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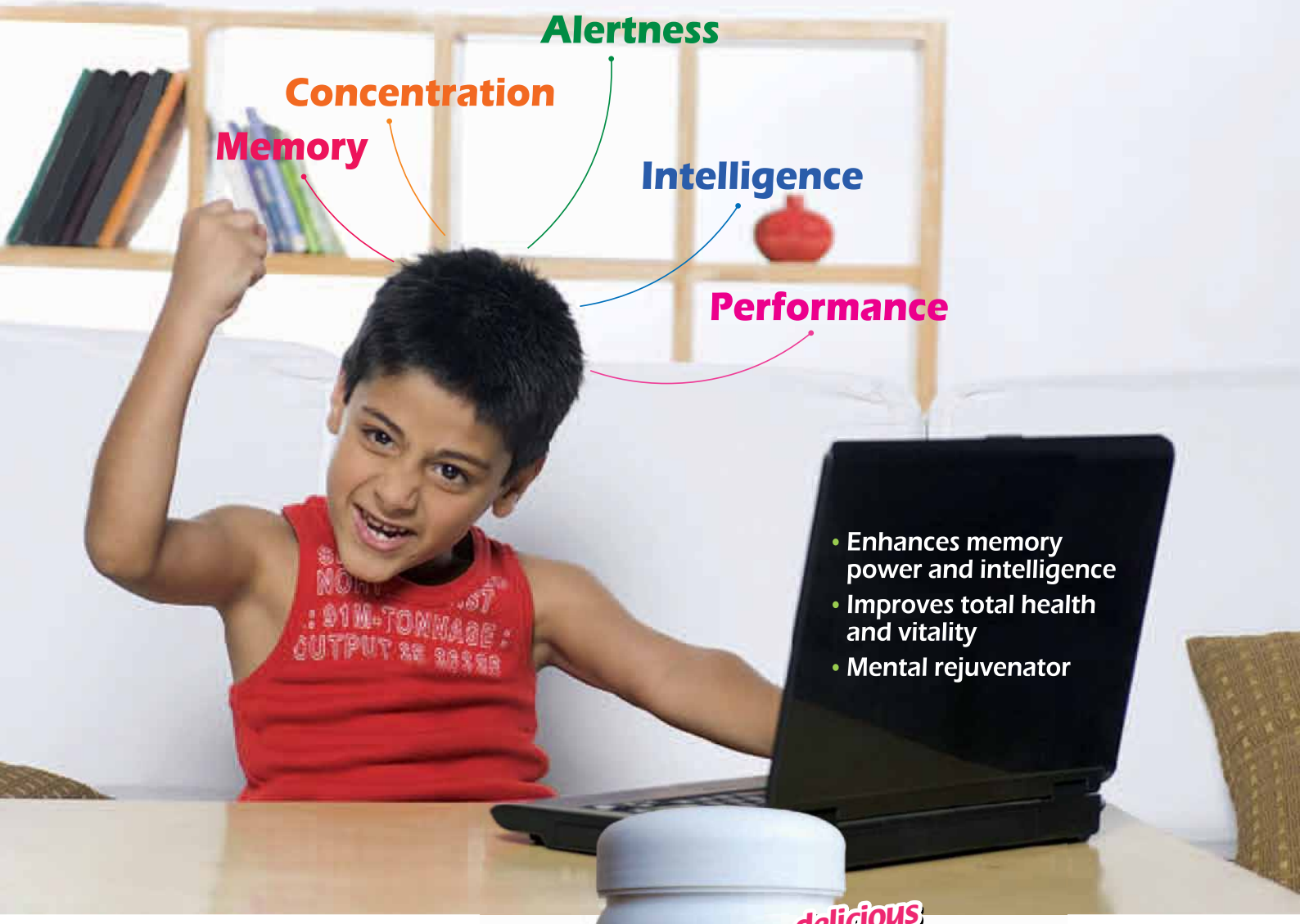
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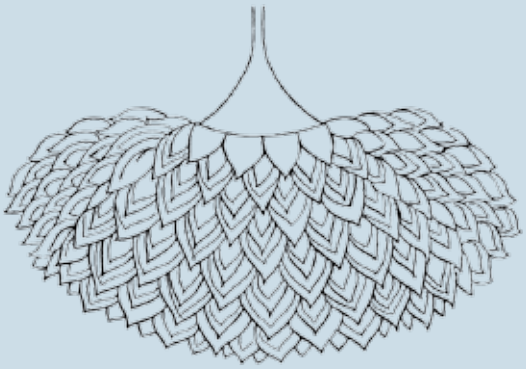
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काले हितं मितं ब्रूयादविसंवादि पेशलम्।
पूर्वाभिभाषी सुमुखः सुशीलः करुणा-मृदुः।।
(अ.ह.सू.२.२६)

Speak timely, benevolently, minimally and sweetly, without arguments. Speak first. Also present a pleasant face and conduct and be soft and compassionate.
(A.H.Soo.2.26)

Contents

Concepts of Beauty in Ayurveda	04
Cosmetics	06
Classical face packs	10
Hyperpigmentation	12
Importance of leafy vegetables	15
Aama-garbha-sraava	18
Traditional Formulations -1	24
Yoga in Pregnancy	30
Powder Pouch Fomentation (*Coorna Pinda Sveda*)	38
Milk steam fomentation	40
SIN and SKIN	43
A Case of Jaundice	48
Rasam	50

Concepts of Beauty in Ayurveda

In Ayurveda, natural, personalised, tailor made beauty tips are available for both men and women of all age groups.





Dr. N. Umadevi BAMS
Faculty, Kerala Ayurveda Academy, Aluva

The concept of beauty in Ayurveda is different from other systems of medicine. The basic foundation of beauty is laid on the principles of health in Ayurveda. In short, it is noted that the secret of beauty is the reflection of health.

Health in Ayurveda means the equilibrium of humors (*dosha*), tissues (*dhaatu*), the proper functioning of bio-fire (*agni*), timely elimination of metabolic wastes (*mala*) which determine the physical health and the happiness of the self, sense organs and mind together constitute the mental health.

Ayurvedic health is the combination of physical and mental health. Hence, in beauty concepts also, this principle is applicable. "Face is the index of the mind." As per the quotation, the mental health also plays an important role in the maintenance of beauty. In beauty care, the concept of five purification procedures (*panjca-karma*) of Ayurveda ensuring the physical health and mental clarity and the principles of yoga aiding the mental cleanliness and stability are adopted. So, Ayurveda and yoga help in a unified way in ensuring beauty.

External applications for beauty care are only superficial. They do not have much systemic effect. According to Ayurveda, beauty is the reflection of health and health is not skin deep. The benefits of external applications or topical applications are temporary. What we want is more permanent results. Hence we will have to give more emphasis on the concepts of beauty diet ("what we eat, we are like that"), life style regimen, yoga that stabilizes the mental energy and such a combined effort will provide a permanent solution in this regard.

In this modernized and more civilized world with major problems of pollutions and adversities, there is a need for the adaptation of the principles of Ayurveda involving the preventive aspects – comprising of the daily regimen and seasonal regimen in all aspects of life in order to preserve beauty and endurance. These ideas are not available in other systems of medicine. This signifies the uniqueness of the beauty concepts of Ayurveda.

As per Ayurveda, the faction of pitta in skin, the shiner pitta (*bhraajaka-pitta),* is responsible for maintaining the luster and glow of the skin. This pitta is believed to be the reflection of the digestive pitta (*paacaka-pitta*). So, when we deal with the beauty care products, we have to give more importance to the concept of bio-fire (*agni*). For example, when we deal with the unctuous substances like certain oils in beauty care, which are fat soluble compounds metabolized in the liver, we have to consider bio-fire, since it plays a key role in liver metabolism.

In Kerala Ayurveda Academy, many of the students have been trained in Ayurvedic Beauty Therapy. They are trained in theory and practice of ayurvedic concept of beauty, skin care, hair care, herbs used in beauty care, etc. The practical sessions provide ample practice to the trainees.

The Academy is using the Beauty care products of Kerala Ayurveda Ltd. like **Swarnamukhi cream**, **Swarnamukhi Face Powder** and **Kesini** hair oil those support the program to be more effective. Internal medications to suit the individual are also prescribed. The common herbs and plants used in kitchen are also used in this beauty care therapy for making the students more interested in this field due to their easy availability.

Switch over to Ayurvedic beauty care in its most scientific way and remember "A thing of beauty is joy forever!" ■

Cosmetics



Dr. Jolly
Dr. Sarala Samuel
and
Manu Somanath
R&D, Kerala Ayurveda Ltd.

Origin

Cosmetics are substances which are used to improve the appearance or odor of the human body. They include skin care creams, lotions, talcum powder, perfumes, lipsticks, nail polish, eye and facial make-up, hair colors, hair sprays, gel etc. They serve for esthetic sense. Remember the statement of Lucille S Harper "Time is a great healer, but a poor beautician".

History

The word '*cosmetae*' was first used to describe Roman slaves who were assigned to bathe men and women in perfume. The first archeological evidence of cosmetics was found in Egypt around 3500 BC. Romans and Egyptians used Cosmetics containing poisonous mercury and lead. It is believed that the Egyptian beauty queen Cleopatra bathed in donkey's milk to delay the aging process of skin. The Bible describes in the book of Esther, how Esther was chosen to be the new queen of Xerxes after a year of beauty treatment. Women in the 19th century discretely used 'belladona' to dilate their eyes to make their eyes brighter, giving them a dreamy look that was believed to be attractive. By 20th century cosmetics were widespread and used by women in all industrial societies of the world. The obsession of looking young has now gone beyond outrageous and many of the celebrities are ready to inject tiny amounts of 'botox' (a toxic protein derived for the bacterium, ***Clostridium botulinum***) under the skin to stiffen facial muscles temporarily to enliven the skin and make it wrinkle free.

The worldwide annual expenditure for cosmetics today is estimated $ 20 billion. The major firms are Oriflame, L'Oreal, Nestle, Revlon, Max factor etc. Now the regulatory authorities like FDA only regulates colors, selected chemicals and preservatives that can be used with cosmetics and hair dyes.

Cosmetics for complexion

The word complexion in Latin means natural color, texture and appearance of the skin especially that of the face. The word is derived from the Latin *'complexi'*, which initially referred in general terms to a combination of things and later on physiological terms, to the balance of humors. Early sign of wrinkles and aging may be due to stress, smoking habits, wrong food habits, life style etc. Being the mirror, the barometer of individual's health, skin is the criteria to one's ayurvedic constitution. If the skin is not cared properly and neglected it suffers premature aging, becomes dull and blemished. Aging causes dryness and wrinkling of the skin and affects complexion.

Ayurveda and cosmetics

The concept of beauty and cosmetics is as old as human civilization.



It is not possible to change the process of aging and getting old but ayurvedic herbs help to delay this process. According to Ayurveda, healthy skin is the result of overall health condition of individuals and the science mentions various skin care treatments that need to be pursued at every stage of life. The famous oil paintings of Raja Ravivarma depict the beauty queens like Sakuntala, Damayanti, Urvasi, Draupadi etc. fully embellished with cosmetics. Ancient literary works like Abhijnjaana-Saakuntalam and Megha-dootam of Kaali-daasa and other epics encompass the reference of natural cosmetics for beautification like *Kumkum* (saffron powder), *Kajal* (eye-liner), *Mehindee* (henna), *Taali* (herbal shampoo) etc. Ayurveda has a comprehensive and holistic approach towards beauty care. It offers innumerable natural herbs for beautification. One can easily incorporate this to his or her daily regime for better complexion. The function of ayurvedic herbs is to purify skin and eliminate vitiated humors (*dosha*) from the body. Some of the chosen ayurvedic herbs and the formulation of *Kanaka tailam* for beauty care are dealt here.

Symplocos racemosa

English: Lodh tree

Sanskrit: *Lodhra*

Part used: Bark

S. racemosa is an evergreen tree. It is found in the plains and lower hills of North and East India and in Himalayas up to 1400m altitude, also seen in Western Ghats, Central and south Sahyadris. In Sanskrit it is called *lodhra* or '*tilaka*' because it is used in making *tilaka* mark (*bindi*) on the forehead and is used to get better complexion.

Lodh bark is used to treat hemorrhage, acne and pimples, eye diseases, wounds, ulcers, tumors, skin diseases, liver diseases and used as gargle for giving firmness to spongy and bleeding gum. The stem bark is having anti-inflammatory property as well as hypothermic properties.

Chemical Constituents

Its principle constituents are three alkaloids loturine, loturidine and collutorine. The plant contains 5 phenolic glycosides of Salirepin series and two are glycosides. They are Symplo racemoside, brachios-3-acetate, symplomoside, symploveroside, symplososide, symnoside

and symplocomoside.

