutical processing such as Shodhana and Marana, makes it safe. Different methods have been discussed elaborately in ancient texts to make suitable changes in Naga. It can be concluded that Naga is an important metal having wide therapeutic uses and can be converted to its safe and effective medicinal forms by adopting different pharmaceutical processes as reviewed in the present article.
REFERENCES

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