

SUVARNAPRASHANA THERAPY IN CHILDREN; CONCEPTS, PRACTICE AND PROSPECTS

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Access this article online: www.jahm.in

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INTRODUCTION:

Administration of colloidal gold using fine particles of metallic gold or *suvarna bhasma* has been advised in Ayurveda in infants and children in various forms. *Suvarnaprashana* described in *Kashyapa Samhita* is intended to boost memory, intelligence and immunity in infants. It is one of the oldest applications of gold nano medicine. *Suvarnaprashana* therapy is becoming widely popular and being administered on the *Pushya nakshatra* of every month at Ayurveda centers across India. Clinical and pharmacological studies show immunomodulatory, nootropic as well as therapeutic effects of *Suvarnaprashana* therapy.

Concepts of *Suvarnaprashana*:

Ayurvedic texts have copious references describing the use of gold metallic powder (probably fine gold dust) or *Suvarna bhasma* in various rejuvenative therapies. Gold in the form of fine gold dust, red colloidal solution, *Swarna Patra*, *Swarna Bhasma*, *Swarna Parpati*, *Kharaliya* (trituated) formulations and *Sindoorkalpa*, often combined with *ghee*, honey, *Medhya* and *Rasayana* herbs were popularly used in the *Ayurveda* therapies. Despite their efficacy, these age-old therapies were discouraged, sidelined and almost forgotten during the colonial era and even after freedom.

The use of *bhasma* form Gold, silver etc. metals and most herbo-mineral formulations of Ayurveda suffered a huge blow when some studies tainted Ayurvedic herbo-mineral formulations as toxic and contaminated with lead, mercury, arsenic and other toxic compounds^[1].

The impact of these studies was such that herbo-mineral Ayurvedic formulations have been almost completely banned in most Western countries. What is more alarming is that the word 'heavy metals' is becoming synonymous with most indigenously procured and manufactured Ayurvedic medicines! However, despite of these set-backs, after a long lull, Ayurvedic *bhasmas* and other herbo-mineral formulations are receiving a renewed focus. They are re-emerging as some of the most effective drugs due to renewed drug discovery strategies^[2].

Kashyapa Samhita written by *Vridhdha Jeevaka*, one of the oldest textbooks of *Kaumarbhritya* (one of the eight branches of Ayurveda dealing with mother and child health care), gives the first reference about giving *Suvarnaprashana* as a therapy for infants. This has been advised in infants and children from birth till 1 year of age^[3].

There is misconception among the common man that, *Suvarnaprashana* is vaccination method in Ayurveda, because majority of the physicians administer it monthly once on the day of *Pushya Nakshatra*. But it is incorrect; *Suvarnaprashana* is a *Rasayana Chikitsa*, should be administered continuously to get the optimum therapeutic effects for the physical, mental, intellectual and spiritual wellbeing of the children.

Practice of *Suvarna Prashana*

The classical descriptions of *Suvarna Prashana* therapy uses metallic gold- rubbed on a clean rubbing stone with water, till fine gold particles are released. The rubbed gold or gold powder mixed with fine powder of *Medhya*, *Rasayana* herbs, *ghee* and honey is given to the newborn^[4].

Rubbed gold in metallic form carries the risk of toxicity. Hence, a safer option of *Suvarna bhasma* is being used for the *Suvarnaprashana* now a day. The ancient alchemists in India discovered the process of *bhasmikarana* (calcination) which involves controlled incineration of metals, non-metals, minerals and certain organic ingredients, to make them safer and biocompatible. Ancient texts like the *Charaka Samhita* also describe process of dipping red hot metals in herb decoctions to obtain fine powders/ dust of metals^[5].

Methodical guidelines on the preparation of non-toxic *bhasma* or nano particles of Gold available in the *Rasashastra* texts dating back almost up to 4th century AD, is a testimony to the exhaustive research, efforts and dedication of ancient Ayurveda scholars and alchemists. Their methods have successfully passed the litmus test of time and modern science alike.

Preparation of Suvarna bindu (Gold drops):

Traditionally *Shuddha Suvarna* has been advised to be rubbed on a rubbing stone with water and then emulsified with *madhu* and *ghrita* to achieve a fine colloidal suspension. We now use *Suvarna bhasma* along with equal proportion of *ghrita* and *madhu*. *Madhu* and *Ghrita* in equal proportions have been considered as a *Viruddha Samyoga* (unwholesome combination)^[6]. However, it is a popular belief that giving a low dose of this otherwise toxic combination is believed to trigger immune responses which helps to strengthen a child's immunity for toxins and allergens.

Ghrita fortified with *Medhya* and *Rasayana* herbs like *Brahmi* (*Bacopa monnieri*), *Mandookaparni* (*Centella asiatica*), *Yashtimadhu* (*Glycyrrhiza glabra*) *Shankhpushpi* (*Convolvulus pluricaulis*), *Vacha* (*Acorus calamus*) and *Guduchi* (*Tinospora cordifolia*) are commonly used in *Suvarnabindu* preparation by clinicians expecting enhanced immunomodulatory and nootropic effects of *Suvarnaprashana* in children.

Following are some of the widely used ratios for preparation of *Suvarnabindu* -

Large Batch: 2.4 gm. of *Suvarna Bhasma* is added to 250 ml of honey and 250 ml processed *ghee*.

Individual Doses: 100mg *Suvarna bhasma* is added to 6 ml of processed *ghee* and 6ml of honey is kept separately. Honey is mixed with *ghee* just before the administration.