Phenols exhibit anti-inflammatory, antiseptic and anti-viral properties. They also play a key role in anti-oxidative defense mechanisms in biological systems and may have inhibitory effects on mutagenesis and carcinogenesis.

Lodhra in cosmetics

Aging of the skin is the result of continuous "wear and tear" process. Chronological skin aging is a universal and inevitable process. The phenolic glycosides from *Symplocos racemosa* display a vital role in improving and management of complexion.

Calicarpa macrophylla

Sanskrit: *Priyangu*

Common name: Beauty berry



The Sanskrit word *priyangu* literally means that which is lovable or charming. It is one of the herbs mentioned in all ancient scriptures of Ayurveda and has numerous synonyms like *phalapriya, subhaga, nandini, mangalya, priya, streyasa, s̲yaama, priyavalli* etc. Maharshi Caraka has categorized *priyangu* as *sandhaaneeya* – a healing herb.

The botanical name of *priyangu* is ***Calicarpa macrophylla*** belongs to the family verbenaceae. The plant grows in South Himalayan tracts, Bengal and Assam up 2000 meters altitude.

It is an erect herb grows 1-2 meters height with branches having tomentose tips. The flowers are small, rose colored globose cymes and the fruits are white drupes.

Leaves, flowers and fruits of *priyangu* are used in different pharmacological conditions.

Chemical constituents

Callicarpa contains tetracyclic diterpens – calliterpenone. Callicarpa flowers contain more than 40 constituents. The oil is dominated by sesquiterpenoids, the most significant being selinene isomers and dendrolasin, a furnoid perfumery molecule in the oil. Quercetin, myricetin and its 7 glucosides were isolated from flowers. Petals contain Leucocyanidins. The oil shows antibacterial activity against several gram positive bacteria.

Callicarpa in cosmetics

Callicarpa flowers have magical properties for healing skin diseases and promoting beauty. It is very effective in lightening the skin and making the skin youthful. It also helps in cell respiration and renewal. Ultimately it improves complexion, removes acne marks, black heads and blemishes.

For dry skin: use milk as media

For oily skin: mix yoghurt and honey as media.

For normal skin mix one teaspoon powder with rose water, prepare a paste and apply on face and neck.

Crocus sativus

Common name: Saffron

Family: Iridacea

Saffron is considered as an oriental plant. One of the first historic references to the use of Saffron comes from ancient Egypt, where it was used by Cleopatra and other pharaohs as an aromatic and seductive essence, and to make ablutions on temples and sacred places.

Saffron is used for seasoning, fragrance, dye and medicine for more than 3000 years. Commercial Saffron consists of only stigmatic lobes plucked from saffron flower; are distinguished by their bitter taste, hay like fragrance and slight metallic notes.

Saffron cultivation is centered on Euracia bounded by Mediterranean Sea, in the south east of Kashmir and China in the north east. The major saffron producers of antiquity are Iran, Spain, India and Greece. In recent years cultivation was spread to New Zealand, Tasmania and California. Iran is the world's largest producer of Saffron accounting for over half of the harvest.



The high cost of saffron is due to the difficulty of manually extracting large number of minute stigma, the only part has the desired the properties of aroma and flavor. 1 kg of dry saffron requires the harvesting of some 1.11lakhs of flowers!!

Because of its intensive flavor and strong coloring properties saffron is an integral part of Eastern and Western cuisine. Its aroma is described by experts as resembling that of honey with grassy, hay like and metallic notes. Indian cuisines uses it in Biriyani, Gulab jamun, Kulfi and 'Saffron lassi'. Iranian use saffron in their national dish 'Chelow kabab'. Saffron bun is an inevitable Swedish cuisine and is known as 'Lussekatt' (means Lucy cat, after Saint Lucy).

Medicinally Saffron is used as a carminative (suppressing flatulence) and emmenagogue (enhancing pelvic blood flow). It is indicated in respiratory infections, cough, cold, cancer and asthma. Persians and Egyptians also used it as an aphrodisiac, and for dysentery and measles.

Chemical constituents

The intensive color of saffron is caused by pigments of carotenoid type. They are β carotenes, lycopene (zeaxanthin), crocetin esters and crocin a diester of crocin with gentobiose which is the single most important pigment.

Essential oil components are safranal and other terpene aldehydes. The bitter taste is attributed to picrocrocin. Saffron is rather unique among spices. Its aroma and colour components are water soluble. They can be soaked in water overnight, filtered and the water then added gives pure and homogenous colour. While in Persia and India saffron is powdered and is extracted with milk. This milk will have the colour of egg yolk and is added to biriyani or sweets.

Saffron in cosmetics

Saffron being an antioxidant and an anti-aging agent is widely used in ayurvedic cosmetic preparations. As per Ayurvedic texts the herb *Crocus sativus* or *kum̲kuma* is *varn̲ya. Varn̲ya* means that which imparts fairness and glow to skin. As per Ayurveda, it provides fair complexion and balances the three humors. It helps to reduce dark pigments, dark circles under eyes, acne and pimples. It increases fairness and glow of the skin.

Triticum aestivum

Common name: Wheat

Family: Graminae



It is not known from where wheat has been originated, perhaps from the Middle East of Armenia. The earliest archeological evidence of wheat in 5th million BC is from Europe. Wide Cultivation of wheat is reported in Biblical times in ancient Egypt and Mesopotamia. It is a small herb, flowers from June to July and the seeds ripen from August to September. The flowers are hermophrodite. It cannot grow in shade but requires moist soil. The major states in India that are involved in the cultivation of wheat are those located in the plains like Uttar Pradesh, Punjab and Haryana. Punjab and Haryana yield the highest amount of wheat because of the availability of better irrigation facilities. The production of wheat in other States like West Bengal, Kerala, Assam, Orissa and Andhra Pradesh has grown with the provision of better irrigation facilities in the area.

Stem is used for biliousness, ash is for removing skin blemishes, fruit is antipyretic, seed contain sex hormones and used in China to improve female fertility and the plant possess anticancer properties. Wheat grass juice is gluten free and one of the very best sources of chlorophyll that works well with the body.

Wheat germ along with whole wheat is a rich source of nutrients that makes important for a healthy diet. It has been found that the oil derived from wheat germ improves strength and increases longevity.

Chemical constituents

Wheat germ oil is obtained from the embryo or kernel of the wheat grain. It is light yellow in colour and fat soluble. Wheat germ oil forms only 3% of the whole weight of the wheat grain and it contains linoleic acid (omega-6), linolenic acid (omega-3), palmitic acid and oleic acid. These essential oils cannot be manufactured by the body. Hence they should be consumed as they improve the immune system and the nervous system and help in healthy cell growth and regeneration.

Wheat germ oil in cosmetics

It is the richest source of vitamin E, has high content of Vitamin A & D and rich in protein and lecithin. It has high antioxidant properties and improves the immune system.

It effectively heals burns and skin ulcers. So, external application on dry skin is very effective. It improves general health of the skin and circulation of blood. It also helps the skin cells that may have been damaged due to the scorching heat of the sun. It also fights conditions like dermatitis and scarring. Since it is a powerful antioxidant it helps in preventing skin from bearing the signs of aging. Hence wheat germ oil is increasingly finding place in the manufacture of skin care products.

Rubia cordifolia

Common name: Common Madder, Indian Madder

Family: Rubiaceae

It has been cultivated for a red pigment derived from roots. In Sanskrit it is known as *manjjishṯhaa*.

The plant grows throughout India, in hilly districts up to 3500 meters height. It is a perennial, herbaceous climber. The roots can be over 1m long, up to 12 mm thick. It prefers loamy soils with a constant level of moisture.

Rubia cordifolia was an economically important source of a red pigment in many regions of Asia, Europe and Africa. It is a drug of choice for treating various systemic problems like raised uric acid and gouty arthritis, glandular swellings, recurrent skin infections and other diseases of the skin like pigmentation anomalies and leucoderma. It is also included in various formulations to treat uterine and urinary infections, diarrhea, dysentery and chronic fevers. *Rubia cordifolia* has been reported to contain a wide range of antioxidants and have been in practice in the ancient eastern system of medicine to cure various disorders.

Major Chemical Constituents:

Quinones (anthraquinone glycosides), Iridoids (manjistin), Triterpenoids are the major chemical constituents of *Rubia cordifolia*.

Manjjishṯhaa in cosmetics

Manjjishṯhaa was held in high esteem by ancient sages in the treatment of skin diseases. It is widely used, till today, in various skin disorders like erysipelas, eczema, acne, scabies and allergic manifestations. It is used both, internally as well as externally. Externally it can be applied as a paste by itself or with honey; it heals inflammation and gives the skin an even tone and smoothness. The root powder works well, with ghee, as a medicine for acne.

Kanaka-Taila

Caraka-saṃhitaa, *cikitsaa-sthaana* explains the importance and preparation of *Kanaka-taila*.

Composition

- *Glycyrrhiza glabra*
- *Calicarpa macrophylla*
- *Rubia cordifolia*
- *Santalum album*
- *Nelumbo nucifera*
- *Messua ferrea*

Kanaka-taila is an ayurvedic product which is excellent for skin treatment especially for complexion, dark circles under the eyes, improves texture of skin and acts as a moisturizer.

Swarnamukhi face cream

Swarnamukhi face cream from the house of Kerala Ayurveda has imbibed from the thoughts of Ayurveda, blessed with *Kanaka taila* and other natural ingredients for skin care, improves complexion, removes black spots, wrinkles, reduce tanning and acts as a moisturizer. In addition, it is loaded with excellent anti-oxidants to prevent the skin damage by free radical, which improve the skin texture while restoring elasticity and offers wonderful natural glow to the skin and makes one to look young.

Let us conclude that concept of beauty in Ayurveda has an age old origin. The famous fairy tale of snow white and seven dwarfs, the wish of the wicked step mother to be the most beautiful woman on earth even today strikes the chord, being beautiful irrespective of age, sex and color is not a thing just desired today. As John Keats says "A thing of beauty is a joy forever, its loveliness increases, it will never pass into nothingness". ■

Classical face packs



Dr. Jayalakshmy T R
Editor

For acne

1. Apply a paste of Lodh bark (chunga = *Symplocos racemosa*), coriander (*Coriandrum sativum*) and sweet flag (*Acorus calamus*).

2. Apply paste of Benzoar and black pepper.

3. Apply paste of Mustard, sweet flag, chunga bark and rock salt.

Note: All these three pastes contain irritants and should be judiciously employed.

For better facial complexion and shining and to remove black marks

1. Arjun bark (*Terminalia arjuna*) with honey.

2. Root of Indian madder (*Rubia cordifolia*) with honey

3. Red sanders, Indian madder, chunga bark, costus (*Saussurea lappa*), beauty berry (*Callicarpa macrophylla*), leaf buds of banyan tree (*Ficus benghalensis*) and lentils (*Lens culinaris*)

4. A paste of lentils with ghee and milk applied on face for seven days will make the face shining like lotus petals.

5. A paste of nutmeg applied on face will remove black marks.

6. Application of mustard oil on face will clarify the face.



7. Indian valerian (*Valeriana jatamansi*), Indian crocus (*Kaempiferia rotunda*), costus root, Chinese date cotyledons (*Ziziphus mauritiana*) and black plum cotyledons (*Syzygium cumini*) are ground with curd and applied as a mask.

8. A fine powder of de-husked barley with licorice and chunga bark. The face will shine like gold.

9. Application of white mustard (*Brassica alba*), turmeric, tree turmeric, powder of Indian madder and red ochre made into a paste with ghee and goat's milk will render the face shining like moon.

10. Grind turmeric, bark of tree turmeric, licorice, Indian valerian, red sanders, roots of sugar cane, powder of Indian madder, lotus stamens, Himalayan wild cherry (*Prunus cerasoides*), saffron, elephant apple (*Limonia acidissima*), Indian persimmon (*Diospyros malabarica*), bark of shining leaved fig (*Ficus microcarpa*) and tender leaves of banyan tree in milk and apply. These can be used to medicate oil and the oil may be applied on face.

Complexion oils

1. ***Haridraadi Taila*:** Medicate oil with the medicines of face pack 10. Apply on body and face to eradicate bluish and dark marks.

2. ***Kanaka-taila*:** (Details of this oil is given in page 09 of this issue.)

3. ***Manjishṭhaadi taila*:** 12 g each of Indian madder, licorice, raisins, pulp of pomegranate fruit, large licorice is made into paste and cooked in low fire with 200 ml of oil and 400 ml of goat's milk and filtered on optimal evaporation. Anointing this oil on face for seven days will cure acne, hyper-pigmented patches and wrinkles. Face will become attractive.

4. ***Kuṃkumaadi taila*:** This is a famous oil for complexion and is the ingredient of many reputed ayurvedic fairness creams. This oil is said to be formulated by the twin physicians of the gods, Aṣvins. Saffron, sandalwood, lac, Indian madder, licorice, Indian valerian, vetiver (*Vetiveria zizanioides*), Himalayan wild cherry (*Prunus cerasoides*), blue lotus (*Monochoria vaginalis*), arial root of banyan tree, cluster fig (*Ficus racemosa*), stamens of lotus and the ten roots are taken 50 g each and made into a decoction with double quantity of water and reduced to one fourth by boiling. Make a paste 12 g each of Indian madder, licorice, lac, red sanders and large licorice and mix with 400 ml of goat's milk and add the decoction and 200 ml of oil and boil in low fire. Filter the oil at optimal evaporation. Application of this oil on face will cure skin eruptions and dark discoloration. ■

[The data is collected from Cakradatta, Chapter 55 *Kshudraroga*]

Hyperpigmentation



Pigment disorders generally cause cosmetic problems. Aacaarya Dandin, a doyen of Indian poetics has commented that even a beautiful body will turn ugly with a single patch of discoloration. Pigment disorders may be of two types one is reduced pigmentation (*śvitra* = vitiligo) and the other one is hyperpigmentation (*vyanga* = melanosis). Pigmentation due to heavy metals is another class.

Pigmentation due to heavy metals.

Heavy metals cause generalized pigmentation by increased melanin formation (melenosis or melanoderma) and the deposition of the metals themselves. Melanin is the skin pigment that causes complexion. Common metals causing pigmentation are arsenic, silver, gold and bismuth. Silver and gold are not found to cause problems if consumed as ayurvedic preparations.

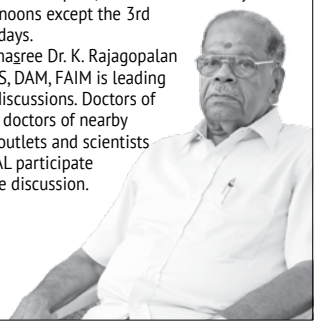
Arsenic produces a dew drop like, generalized pigmentation. The dew drop appearance is due to the pigmentation being more marked around the hair follicles than the inter-follicular areas. Other features like exfoliative dermatitis (pealing off of skin), keratoderma (horny skin) of the palms and the soles, even keratosis (growth of keratin on the skin) may appear. Keratin is the horny substance of the outer skin and is the main component of hairs and nails. It is a fibrous structural protein. Chemical preparations (*rasa-aushadhi*) containing arsenic may cause pigmentation. But if arsenic is properly prepared according to *Siddha-vaidya* system, reactions are rare. *Rasagandhi mezhuku*, a popular *Siddha* formulation, of some pharmacies causes black pigmentation of the palms.

Hyper-pigmentation with silver is termed argyria. Formerly modern ophthalmologists used Argerol, containing silver nitrate. It causes brown pigmentation. But Indians and certain other Asiatic people eat silver leaves. Argyria is uncommon among them. Argyria is a bluish or slate colored pigmentation starting from the face, hands and finger nails. The pigmentation is usually permanent.

Gold is used very rarely now in modern medicine. Formerly they used gold injections for rheumatoid arthritis. Gold leaves are eaten by Indians and other Asians. But hyper-pigmentation with gold is rare in them. The pigmentation with gold is slate colored and there may be lichenoid dermatitis.

Padmasree **Dr. K. Rajagopalan**
MBBS, DAM, FAIM

Śaastra-mathanam (churning of science) is a discussion program conducted at Kerala Ayurveda Hospital, Aluva on all Tuesday afternoons except the 3rd Tuesdays.
Padmaśree Dr. K. Rajagopalan MBBS, DAM, FAIM is leading the discussions. Doctors of KAH, doctors of nearby KAL outlets and scientists of KAL participate in the discussion.



If bismuth is used in large doses over long periods it will cause bismuth lines on the gums. Sometimes, though rarely, bismuth will cause diffuse pigmentation. Blue color of gums will also occur in lead poisoning.

Mercury, if used in cream form may cause a local grey pigmentation. Pigmentation with heavy metals is generally permanent and the treatment is unsatisfactory.

Melanosis or Melanoderma (increased melanin formation)

Diseases like *vyanga* and *neelikaa* mentioned in Ayurveda are to be considered in melanoderma. These cases will report to the Ayurvedic physician as modern medicine has nothing to do in such cases. This may occur generalized or locally. The causes are listed below:

a) Generalized melanosis: Mostly due to systemic or internal cause.

1. **Endocrine disorders** – Addison's disease, thyrotoxicosis, Simmond's cachexia, ACTH administration.

2. **Chronic wasting diseases** – cachexia, malaria, kala-azar, tuberculosis, reticuloses, carcinomatosis, anemia.

3. **Nutritional** – pellagra

4. **Toxic melanosis** (Melano-dermatitis toxica) – idiopathic, heavy metals, drugs like phenothiazines, tranquilizers, Ledermycin (P), sulphonamides, quinine, mepacrine etc.

5. **Metabolic** – Porphyria, ochronosis, haemochromatosis.

b) Localized melanosis – Usually due to exogenous cause.

1. **Post-inflammatory – particularly following a chronic skin disease or irritation** – eczema, tinea cruris, fixed drug eruption, lichen planus, scleroderma, Vagabond's disease and healed lesions of phemphigus vulgaris and photo-sensitization dermatoses like Riehl's melanosis, Berloque dermatitis, parship or babchi dermatitis.

2. **Physiological** – Sun-tan, heat-tan

3. **Naevi** – naevus pigmentosus (pigmented birth mark), Mongolian spot, urticaria pigmentosa.

4. Freckles, lentigines senile lentigines and chloasma.

5. **Miscellaneous** – acanthosis nigricans, incontinentia pigmenti.

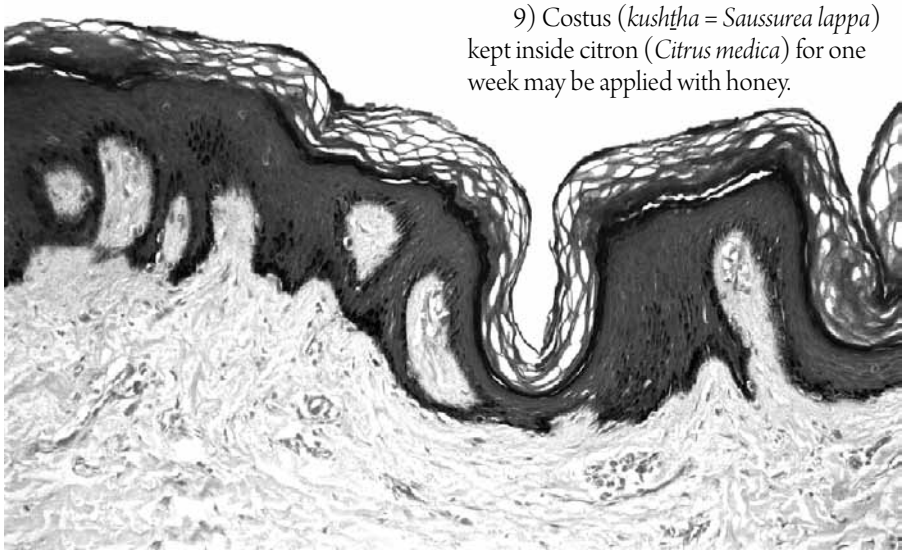
Addision's disease is a disease of supra-renal glands. The disease is caused by the reduction of the secretion of the glands. There will be brown pigmentation. The pigmentation is mainly at the joints. It is occurring mostly in women.

Even though hyper pigmentation is mentioned in thyrotoxicosis, it is not met with ordinarily. There will be exophthalmos, hyper-hidrosis (excessive sweating) and frequent urges for defecation. Then it is called Graves's disease.

In the case of metabolic disorders we will have to consider the involvement of undigested metabolites (*aama*). In *aama* there is obstruction of wastes (*mala-sanga*). *Mala* has a wider meaning. It includes even the free radicals.

There are many diseases coming under the head of melanosis or melanoderma. But from the point of view of Ayurveda only some of them are important. *Vyanga, neelikaa, tilakaalaka* etc. coming under the context are mentioned as minor diseases (*kshudra-roga*). The term *kshudra* has two meanings. One is 'small' or minor. Thus *kshudra-roga* means minor diseases. Another meaning is low. This implies diseases which are of low order or bad diseases. In modern medicine there is no proper treatment for diseases such as *vyanga* and *neelika*. They now use corticosteroids. But they have only transient effect.

In the etiology of such diseases Ayurveda has mentioned the involvement of psychic factors such as anger, grief and similar mental affects. Hyper-pigmentation of the face is called *vyanga*. In other parts of the body it is called *neelikaa*. These differ in symptoms according to the predominance of humors. Rough area (luster less area) with rough touch and dark coloration is due to vaata. Due to pitta the lesion is blue totally with coppery edge. The lesion with kapha will have white periphery and it will have itching. With the vitiation of blood, the lesion will be coppery with localized burning sensation and red periphery. The lesion will have parasthesia (as though insects are wandering over the area - *cimicimaayana*).



According to astrology, the influence of the inauspicious planets *Raahu* and *Ketu* causes such hyper-pigmentations. These planets will also cause insomnia at night.

In Ayurveda many formulations are prescribed as treatment of *vyanga*. Some of them are listed below. (A.H.U.32.16-33)

1) External application of the bark of arjun (*Terminalia arjuna*) ground with honey.

2) External application of the roots of Indian madder (*Rubia cordifolia*) ground with honey. (This is used more frequently.)

3) The charred hoof of white horse ground with butter.

4) Red sanders, Indian madder, costus, lodh (*Symplocos racemosa*), beauty berry (*Callicarpa macrophylla*), banyan buds (*Ficus benghalensis*) and lentils (*Lens culinaris*) are to be made into a paste and applied. It will generate attractiveness of the face.

5) The two cumins, black sesame and mustard are to be ground with milk and applied.

6) Lentils are fried and de-husked and ground with milk and added with ghee and honey is to be applied externally.

7) The thorns of red silk cotton tree (silk cotton tree = *Bombax ceiba*) are to be ground with milk and applied.

8) The kernal of common jujube (*kola-majjaa - Ziziphus mauritiana*) with jaggery ground with the blood of rabbit and honey may be applied.

9) Costus (*kushṭha* = *Saussurea lappa*) kept inside citron (*Citrus medica*) for one week may be applied with honey.

10) Ground palm (*Curculigo orchioides*) tuber ground with goat's milk may be applied.

11) The bone of cow with ground palm tuber ground with ghee and honey may be applied.

12) The paste of the tender leaves of jaman (*jaṃboo* = *Syzygium cumini* = *Eugenia jambolina*), two turmerics (turmeric and tree turmeric) and new jaggery in the strained water of curd may be applied.

13) Hard massage (*udvartana*) of face with a paste of blue lotus (*utpala*), blue costus (*utpala-kushṭha*), flowers of beauty berry (*priyangu* = *Callicarpa macrophylla*) yellow sandal wood (*kaaleeyaka*) and kernal of common jujube.

14) This paste (13) may be used to medicate oil for face massage.

15) Barley (*yava*), white dammar (resin of *Vateria indica*), lodh (*lodhra* = *Symplocos racemosa*), vetiver (*uṣeera* = *Vetiveria zizanioides* = *Andropogon muricatus*), sandal wood, honey, ghee and jaggary are to be heated with cow's urine till it sticks to the spatula. By applying this *vyanga, neelikaa, dooshikaa* (acne) etc. are cured. Applied on face it will make the face like lotus. Applied on the feet, the feet will be as beautiful as lotus petals.

16) *Kuṃkumaadi tailaṃ* (A.H.U.32. 27-30) is used as nasal drop.

17) *Manjishṭhaadi taila* (A.H.U.32. 31,32) cures hyper-pigmentation and the face shines like moon.

18) The juice of trailing eclipta, milk and water may be used as nasal drops to treat hyper-pigmentation.

Many of these are topical applications. They may not suffice. The basic problem is in the gut (*koshṭha*). Hence basic treatment is needed here. The hyper-pigmentation is due to pitta. All colors except pale and brown are caused by pitta (A.H.Soo.12.52). *Tiktaka ghṛta* is ideal for this. The indications of this medicated ghee include *vyanga* also (A.H.Ci.19. 2-7). Powder of winter cherry roots (withania roots = *aṣvagandhaa* = *Withania somnifera*) also may be added to the medicated ghee and consumed. *Tiktaka ghṛta* is indicated for insanity (*unmaada*). This means that the medicine will ward off the psychic factor of the skin disease. The relation of *saadhaka pitta* with mind is to be remembered here. ■

Importance of leafy vegetables in our diet



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Leafy vegetables have been part of human diet, since time immemorial. Spinach, amaranth, fenugreek leaves, parsley, coriander, cabbage, lettuce etc. have been part of daily diet all over the world. Today, the soaring cost of eatables has brought man close to nature again with the importance of kitchen garden sprouting up. There are some plants which are used or can be used as leafy vegetables. Here is enumeration of some of the plants which should be used for diet as leafy vegetables, for their unique medicinal value. Some of them are used in some parts of India, while mostly used for medicinal purpose.