Although large batches are convenient for commercial use, *Suvarna bhasma* may settle down in *ghee* after some time, thus reducing the concentration of *Suvarna bhasma* per dose. Hence, preparing *suvarnabindu* in smaller batches is desirable.

Suvarna Vacha

Suvarna Vacha or *Suvarna Vacha* which is purified gold wire inserted into processed underground stem (dry or fresh) of *Vacha* (*Acorus calomus*) is yet another unique formulation which is popularly used for giving *Suvarnaprashana*. *Suvarna vacha* is rubbed on a clean rubbing stone (5-6 rotations) with milk or water, so as to get fine gold particles along with a paste of *vacha*. This is then mixed with equal amounts of *Ghee* and honey and used for *Suvarnaprashana*. Many practitioners use this as an alternative method for *Suvarnaprashana*. *Suvarnavacha* uses metallic gold as opposed to calcinated gold which is used in *Suvarnabindu*. The benefits of *suvarnavacha* are claimed to be same as that of *Suvarnaprashana*. The one special benefit of *suvarnavacha* is improvement of speech. Practitioners advise administration of *suvarnavacha* in infants after 3 months of age till 5-6 years or 12 years.

Although there is one clinical study which reports immunomodulatory effects of *suvarna vacha* in neonates without any toxicity; further research on standardization of the technique, therapy, along with toxicity studies on appropriate animal models is required to establish the safety as well as efficacy of this therapy^[7].

Absorption and assimilation of Suvarnabindu:

The amazing effects of *Suvarnaprashana* in infants mentioned in *Samhitas* are owing to the quick absorption and

assimilation of gold nanoparticles contained in the *Suvarnabindu*. Research studies on nanoparticles show that they can by-pass digestion and are directly absorbed via the sub-lingual route into the blood stream^[8] ^[9]. Gold nanoparticles have been found to be absorbed in the small intestines and nanoparticles less than 58 nm in size reached the target organs via blood^[10].

Suvarnaprashana has been advised to be given on empty stomach to assure maximum absorption without interference of food. At least a gap of 2 hours should be given after eating food for administering *Suvarnaprashana*.

Duration of Suvarna Prashana therapy:

Suvarnaprashana can be given from birth to sixteen years, keeping in mind the rapid growth and development during this phase of life. Some practitioners advise it only up to 12 or 14 years. Clinically, a minimum therapy of 6 months, 1 year to two years is recommended in order to get considerable results.

Experienced *Vaidya* says that, administration of *Suvarnaprashana* just on the day of *Pushya Nakshatra* (once in a month) does not provide significant health benefits. The best method is to give the low dose *Suvarnaprashana* (*Suvarna Bhasma* less than 0.2mg per dose) for a period of 3 months. If this method is not possible, then *Suvarnaprashana* can be given for 10 to 12 days per month. Such 6-12 cycles should be repeated to get optimum health benefits.

Contraindications of Suvarnaprashana:

Children with organ transplants and those on immunosuppressive therapy should not be given *Suvarnaprashana* therapy due to the fear of organ rejection. Also, children with liver and kidney disorders should be contraindicated for this therapy.

Prospects of Suvarnaprashana:

There is urgent need of standardizing the preparation, dose, duration and method of administration of *Suvarnaprashana*. With the potential role of *Suvarnaprashana* in boosting non-specific immunity and overall growth and development; initiative needs to be taken to promote and incorporate *Suvarnaprashana* as a Public Health Initiative by the central government. The dept. of AYUSH should include *Suvarnaprashana* under mother and child health care scheme. Before doing this, the dept. of AYUSH should frame guidelines for preparation, distribution, marketing and practice of *Suvarnaprashana*.

The scope of *Suvarnaprashana* needs to be evaluated in Geriatric medicine as a preventive and palliative therapy for degenerative neurological disorders like Alzheimer's, dementia etc. Given the role of gold in glycemic control, *Suvarnaprashana* needs to be evaluated as therapy for juvenile (Type-I) diabetes and early onset Type II diabetes.

It is unique and one of the best examples of nanomedicine applied for preventive health care in Ayurveda. The efficacy and safety of *Suvarnaprashana* therapy entirely depends upon the quality of *Suvarna bhasma*, *ghee* and honey. Hence, standardized *suvarna bhasma* along with superior quality herbs, *ghee* and honey should be used for the preparation of

Suvarnabindu. Standardization of *Suvarnabindu* preparation is needed to prevent toxicity and malpractice.

Suvarnaprashana has a vast scope in achieving immunomodulatory, adaptogenic and nootropic effects in children, thus improving overall health and vitality of children at all ages. Also, the utility of *Suvarnaprashana* in geriatric medicine for prevention and control of neurodegenerative, senile disorders as well as for rejuvenation needs to be explored.

Suvarnaprashana has an excellent scope as in boosting community health by ensuring healthy childhood. It needs to be popularized and promoted as a proactive and preventive therapy in society.

CONCLUSION:

Suvarnaprashana is a comprehensive *Rasayana Chikitsa*, administered for the physical, mental, intellectual and spiritual wellbeing of the children. It can be safely administered in infants and children up to 16 years of age. There is urgent need of standardizing the preparation, dose, duration and method of administrations.

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Cite this article as: Vasant Patil, Chetali Samant, Umapati Baragi. *Suvarnaprashana* therapy in children; concepts, practice and prospects. *J of Ayurveda and Hol Med (JAHM)*; 2014;2(7):1-3.

Source of support: Nil, Conflict of interest: None Declared