Drumstick leaves



Sanskrit name: *sigru*

Scientific name: *Moringa oleifera*

• Widely used leafy vegetable of Kerala. Other parts of India are not familiar with its medicinal property.

• Leaves contain amino acids viz. Aspartic acid, Glutamic acid, Serine and Glycine.

• It is an excellent source of iron, hence recommended during pregnancy.

• Leaves increase semen (*sukrala*), expel worms (*krimighna*), relieve constipation and anemia, improve vision and augment breast milk production.

• Juice of leaves can inhibit Staphylococcus aureus (Bhawasar et.al)

• Leaves are useful in hypertension.

• Leaves are boiled in water, fried in ghee and taken with food in postnatal care.

Indian sorrel



Sanskrit name: *caarngeri*

Scientific name: *Oxalis corniculata*

• It is a creeping herb with trifoliate leaves.

• Leaves contain malic acid, tartaric acid, citric acid etc.

• Leaves are sour, they kindle digestion, so helpful in loss of appetite.

• Good for duodenal diseases, hemorrhoids, light, constipating (*graahi*) by absorbing water from digested food, hence helpful in diarrhea.

• It is widely used as leafy vegetable mostly in Tamil Nadu, Andhra Pradesh regions where it is used in the form of chutney and with daal.

Hogweed (pigweed)



Sanskrit name: *punarnavaa*

Scientific name: *Boerhavia diffusa*

• Pungent and bitter in nature.

• Improves digestion.

• Cures edema – use of its leaves in diet and usually recommended for pregnant women to prevent edema.

• Breaks hard stool and hence useful in constipation.

• Cures artificial poisoning (*gara*).

• Mitigates vaata and kapha.

Indian pennywort



Sanskrit name: *mandooka parnee*

Scientific name: *Centella asiatica*

• Widely used as leafy vegetable in Tamil Nadu-Karnataka region.

• Leaves are used in chutney, salads and with buttermilk.

• Leaves and plants are immunomodulators.

• Improves memory, has potent CNS anti-depressant property.

• Has anti-hypertensive effect.

Sacrificial weed



Sanskrit name: *bhadraa*

Scientific name: *Aerva lanata*

• Small erect herb bearing very small white flower.

• Leaves are useful as leafy vegetable.

• The plant is a good diuretic.

Black night-shade



Sanskrit name: *kaakamaacee*

Scientific name: *Solanum nigrum*

• Leaves contain salasonine and solamargin.

• Useful in curing leprosy and other skin diseases.

• Causes easy movement of bowel .

• Hot in potency, mitigates all the three humors.

• Aphrodisiac and good for voice.

Ash gourd



Sanskrit name: *kooshmaanda*

Scientific name: *Benincasa hispida*

• Leaf of ash gourd is used in diet by folks, tribal people and in rural and urban parts of Kerala.

• It helps in cleansing urinary bladder

• Highly useful in constipation

• Aphrodisiac, decreases vaata and pitta.

Curry-leaves



Sanskrit name: *kaalaṣaaka*

Scientific name: *Murraya koenigii*

• A most popular ingredient in grandma's recipe.

• Useful in constipation, improves digestion,

• It is alkaline, pungent and bitter in nature.

• Cures artificial poisoning and edema.

• Useful in improving vision, growth of hair and hair related problems.

• Curry leaves paste with buttermilk is useful in conditions like piles, constipation.

• Leaf paste with warm water is recommended for hypertension.

• Oil medicated with leaves are useful in blackening the hair and to prevent hair fall.

• Ghee prepared by boiling curry leaves and turmeric is given with salt to children as immunomodulatory in southern region of India.

Purging fistula



Sanskrit name: *aaragvadha*

Scientific name: *Cassia fistula*

• Leaves contain rhein and sennosides A and B.

• Tender leaves are cooked and eaten as leafy vegetables in case of severe constipation

• In case of severe itching, the patient is asked to scrub the skin with cassia leaves.

• Aqueous extract of leaves are of anti-inflammatory and anti-bacterial in nature.

Negro coffee



Sanskrit name: *kaasamarda*

Scientific name: *Cassia occidentalis*

• Leaves are useful for deworming, skin diseases and cough.

• Decreases kapha

• Moves bowel, hence useful in constipation.

Common cucumber leaf



Sanskrit name: *trapusa*

Scientific name: *Cuccumis sativus*

• It is a powerful diuretic.

Ivy gourd



Sanskrit name: *bimbee*

Scientific name: *Coccinia grandis*

• Leaves are widely used as leafy vegetables.

• Effective anti-diabetic.

Bael tree leaf



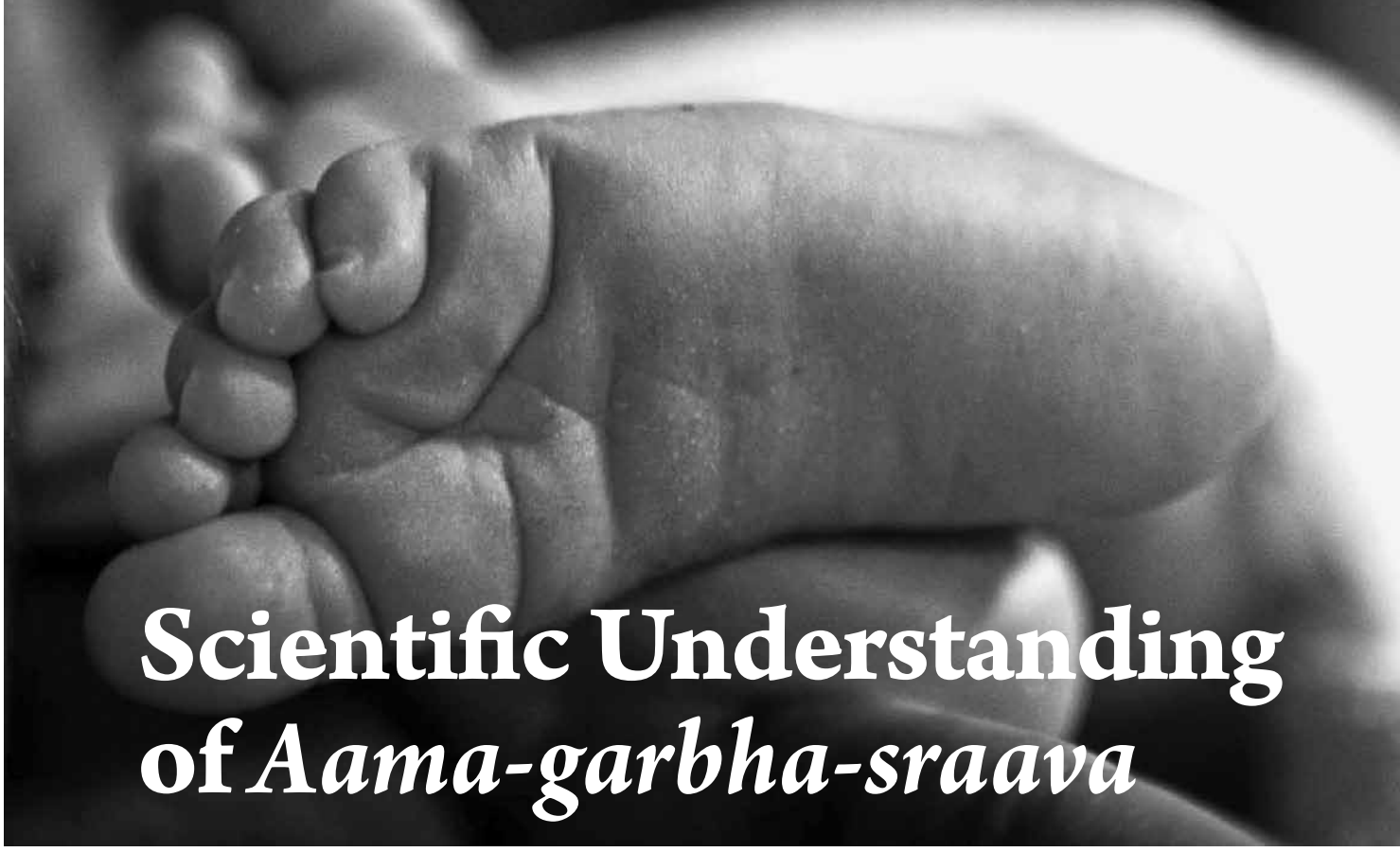
Sanskrit name: *vilva*

Scientific name: *Aegle marmalosa*

• Leaves contain essential oil containing α and β phellandrene, rutin, marmerinin, aegilin, aegelenine etc.

• Leaves are taken in empty stomach in diabetic cases.

• Leaves mitigate vaata and control diarrhea. ■



Scientific Understanding of *Aama-garbha-sraava*



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Abstract:

Aama-garbha-sraava is one of the most misunderstood and misinterpreted concept of Ayurveda. There is very little reference material found in Ayurvedic texts about *aama-garbha-sraava*. It is mentioned in concise form (*sootra-roopa*) as an untreatable (*pratyaakhyeyaa*) type of abortion with the association of unripe filth (*aama*). So the concept of *aama-garbha-sraava* needs clarification in the light of the latest modern concept of abortion. Some consider it first trimester abortion when the body parts of the fetus are not well formed and the fetus is in the form of liquid. But by considering the view point of commentators this notion proves to be wrong. So misunderstanding regarding *aama-garbha-sraava* requires clarity. The present paper is an attempt to clarify the concept of *aama-garbha-sraava* in the present era.

Key words:

Aama-garbha-sraava, Free radicals, Autoimmune factors, Abortion, *Dhaatvagni-maandya*, Antioxidants.

Introduction:

The concept of *aama-garbha-sraava* is mentioned by Caraka-samhitaa, Vaagbhata and by Dalhana, the commentator of Susruta-samhitaa. It is abortion (*garbha-sraava*) where there is association of unripe filth (*aama*). In the present era, the prevalence of repeated abortions, sub-fertility etc. is increasing. We have to identify the factors responsible for it. To combat the rising problem and to improve fertility outcome, a lot of work is going on in the direction of factors responsible for abortions. In Ayurveda, concept of *aama-garbha-sraava* is still unrevealed. When we enter into the details of the concept, we are able to correlate it with many factors responsible for abortions, revealed in current scenario. Though our ayurvedic treatises are very rich in ideas, there is need to understand them in modern light.

Concept of *Aama-garbha-sraava:*

Up to the third month of pregnancy or even afterwards, when the fetus is still unripe (*aama*), if bleeding from uterus occurs, then usually it is fatal to the fetus due to opposite character of the required treatment. For arresting bleeding and retaining the fetus, cold (*seeta*), soft (*mrdu*) and sweet (*madhura*) drugs are to be prescribed. They will increase the unripe filth due to similarity in properties. Besides these drugs are also opposite to the qualities of the female gamete and menstrual flow (*aartava*)

those are considered to be fiery (*aagneya*) in character.

To understand the line of management of *aama-garbha-sraava* we have to understand what *aama-garbha* is in the present era. For this we have to understand the ayurvedic concept of *aama* first.

Etymology of *aama*

The word *aama* is derived from root *aam* with the suffix *a*.

It means the incompletely digested or unprocessed matter.

The root *aama* and the suffix *nic* combine to form the word *aama* meaning that which is subjected to digestion.

That which damages the group of channels (*srotas*) is known as *aama*.

What is *aama*?

Aama-dosha and aama-visha are conditions which occur due to impairment of bio-fire (*kaayaagni*). *Kaayaagni* in its narrowed sense relates to factors concerned with gastrointestinal digestion and in its wider sense to metabolic events of the body. *Aama-dosha and aama-visha* are acute, subacute or chronic conditions related to GIT as well as metabolic disturbances engendered due to impairment of internal fire (*antaraagni*). In other words it may be said that the conditions are due to the vitiation or pollution of the bio-fire (*agni-dushṭi*). The basic doctrine of Ayurveda as regards health and disease revolve around nutrition and its utilization by the body under the influence of transformation factor called fire (*agni*). Generally speaking, aama is defined as a condition in which the first tissue (*dhaatu*) namely rasa is not properly formed due to reduced strength of fire. In this state, the ingested food becomes polluted or denatured.

According to other authorities, quoted by Vaagbhaṭa, the highly polluted humors interact and get mixed up leading to formation of 'unripe filth' (*aama-dosha*) akin to the production of poison (afflotoxin) from the spoiled kodo millet (*kodrava*).

According to both descriptions of unripe filth, in the absence of or due to the inhibition of bio-fire, the ingested food is not properly digested. Products which arise out of such an impaired digestion are retained at the reservoir of digestion (*aamaaśaya*) and they undergo pathogenic changes as to yield toxic substances. These toxins are known as *aama*. Dalhaṇa and Cakrapaaṇi in their commentaries on Suśruta-saṃhitaa have stated that formation of *aama* need not necessarily be due to the dullness of digestive fire (*jaṭharaagni-maandya*) alone, and it may also occur due to impairment of tissue fires (*dhaatvagni-maandya*). In Aatanka-darpaṇa a commentary of Madhava Nidaana, it is stated that unripe filth (*aamadosha*) may be caused due to dullness (*maandya*) of tissue-fire and the five existential fires (*bhootaagni*). It also states that on account of this, diseases like emaciation (*śosha*), wounds (*vraṇa*) and inflammations (*vidradhi*) occur. The unevenness (*vaishamya*) of tissue fire mentioned by Dalhaṇa, Cakrapaaṇi, Vacaspati-vaidya points to impairment of intermediary metabolism resulting in the production of incompletely metabolized substances which are obviously not fit for utilization by the permanent tissues (*sthaayi-dhaatu*). Thus these products are in unripe (*aama*) state and cause filth (*aama-dosha*) at this level.

On the whole *aama* is unprocessed material in the body that executes its hazardous effects by the impairment of bio-fire, vitiation of humors and adhering to channels. A variety of transforming and transmutating substances are present in the body like enzymes, hormones, catalysts and lysins. When these are unable to function properly, entirely different metabolites are formed. The body is not acquainted to process these metabolites. These accumulate in the body in different systems affecting the normal mechanism of that particular system. They may be termed as *aama*. Nowadays, free radicals are correlated with *aama* of Ayurveda. The etiological factors of *aama-dosha* described by *Caraka-saṃhitaa* and *Suśruta-saṃhitaa* range from dietetic indiscretions including errors of nutrition to emotional tensions of different kind.

A comparative table of common causative factors of *aama-dosha* and abortions according to Ayurveda is given below: -

S.No.	*Aama*	*Garbha-sraava*
1.	Abstinence from food, Indigestion, Overeating, Ingestion of unwholesome food, heavy or indigestible food, cold and stale food, excessively dry dehydrated food, putrid articles.	Excessive dry, bitter and acrid diet, inadequate intake of food and fasting.
2.	Adverse effect of therapeutic measures such as purgation, exercise and unction.	Excessive loss of water due to diarrhea and vomiting.
3.	Emaciation or wasting by other diseases.	Other general diseases such as infections, fever and disorders of humors.
4.	Suppression of natural urges.	Suppression of natural urges.
5.	Mental tension and emotional instabilities – envy, Impatience, fear complex, anger, rage, greed, pessimistic outlook, enmity.	Psychogenic factors such as anger, grief, fear, excessive coitus etc.

Causative factors of free radical formation are: -

1. Air pollution
2. Radiation
3. Junk foods lacking nutrients
4. Cigarette smoking
5. Pollutants
6. Emotional stress
7. A major factor in increased free radical generation in our bodies is excessive consumption of calories than we need. As more food is eaten, more oxygen is required to burn it and as more oxygen is used more free radicals are produced.

So the causative factors of abortion (*garbha-sraava*), *aama* formation, and free radical generation have same etiological factors.

1. Abortion due to genetic factors (aneuploidy abortion).

2. Endocrine and metabolic factors – Luteal phase defect, Thyroid abnormalities, Diabetes mellitus.

3. Due to certain infections: –

Viral – Rubella. Cytomegalo, Variola, Vaccinia.

Parasitic – Toxoplasma, Maleria.

Bacterial – Ureaplasma, Chlamydia, Brucella, Spirochaetes etc.

4. Immunological disorders – Autoimmune and alloimmune diseases.

5. Maternal medical illnesses – Cyanotic heart disease, Haemoglobinopathies.

6. Environmental factors – Cigarette smoking, Alcohol consumption, X - irradiation, certain drugs etc.

All these causes produce aama as free radicals and cause abortion.

Anatomical abnormalities like cervical incompetence, congenital malformation of uterus, Uterine fibroid, intrauterine adhesions (synechiae), trauma and unknown factors also cause abortion. The abortion due to these causes has lesser *aama* or free radical formation.

Aama versus Free radical

S.No.	*Aama*	Free-radical
Definition		
1.	Residual essence of food (*aahaararasya rasa-ṣesha*) – Incomplete metabolism.	A free radical is an atom or molecule that contains one or more unpaired electrons highly unstable and reactive.
Presenting forms		
2.	Incomplete digestion and metabolism (*avipaaka*).	It contains one or more unpaired electrons which require neutralization by free radical scavengers. Thus it exists in an incomplete metabolic state.
3.	Uncombined (*asaṃyukta*) – An inassimilable state of *aama*.	Free radicals are inassimilable to body components and exist in free state.
4.	Foul smell of *aama* (*durgandha*)	Putrefaction leads to foul smell after destruction of cells by free radicals.
5.	*aama* conjugates with normal healthy tissues due to its stickiness (*bahu-picchila*).	To seek stability in their structure they quickly interact with the healthy molecules of the body thus setting chain reaction.
Disease Production		
6.	Weakness if tissue fire (*dhaatvagni-daurbalya*)	Impaired action of free radical scavengers.
7.	Accumulation (*saṃcaya*) of *aama* at the site of production	Increased production of free radicals at the site.
8.	Spread (*prasara*) of *aama*	Circulation of free radicals.
9.	Fixation (*sthaana-saṃsrya*) at the site of deformity of channel (*kha-vaigunya*).	Starts reaction with the weak cell membrane.
Site of *aama* formation		
10.	Fire (*agni*) is pervading each and every cell of body. By its weakness *aama* may be formed in any part of body.	The production of free radical takes place in any cell of the body.
Line of treatment		
11.	Reduction (*laṃghana*)	Antioxidant therapy which removes causative factors, inhibits generation of reactive oxygen species.
12.	Carminative (*deepana*)	Use of certain drugs which increase the action of antioxidant enzymes like super oxidase dismutase.
13.	Digestive (*paacana*)	Certain substances like vitamin C, have properties to neutralize the free radicals either by donating or accepting electrons.

Recent research has shown that the presence of free radical in the body is the direct cause of a number of diseases. The startling fact is that along with the health building processes we have millions of potentially deadly weapons within cells and fluids inside our bodies. These weapons are loose cannon molecules known as free radicals.

Production causes: -

Exogenous – Improper food and activities (*mithyaa-aahaara-vihaara*) – Pollutants, dangerous chemicals and certain food products.

Endogenous- Produced due to dull bio-fire – Due to deficiency of certain enzymes like SOD.

How free radicals produce damage?

1. Tens to thousands of free radicals are produced in body every second; these are so dangerous that critical body components, such as DNA (the genetic material that directs the manufacture of each cell) can be altered by them. Free radicals damage DNA in genes by oxidizing the DNA nucleic acid bases (adenine, thymine, guanine and cytosine) that hold the double strands of the helical shaped DNA molecules.

2. Free radicals cause oxidation of fatty compounds that are vital components of hormones and cell membranes.



3. Free radicals can also fuse proteins together cross linking them so that they do not function normally.

Aama and its Antigenicity

Partially digested substances accumulated at the level of intestine may lead to the gastroenteritis. The part of *aama* absorbed through intestinal mucosa circulates all over the body and performs the role of antigen. An antigen is defined as a substance, usually a protein, which when introduced into the tissues, stimulates antibody formation.

Two types of antigens can cause immune complex mediated tissue injury.

1. Exogenous antigen

2. Endogenous antigen

Since *aama,* resultant of hypo functioning of *agni,* is a morbid factor, and also incompatible food items being one of the prime factors responsible for the formation of *aama*, it can be considered as exogenous production of antigen.

Aacaarya Vaagbhaṭa was the first to mention the internal formation of *aama* without the involvement of bio-fire and food. According to him excessively vitiated humors may combine to form *aama* leading to endogenous production of antigen.



Ayurveda has a unique approach in pregnancy care. The general metaboloic errors of the pregnant woman badly affect normal development of fetus.

Biologically *aama* can be considered as a pure mixture of undigested protein, carbohydrate, fat and bacterial contents and some of its protein content must find access into the general circulation to be termed as antigen. Normally the intact protein or undigested protein absorption will not take place, but under some circumstances whole protein molecule do gain access into the systemic circulation to cause serious immunological disturbances.

Thus we can conclude that: -

1. As an antigen *aama* can induce immunological reaction in body.

2. *Aama* is supposed to act as an exogenous antigen by virtue of its protein and bacterial content.

3. *Aama* can also be generated within the body.

Autoimmune factors responsible for abortions: Approximately 15% of over 1000 recurrent pregnancy loss patients have recognized auto immune factors. The most significant antibodies have specificity against negatively charged phospholipids and are most commonly detected by testing for Lupus anticoagulant and Anticardiolipin antibody.

Mechanism of pregnancy loss in these women is thought to involve placental thrombosis and infarction. Possible mechanism of antiphospholipid antibody is –

1. Endothelial cells normally convert plasma membrane arachidonic acid into prostacyclin, which is released into the circulation and prevents platelet aggregation. Antiphopolipid antibodies may predispose to thrombosis by inhibiting endothelial cells from producing prostacyclin.

2. Platelets normally convert plasma membrane arachidonic acid into Thromboxane, which is released and induces platelet aggregation. Antiphospholipid antibodies may increase thrombosis by enhancing Thromboxane release.

3. During clotting, thrombin forms a complex on the surface of endothelial cells with its receptors, thrombomodulin. The Thrombin / thrombomodulin complex is enzymatically active and can activate circulating protein C. The activated protein C binds with protein S on the surface of endothelial cells (and Platelets). The protein C/ protein S complex degrades circulating activated complex of the clotting cascade, factors Va and VIIIa . If factors Va and VIIIa were allowed to remain in the circulation, they will increase coagulation activity of blood.

So *aama-garbha-sraava* is abortion (*garbha-sraava*) where free radical damage to embryo occur or due to auto immune factors. It is observed in clinical practice. Abortions due to above causative factors are mostly inevitable and difficult to treat as mentioned in concept of *aama-garbha-sraava*. At first we have to treat the aama, after that we can employ the



treatment of *garbha-sraava* as mentioned in principle of treatment (*cikitsaa sootra*).

The limit of *aama-garbha-sraava* is mentioned till six months of gestation by Dalhana. It is also the limit of abortion (24 weeks of gestation). Loss of fetus afterwards is premature delivery.

Commentator Indu mentions that if *aama* is present after three months of gestation, abortion is inevitable. If not, we can control abortion even after bleeding. So *aama-garbha-srava* is not the first trimester abortion, but *aama* can be present till six months, the total limit of abortion.

Treatment of *aama-garbha-sraava*

1. Use of dry and cold substances is beneficial.

2. After observing fast, the decoction made with Indian stinging-nettle (*Tragia involucrata = duraalabhaa*), tinospora (*Tinospora cordifolia = amrta*), Vetiver (*Vetiveria zizanioides = useera*), popadum grass (*Hedyotis corymbosa = parpataka*), nutgrass tuber (*Cyperus rotundus = Ghana*), sandal wood (*Santalum album = candana*), atis root (*Aconitum heterophyllum = ativishaa*), Sida (*Sida cordifolia = balaa*), ailanto (*Ailanthus excelsa = katvanga*) and coriander seeds (*Coryandrum sativum = dhaanyaka*) should be prescribed.

3. Millets (*trna-dhaanya*) and *saali shaashtika* rice should be used in the form of gruel or solid diet.

4. Soup prepared with green-gram (*mudga*) etc. should be prescribed in diet for digestion of *aama*. Once the state of *aama* is corrected, cold and unctuous measures should be employed. Unctuous measures alone also are of use.

5. The major factor in increased free radical generation is excess calorie intake. So, low calorie diet is beneficial to reduce oxidative stress. Cold substances have astringent properties and are opposite to menstrual blood (*aartava*). So they help in checking bleeding due to *Garbha-sraava*.

After observing fast use of certain drugs is mentioned. All these drugs have stomachic, digestive, analgesic and hemostatic properties. They digest *aama*. This combination is best for *aama-garbha-sraava*. Soup prepared with green gram, lentils etc. is prescribed. This combats pitta and kapha and is easily digestible. Hence it is beneficial in *aama-garbha-sraava* where there is predominance of pitta and kapha.

Treatment after expulsion of products of conception-

1. On expulsion of products of conception, for complete cleansing of uterus and relief of pain, wine may be given after considering her strength.

2. After use of wine, she should be given a fat free potion medicated with drugs of lesser five roots.

3. The woman not inclined to use wine should be prescribed either fat and salt free gruel made with sesame seeds (*tila*) and sebesten (*Cordia dichotoma = uddaalaka*), mixed with digestive drugs. A beverage made of sesame seeds, sebesten may be used instead. Or else, rice prepared with decoction of greater five roots and medicated with paste of five acrids (*panjcakola*) may be given. The duration of use of this diet should correspond to the duration of pregnancy. If the pregnancy was of two months, this dietetic regimen should be given for two days.

4. A fat and salt free light potion prepared with appetizing drugs is beneficial.

5. In cases of abortions of very short duration the decoction of bamboo buds, horse-gram and turmeric may be prescribed for cleansing the uterus.

6. Use of sudation is beneficial.

Lesser five roots contain puncture vine (*Tribulus terrestris = gokshura*), yellow-berried nightshade (*Solanum surattense = kantakaaree*), Indian nightshade (*Solanum indicum = brhatee*), three leaved viscous pea (*Pseudarthria viscida = saaliparnee*) and unifoliate tick trefoil (*desmodium gangeticum = prsniparnee*). All these drugs are digestive, diuretic, anti inflammatory and antiseptic.

The five acrids have antipyretic, appetizer, utero-tonic, antibacterial, antifungal, analgesic and ecbolic actions.

So it is evident from the properties of drugs that they are beneficial to recover from the trauma of abortion in post abortion period.

Summary

1. The etiological factors of *aama* formation, abortions and free radical formation are almost same.
2. *Aama* is unprocessed material in the body that executes its hazardous effects by impairment of bio-fire, vitiation of humors and adhering to channels.
3. Now a day, free radicals are compared with *aama* mentioned in Ayurveda.
4. As an antigen *aama* can induce immunological reaction in the body.
5. *Aama-garbha-sraava* is a *garbha-sraava* where more free radical damage to embryo or fetus occurs.
6. *Aama-garbha-sraava* is *garbha-sraava* where free radical damage to genetic material occurs in early pregnancy.
7. It also involves *garbha-sraava* due to Autoimmune and alloimmmune factors because *aama* has proved antigenicity.
8. *Aama-garbha-sraava* is difficult to manage, as abortions due to free radical damage, immunological factors and genetic factors are difficult to manage even in today's world.
9. Healthy diet and mode of life is mainstay to prevent amagarbhsrava. Antioxidant therapy is the only treatment to prevent *Aama-garbha-sraava*.

Conclusion

Aama-garbha-sraava can be correlated with the *garbha-sraava* (abortion) due to immunological factors, genetic defects due to free radical damage and *garbha-sraava* associated with factors leading to oxidative stress. Antioxidant therapy (*Rooksha-seeta bhojana*) can prevent *Aama-garbha-sraava*.

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Traditional Formulations -1

In this column Kerala Ayurveda Vaidyam is providing the readers with traditional formulations which are not met with in classical treatises. The wisdom of these formulations was passed down through generations orally. Some of these formulations are recorded in the last century in regional formularies.



Wound Oil (*murivenna*)

This traditional oil was brought to the lime light from the former South Travancore (present Kanyakumari district of Tamilnadu, S.India) by a traditional physician belonging to *Naadaar* community. *Naadaars* practiced martial arts and sports medicine was an allied subject to it. Many members of the community were expert bone setters and *marma* practitioners. *Marma* practice comprises of treatment of trauma to the vital areas of the body. Sree O. Kesavan Naadaar Vaidyar, appointed in Government Ayurveda College, Trivandrum by the Kerala Government to protect traditional medical wisdom, blessed the Ayurvedic community with this miraculous formulation. He was a follower of Siddhaananda Paramahamsa and a member of Siddha samaaja. The formula here is from the chapter Marma vaahata nidaanam from the book Agastya Marma Cikitsaa Saastram. The appointment was in the second half of 20th century. Dr. K.K. Nambiar, the then principal of the college included this formulation in the Ayurvedic formulary of the college which was printed and published under his guidance. The formulation gradually spread all over Kerala by the students of the College and is now marketed by many leading ayurvedic manufacturers of Kerala including Kerala Ayurveda Limited.

Though named as wound oil, it is also used for external application, massage, and bandaging fracture, dislocation, subluxation, sprain and soft tissue trauma. It is a wonderful healer of wounds and reduces inflammation, edema and is a panacea in the hands of traumatologists.

Ingredients

1. Indian coral tree (*Erythina variegata*) leaves 450 g
2. Onion (small variety) 450 g
3. Duck-smell (*Spermacoce hispida*) 450 g
4. Betel leaves (*Piper betel*) 450 g
5. Indian beech leaves (*Pongamia pinnata*) 450 g
6. Indian aloe (*Aloe barbadensis*) 450 g
7. Drumstick tree leaves (*Moringa oleifera*) 450 g
8. Wild asparagus tuber (*Asparagus racemosus*) 120 g
9. Rice wash of un-boiled rice 1500 ml
10. Coconut oil 1500 ml

Preparation

Extract the fresh juice of items 1 to 7 by pounding, sprinkling frequently with the rice wash. Make a paste of item 8. Add the juice, paste and oil and cook to optimal evaporation for external application and filter.

Notes

There are regional differences in this formulation. Balloon wine (*Cardiospermum halicacabum*), the leaf stalks of jack tree (*Artocarpus heterophyllus*) etc. are thus added to the formulation. Instead of the leaves of Indian beech, its fresh bark is also used.

The oil can be used as a gargle in stomatitis. It is hygroscopic and reduces edema. It is antiseptic and thus avoids secondary infection. The oil may be kept as home remedy to give first-aid in trauma and to treat minor injuries.

Several studies on the efficacy of the oil are conducted in Govt. Ayurveda College, Thiruvananthapuram, with positive results. ■

Banaras Hindu University ('BHU') enters into collaboration with Kerala Ayurveda Limited under Public-Private Partnership ('PPP') Model



Mr. Ramesh Vangal - Chairman, KAL signing the MOU with Banaras Hindu University, Varanasi.

Banaras Hindu University enters into a Memorandum of Understanding with Kerala Ayurveda Ltd. Kerala Ayurveda Ltd is a broad-spectrum Ayurveda company encompassing Products, Services and Education, with operations in India and US. Kerala Ayurveda Ltd is a pioneer in validating Ayurveda through modern science.

Speaking on the occasion, Prof. D.P. Singh, Vice Chancellor, BHU said "This is a momentous occasion in a year where BHU is celebrating the 150 th birth anniversary of its founder Pt. Madan Mohan Malaviya Ji". Prof. D.P. Singh went-on to add that Pt. Malaviya Ji was a visionary and believed in propagating India's ancient sciences and heritage. Prof. D.P. Singh also appreciated BHU's Faculty of Ayurveda in taking this initiative to have a Public-Private Partnership ("PPP"), which will be the first of its kind.

Under the proposed arrangement, Faculty of Ayurveda, Institute of Medical Sciences, BHU, will collaborate with KAL to undertake research and development in areas like geriatric care, cancer, anemia, metabolic diseases, including diabetes and epidemic prevention, etc.

Research will also focus on medicinal plants used in Ayurveda, both in North and South India, to determine the optimal combination for efficacy in line with authentic Ayurvedic texts. In addition, the venture will aim to establish standardization of classical Ayurvedic drugs for purity, safety and efficacy. Large scale and sustainable cultivation of medicinal plants at their habitat will be a key area of interest.

BHU and KAL will exchange best practices between the Northern Indian and Kerala traditions, in particular "*Panjca-karma*" therapies. The research will aim to validate the fundamental principles of Ayurveda and its therapeutic techniques through modern medical science.

The MOU was signed by Dr. K.P. Upadhaya, Registrar, BHU and Mr Ramesh Vangal, Chairman, KAL in the presence of Prof. D. P. Singh, Vice Chancellor, BHU. The meeting was also attended by Mr. Gokul Patnaik, Vice Chairman, Katra Group, Mr. Ambrish Singh, Chief Representative of KAL, Prof. Anand Kumar, Medical Superintendent, Dr. Chandramauli Upadhyay and Prof. Rajesh Singh, Chairman, PPP Cell. ■

Kerala Ayurveda Research Award

The most prestigious "Gaveshak Ratna Award" instituted by Kerala Ayurveda Ltd., Athani, Aluva., was awarded to Dr. K.S. Subha of V.P.S.V. Ayurveda College, Kottakkal. The awardee was selected from 78 candidates who submitted their PG various thesis for the competition from various universities all over India. The prize constituted of ₹ 2,00,000 certificate and a memento. The function was held at Quality Airport Hotel, Nedumbassery, in the presence of eminent ayurvedic doctors and professors from various Ayurveda Colleges, and was awarded by the most renowned Dr. C.K. Ramachandran, Retd. Principal, Medical College, Kozhikode.
The "Acharya Ratna Award" for the guide of the best thesis was awarded to Dr. C.V. Jayadevan of VPSV Ayurveda College, Kottakkal. The prize constituted of ₹ 50,000 certificate and memento.

The prize for the finalist of Research Award was also distributed in the same occasion. Dr. Roshini Anirudhan of Govt. Ayurveda College, Thiruvananthapuram and Dr. Poonam Gill of Gujarath Ayurveda University, Jamnagar were the finalists and the price was ₹ 25,000 certificate and a memento. The Prizes for the finalist guide was awarded to Dr. S.K. Ramachandran of Govt. Ayurveda College, Thiruvananthapuram and Dr. Manjusha Rajagopala of Gujarath Ayurveda University, Jamnagar. The Prize was ₹ 10,000 cetrtificate and a memento.

Chairman of Kerala Ayurveda Ltd Mr. Ramesh Vangal, Executive Directors Dr. K. Anilkumar, Mr. A.T. Jacob and Pro Vice Chancellor Dr. C. Ratnakaran of Kerala University of Health Sciences were also present in the occasion. ■



Dr. K.S. Subha of V.P.S.V. Ayurveda College, Kottakkal receiving the Gaveshak Ratna Award 2010 from Dr. C.K. Ramachandran, Retd. Principal, Medical College, Kozhikode.



Dr. C.V. Jayadevan, Prof. V.P.S.V. Ayurveda College, Kottakkal after receiving the Acharya Ratna Award from Mr. Ramesh Vangal, Chairman, Kerala Ayurveda Limited.



Dr. Roshini Anirudhan of Govt. Ayurveda College, Thiruvananthapuram receiving the prize for finalist from Dr. C. Ratnakaran, Pro Vice Chancellor, Kerala University of Health Sciences.



Dr. S.K. Ramachandran of Govt. Ayurveda College, Thiruvananthapuram receiving the prize for finalist's guide from Dr. C. Ratnakaran, Pro Vice Chancellor, Kerala University of Health Sciences.



Dr. Poonam Gill, Gujarath Ayurveda University, Jamnagar receiving the prize for finalist from Dr. C. Ratnakaran, Pro Vice Chancellor, Kerala University of Health Sciences.



Dr. Manjusha Rajagopala of Gujarath Ayurveda University, Jamnagar receiving the prize for finalist's guide from Dr. C.R. Agnives, Program Co-ordinator Gaveshak Ratna Award.



Dr. C. Ratnakaran, Pro Vice Chancellor, Kerala University of Health Sciences addressing the audience.



Award winners, finalists and guides along with Mr. Ramesh Vangal, Chairman, Kerala Ayurveda Limited.

Outstanding Entrepreneurship Award

*Kerala State Industrial Development Corporation Ltd. (KSIDC), on the occasion of its Golden Jubilee Celebrations, honoured Dr. K. Anilkumar, Executive Director, Kerala Ayurveda Ltd., with "**Outstanding Entrepreneurship Award**". This award was presented by Shri. Oommen Chandy, Hon'ble Chief Minister of Kerala at the function held on the 30th of July, 2011 at the Le Meridien Convention Centre, Kochi. Hon'ble Minister for Industries, Shri P.K. Kunhalikutty presided over the function. Mr. T.K.A. Nair, Chairman of KSIDC and Chief advisor to Prime Minister of India was also present in the occasion.*





A FEED BACK

Although I am an Indian, I have been living and working in Dubai for over 20 years. In spite of my awareness of Ayurveda, our ancient art of healing, I was ignorant of its benefits. Hence I was very skeptical about the results and beneficial rewards of Ayurveda that are to be personally experienced and to be believed in.

At this stage, I must admit that I came to Kochi, India, with no prior knowledge of the facilities that are available in this area for wellness by Ayurveda therapies. So when I was suggested treatment in Kerala Ayurveda Hospital at Aluva, I indeed was very lucky to have arrived at the best place which I found out during my stay here.

I have been a patient of hypertension (high blood pressure) and diabetes for over 15 years and I had open heart surgery 3 years back. I was also over weight. So my main purpose to go for Ayurveda treatment was to reduce weight and my waistline and to manage my diabetes better. Of course, for overall wellness, naturally!

On my arrival, Dr. Vasantha Kumari, Sr. Medical Officer, took notes of my afore-mentioned life style diseases and worked out a program that consists of strict diet of fruits and vegetables, therapies of synchronized herbal powder massage (*udvartana*), oil massage (*abhyanga*), butter milk irrigation (*takra-dhaara*) to sooth nervous system, retention procedure for eye (*netra-tarpa*n*a*) and leaf-pouch-fomentation (*patra-po*t*ala-sveda*) for joint pains.

During my 12 days stay here, I was pleasantly surprised to get the results – I was taken off Insulin (My diabetes level was maintained at around 105 mg/dl) and I had lost a net weight of 7.4 Kg.

I am very thankful to all the staff at Kerala Ayurveda Hospital at Aluva who takes care of all residents in this facility. Rooms are quite comfortable with attached bathrooms with TV, A/C and comfortable beds which are serviced daily. Food is very hygienic and is served hot. To complement Ayurveda therapies, the hospital also provides a daily session of Yoga consisting of *aasana, praa*n*aayaama* and meditation, which really works on our mind, body and soul, naturally.

All in all, I had a wonderful experience and firmly believe that all people should avail of this eternal Vedic Science of Life and the traditional natural healing system of India.

Also please try to advertise and market this facility more forcefully through electronic and print media all over the world so that all mankind can use your services, atleast once in their lifetime.

Dinesh Sood
Managing Director/Reliance Management Consultants
P O Box 186955, Dubai, U A E

1 Aug 2011

Ayurveda Expo 2011

" Ayurveda Expo 2011 " which was held on July 2011 at Bandarnaiyeke Memorial International Conference Hall a very prestigious location in Srilanka. This mega event was jointly organized by the National Chamber of commerce of Srilanka and Srilanka Export Development Board.

Kerala Ayurveda Limited had an opportunity to participate and show case its strength of being one of the leaders with an expertise of 65 years in the field of Ayurveda.

This mega event was inaugurated by the President of Srilanka H.E. Mahinda Rajapaksa. This event was attended by many ministers and dignitaries. Hon. Minister of Indigenous Medicines, Salinda Dissanayake and Hon. Secretary Bandula Dahanayake showed keen interest in having our Academy and classical ranges in Srilanka market.



Hon. Minister of Indigenous Medicines, Salinda Dissanayake and Hon. Secretary Bandula Dahanayake during their visit at KAL Stall, Srilanka.





Views of KAL Stall at Srilanka.



Kerala Ayurveda Stall at Natural Product Expo West 2011 - Anaheim USA.

5000 years old curative wisdom for the wellness of mankind

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Kerala Ayurveda Hospital Aluva

A unique healthcare centre

Kerala Ayurveda Hospital is located near the river Periyar, where the famous festival of Sivarathri dedicated to Lord Siva takes place every year. The hospital at Aluva is full fledged and is the main referral Ayurveda Hospital having the infrastructure facility to accommodate 30 in-patients at a time. Here all Ayurvedic treatments are performed under the supervision of expert doctors adhering to all the traditional Ayurvedic practices of Kerala. Patients from all parts of India and abroad reach Kerala Ayurveda Hospital for availing treatments for various ailments. It is only 12 Kms. away from Cochin International Airport and hardly 2 Kms from Aluva Railway station and is also very close to the National Highway 47.

Highlights

- Full fledged in-patient facility with Deluxe rooms and ordinary rooms.
- Daily out patients consultation from 8.00 am to 8.00 pm.
- Advanced diagnostic facilities.
- Clinical lab.
- Computer aided patient profile.
- Full fledged Pancha-karma theatres.
- Yoga and meditation facility.
- Specialized diets for patients considering the pathyahara (wholesome food).
- Round the clock nursing and medical care.
- Internet browsing facility.

Kerala Ayurveda Specialty Clinic

The Kerala Ayurveda Hospital provides specialty consultation clinics by a panel of eminent doctors who collectively diagnose and prescribe the remedies for the effective treatment of Diabetes, Gynecological diseases, Joint diseases and Eye diseases, comprising advanced scientific approach on the above ailments to track and tackle chronic conditions. Very renowned physician, Padmasree Dr. K. Rajagopalan MBBS, DAM, FAIM chairs the panel of doctors.

Bank Road, Aluva, Ernakulam Dist. - 683 101.
Tel: 0484 2626119 / 2623578





Dr. K.V. Dilipkumar
Professor & H.O.D., VPSV Ayurveda College, Kottakkal

Yoga in Pregnancy

Giving birth to a child is considered as the major event in the fulfillment of a woman's life. When she prepares to attain the long cherished dream through the act of procreation, fear and apprehensions often cloud her mind – "Will I be able to shoulder this responsibility?" "Am I healthy enough to give birth to a child?" "Can I be able to withstand the labor pain?" "Whether the child is male or female?" "Will the child be healthy?" "Will the previous experience of abortion repeat again?"

In olden days there were many social support mechanisms in our society to quell such apprehensions. Changing social setup from joint family to nuclear family and fast life made the women more vulnerable to stress induced emotional changes. In addition to that, nutritional problems, environmental factors, social factors and genetic factors will have influence on the progeny. Amidst all these adverse factors, pregnancy and delivery mostly take place as natural physiology. Now this natural phenomenon is facing a great challenge from medical fraternity which almost succeeded in projecting pregnancy as a disease condition.

Yoga and pregnancy

Yoga can be of great help in bringing back the natural environment in pregnancy. It prepares both body and mind for new situations and changes that occur during and after pregnancy. Yoga has a holistic approach in maintaining the health, prevention of diseases and to provide a positive health to the progeny.

Holistic management of Yoga in pregnancy

In the management of health and disease Yoga perceives the multiple dimensions of human existence from gross to subtle. This approach is on the basis of the five sheath theory (*panjcakoṣa-siddhaanta*) that views human being as a conglomeration of sheaths viz. physical (*anna-maya-koṣa*), energy (*praaṇa-maya-koṣa*), mental (*mano-maya-koṣa*), intellectual (*vijnjana-maya-koṣa*) and spiritual (*aananda-maya-koṣa*) sheaths. Though the changes in pregnancy visibly manifest in the body, i.e., physical sheath, some of its roots are in the deeper layers of energy sheath, mental sheath, intellectual sheath and even spiritual sheath. Even though these layers are not strictly compartmentalized, still they overlap and diffuse into each other. Any change occurring in any one of the layers will influence others. For e.g., an increase of body weight can affect cardiac function and mood of the woman. Similarly an emotional problem can alter blood pressure and may lead to eclampsia. Hence a multidimensional approach is necessary to provide a complete care in pregnant women.

Pregnancy is a time of tremendous changes in the physical fabric of woman in a short span and yet it is considered as wellness. A change of body weight in the range of 9.70 – 14.55 kg for single fetus in 40 weeks is normal in pregnancy. Uterus increases five to six times in size, 3000 to 4000 times in capacity, and muscle cells by 10 times its length. Kidney increases in length by 1 cm. There will be hyper secretion, edema and tissue congestion of the upper respiratory tract. The chest circumference increases by 5-7 cm. Diaphragm is elevated by 4 cm. There is 15 to 20% increase in oxygen consumption. The blood volume progressively increases 35 to 50%. Heart rate increases by 10 to 20 beats per minute and heart is elevated. Cardiac output increases 30 to 60%. Blood pressure decreases. Basal metabolic rate and heat production increase. Cervical and Lumbar lordosis increase. In initial stage the morning sickness and finally the labor pains!! Yet it is a healthy condition.

Despite having such a wide range of flexibility in physiology, the tendency to fall into pathologic ranges is not uncommon. Till recent past, malnutrition was the major reason for pathological changes in pregnancy. Today wrong lifestyle has emerged as major etiological factor for pregnancy induced pathology. Lack of ability of the body to cope up with these drastic changes adds up to etiology of unhealthy condition in pregnancy. Hypertension, eclampsia, gestational diabetes, itchy skin, fever, weight gain, swelling, back ache, diastasis recti, cold and cough are some of the common unhealthy conditions during pregnancy.

Physical Sheath

Management

Regulated activities and balanced nutritious food are the major requirements of the physical sheath in pregnancy. Along with normal daily household activities, yogic postures (*yogaasana*) should be practiced regularly as a daily routine.

Guidelines for practice of yoga postures

- Undergo a thorough medical examination before starting practice of yoga postures.
- Screen for preexisting musculoskeletal problems, posture and fitness level.
- Avoid balancing postures.
- Choose the specific posture for single muscle or muscle group; do not involve several groups at once.
- Do not allow movement of any joint beyond its normal physiological range.
- Avoid overstretching of hamstring and adductor muscles.
- Avoid supine postures for more than five minutes at a time after fourth month of pregnancy to avoid vena cava compression.
- Transfer from lying down posture to the standing posture should be very slow to avoid postural hypotension.
- Avoid breath holding practices that cause undesirable downward forces on uterus and pelvic floor and stress to the cardiovascular system.
- Ensure the voidance of urine and feces before practicing yoga postures.
- Start the practice with warming up postures and conclude with relaxing postures.
- Discontinue any posture which causes pain or other discomforts.
- Stop the practice when fatigue occurs and never practice to exhaustion.

Contraindications for practice of yoga postures

- Incompetent cervix; early dilation of cervix.
- Vaginal bleeding of any amount.
- Placenta previa; detachment of placenta before delivery.
- Rupture of membrane and loss of aminotic fluid prior to the onset of labor.
- Practice cautiously in maternal heart disease, maternal diabetes, multiple gestation, systemic infection, diastasis recti and hypertension.

Breathing practices

Hands in and out breathing

1

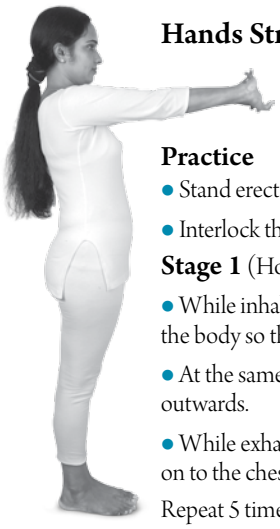


Practice

- Stretch out the arms in front, in level with the shoulders and bring the palms together.
- Inhale and spread the arms sideways in horizontal plane.
- Exhale and bring the arms forward with palms touching each other.
- Repeat 5 times, making the arm movements, continuous and synchronizing with the breath flowing in and out rhythmically.

Hands Stretch Breathing

2



Practice

- Stand erect and gently bring the hands in front of the chest.
- Interlock the fingers and place the palms on the chest.

Stage 1 (Horizontal)

- While inhaling, stretch the arms to straighten out in front of the body so that the arms are at shoulder level (90°).
- At the same time, twist the hands so that the palms face outwards.
- While exhaling reverse the process and bring the palms back on to the chest.

Repeat 5 times.

Straight Leg Raise Breathing

Practice

- Lie supine and stretch both hands above head. While inhaling slowly raise the right leg without bending the knee, as far as comfortable (up to 90°, if possible).
- While exhaling return the leg to the floor as slowly as possible.
- Repeat the practice with the left leg. Perform 10 times.

4



Leg Rotation

Practice

- Lie supine and stretch both hands above head. While inhaling slowly raise the right leg without bending the knee, rotate clockwise.
- While exhaling move the leg towards the floor as slowly as possible.
- Repeat the practice with the left leg. Perform 5 times.

5



2



Semi-cycle-posture (*ardha-chakra-aasana*) – neck stretching

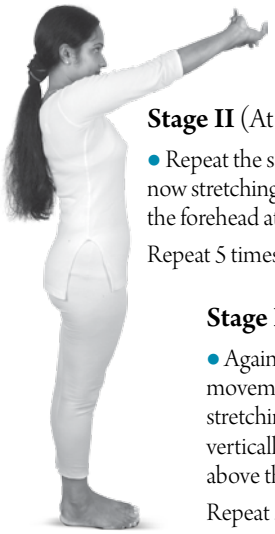
- Support the spine with both the palms and bend backwards with inhalation.
- Exhale and straighten the spine.

Triangle posture (*trikona-aasana*)

- Spread the legs half meter apart and spread the hands parallel to the floor.
- Bend body laterally and touch right hand on right foot with exhalation.
- Repeat same on left side.

3





Stage II (At 135°)

- Repeat the same movements now stretching the arms above the forehead at an angle of 135°.

Repeat 5 times.



Stage III (Vertical)

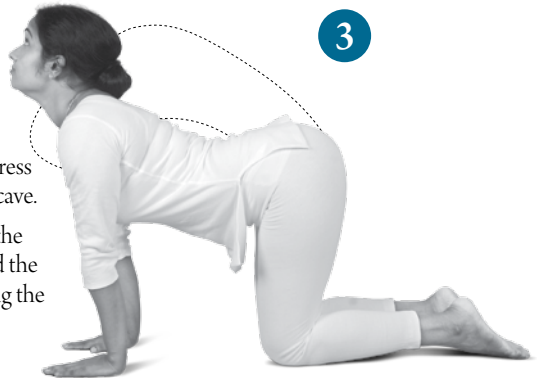
- Again, repeat the same movements, this time stretching the arms vertically (180°) above the head.

Repeat 5 times.

Tiger breathing

Practice

- Come to diamond posture (*vajraasana*). Lean forward and place the hands flat on the floor in line with the shoulders with fingers pointing forward.
- Arms, thighs and heels should be about one shoulder width apart.
- While inhaling raise the head and look at the ceiling.



- At the same time, depress the spine making it concave.
- While exhaling, arch the spine upwards and bend the head downward bringing the chin towards the chest.

Repeat 5 times.

Side-leg raising (*Parsva-paadottaana-aasana*)

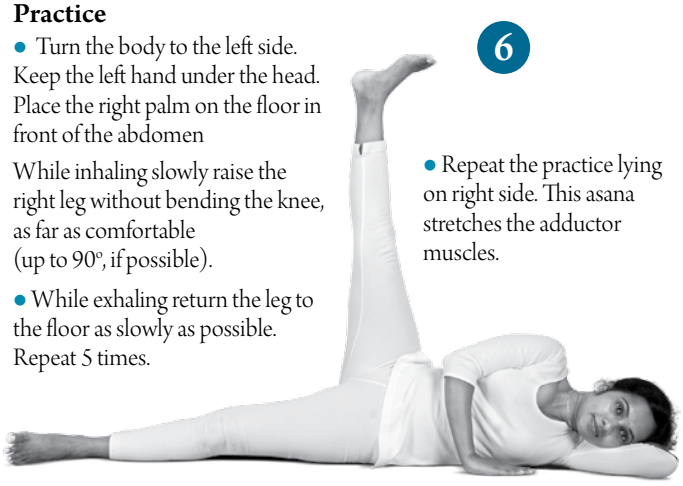
Practice

- Turn the body to the left side. Keep the left hand under the head. Place the right palm on the floor in front of the abdomen

While inhaling slowly raise the right leg without bending the knee, as far as comfortable (up to 90°, if possible).

- While exhaling return the leg to the floor as slowly as possible.

Repeat 5 times.



- Repeat the practice lying on right side. This asana stretches the adductor muscles.

Yogic postures Standing



Semi-lumbar cycle posture (*Ardha-katee-chakra-aasana*)

- While inhaling raise the right hand up and while exhaling bend the body towards left.
- Stay for some time and return.

Yogic Postures Sitting

Half Butterfly pose (*arddha-titali-aasana*)

- Sit on floor with your legs stretched in front.
- Bend the right leg and place your right foot on the left thigh.
- Hold the toes of the right foot with the left hand.



- Move the right knee up and down about 10 movements.
- Repeat on the left side.

Full Butterfly pose (*poorna-titali-aasana*)

- Sit on floor with your legs outstretched.
- Bend your knees and bring the soles of the feet together.
- Try to keep the heels as close to the body as possible.
- Grasp the feet with both hands and gently move the knees up and down
- Repeat up to 10-30 times and then straighten the legs and relax.



Gracious Pose (*bhadra-aasana*)

- Sit on floor with your legs outstretched.
- Bend your knees and bring the soles of the feet together.
- Try to keep the heels as close to the body as possible.
- Try to keep the knees close to the floor and stay for some time.

3



Cow-snout posture (*gomukha-aasana*)

- Sit on floor with your legs outstretched.
- Bend the right knee and keep the right foot close to the left buttock.
- Bend the left knee and place it over the right knee.
- Rise the right hand up and bend at the elbow.
- Bend the left elbow and hook the fingers behind the body.
- Repeat the same on the other side.

Stabilizing the scapular muscles.

4



Yogic postures
Supine

Folded leg lumbar stretch (*supta-udara-karshaṇa-aasana*)

- Lie on the back and hands spread sideward.
- Bend the knees so that the soles of feet touch the floor.
- Exhale and lower the legs towards the right, trying to touch the knees on the floor.
- At the same time move the head in opposite direction (in the left), it gives uniform twisting stretch to the entire spine.
- Reverse in original position and repeat the action on the other side by bending legs towards left, and head towards right.

1



Bridge posture (*setu-bandha-aasana*)

- Lie supine. Bend both the knees.
- Lift the hip from the ground and support with the palms.

2



Precautions for high risk pregnancies

- Avoid prolong static postures.
- If uterine contractions, aminotic fluid loss or bleeding occurs, modify or discontinue them.
- Keep the practice simple, Let the patient do it slowly, smoothly and with minimal exertions.

Special care during first trimester

- Avoid yogic practices during morning sickness.
- Avoid churning the mill Posture.
- Limit the practice for half hour per day.

Special care during second trimester

- Extend the duration of practice for one hour.
- Women can include aerobic exercises like loosening yoga exercise, walking, jogging, cycling and dancing with mild or moderate intensity.

Special care during third trimester

- Reduce the duration of aerobic exercises.
- Minimize standing postures.
- Minimize forward bending postures.
- Strengthen pelvic floor muscle with repeated contraction in *Vipareeta-karaṇi* (with wall support).

Energy Sheath

Energy sheath is the functional foundation of human being. '*Praaṇa*', the life force energy being the controlling factor of all the functions, any imbalance in the *praaṇa* can lead to abnormal physiology. *Praaṇa* is a subtle entity that spread all over the body through a network of *naḍees*. Just as any machine requires electricity, body requires prana for its proper function. A regulated voltage of electricity helps a machine to function normally, whereas an

Semi-camel-posture (*arddha-ushtra-aasana*)

- Come to diamond posture.
- Stand on the knees.
- Support the spine with the palms.
- Bend back as much as possible.

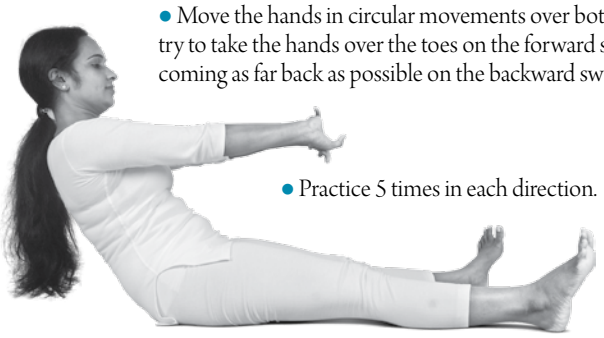
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Churning the Mill Pose (*chakkee-chaalan-aasana*)

- Sit on floor with legs stretched in front of the body about half a meter apart.
- Interlock the fingers of both hands and hold the arms out straight in front of the chest.
- Move the hands in circular movements over both the feet and try to take the hands over the toes on the forward swing and coming as far back as possible on the backward swing.

6



- Practice 5 times in each direction.

Flapping Fish Pose (*matsya-kreedaa-aasana*)

3

During the later months of pregnancy, it becomes difficult to lie on the back as it may cause pressure over vena cava and block the circulation. This is an ideal posture for relaxing and sleeping during such conditions

Practice

- Lie on stomach with hands resting under the head and fingers interlocked.



- Bend the left leg and bring the left knee close to the ribs.
- Keep the right leg straight.
- Rest the right side of the head on the right arm.
- Relax in the final pose for some time and then change the sides.

Benefits

- Improves the ability of abdominal muscles to contract strongly during pregnancy.
- Increase the tensile strength of ligaments by changing relaxin and progesterone levels.
- Prevents ligament injury of the weight bearing joints by reducing the laxity of ligaments and joint hyper mobility.
- Strengthens pelvic floor muscles and prevents pudendal nerve compression.
- Regulates metabolic functions and improves energy economy.
- Helps to improve postural balance.
- Strengthens scapular muscles to prevent cervical lordosis.
- Helps to correct the increased lumbar lordosis spontaneously after child birth.
- Prevents diastasis recti, postural back pain, sacroiliac back pain, varicose vein.

Model: Sugandhi Shibu, Yogaacharya - Samagra The Centre for Yoga Studies and Research, Kochi.

increased voltage and decreased voltage can spoil all its functions. The major difference between Electricity and *praana* is that electricity is not independent, whereas *praana* can function independently. Arrhythmia, dyspnoea, giddiness, tremor, spasms, insomnia, hypothyroidism, hyperthyroidism and lethargy are some of the examples of *praana* dysfunctions that manifest in pregnant mothers.

Management

Praanaayaama is the yogic solution for the functional imbalance. A regular practice of selected *praanaayaama* techniques can be much useful in prevention of these conditions.

Guidelines

- Purification of nasal passages like water cleansing (*jala-neti*) and string cleaning (*sootra-neti*) of the nasal canal are to be performed twice in a week
- Avoid Rapid/forceful exhalation (*kapaala-bhaati*) and Vomiting with lukewarm water (*vamana-dhauti*) practices.
- Practice only mild balancing *praanaayaama*.
- Do not practice holding of breath (*kumbhaka*) and bellowing (*bhastrikaa*) types of *praanaayaama*.

Practice

1. Channel cleaning respiration (*naadesuddhi-praanaayaama*)

Sit in lotus or diamond posture and exhale completely.

Close the right nostril with the thumb of right hand. Inhale slowly and deeply through the left nostril. After filling the lungs, without holding the breath exhale the air through the right nostril. Then Inhale through the right nostril fully and exhale through the left nostril. Repeat the practice for nine rounds.

2. Humming respiration (*bhraamaree*)

- Sit in lotus or diamond posture and exhale completely.
- Breathe in through both nostrils in such

a way that a fine sound like the one produced by a male bee is heard.

- Allow the breath to stop effortlessly, slowly exhale while producing a sound from the mouth and nose, so as to produce a sweet humming sound like a female bee.
- Hold the breath and slowly release.
- Repeat the cycle 5 times.

Mental Sheath

The influence of emotional changes on fetal health has been established in various studies. In one study it is observed that if the mother's stress hormones are high, baby prepares to recalibrate its brain and nervous system to be on high alert for potential threats. As the years pass, the alterations that took place in the womb—especially when coupled with an unlucky genetic inheritance, a troubled upbringing, or an unhealthy lifestyle—may lead to problems like heart attack, diabetes, osteoporosis, depression and schizophrenia.

If a woman is anxious for months at a time – say she's in a troubled marriage or is financially poor – high levels of the stress hormone cortisol may reach her fetus. Such a fetus doesn't need as many brain receptors to sense the presence of the hormone, so it develops fewer. But having fewer cortisol receptors changes a person's ability to cope in later life. The cortisol system has its own shut-off valve; when cortisol levels in the bloodstream reach a certain point, the body stops making the hormone and everything returns to normal. But people with fewer receptors don't sense that it's time to stop making cortisol until they're practically swimming in it. Living with high levels of cortisol not only creates wear and tear on the body but also makes it tough to handle strong emotions without lashing out or withdrawing, and it may lead to depression. Infants whose pregnant mothers developed post-traumatic stress disorder, after the September 11 attacks, were found to be more easily upset by loud noises and unfamiliar people. In a study of thousands of women in England, those who ranked in the top 15 percent for anxiety during pregnancy had children with double the rate of emotional and behavioral problems at the age of 10 years.



Just as challenges can bring out the best in adults, prenatal stress seems to benefit children sometimes: Two-year-olds whose mothers were moderately anxiowus or depressed during pregnancy performed better than average on reasoning and coordination tasks such as solving puzzles, stacking blocks, and manipulating small objects. On the other hand, one of the scariest risks for stressed-out pregnant women is the greater chance that their child will one day be schizophrenic. Israeli girls who were in their second month in the womb during the 1967 Arab-Israeli war were 4.3 times more likely to become schizophrenic than girls born at other times, and boys were 1.2 times more likely to develop the disease. Another study found that children of women who experienced the death of a close relative during the first trimester of pregnancy were also more likely to later develop schizophrenia.

Management

There are various measures to manage stress. Ventilation of emotions, changing



Pregnancy is not a period to idle. It is not a period for hard work either. Optimal yoga procedures are ideal for the pregnant women. They provide exercise without exhaustion.

the internal attitudes and perceptions and changing the reaction pattern to the environments are some of the techniques to overcome stress. According to Patanjjali, the author of the Aphorisms of Yoga, one of the two major objectives of Yoga is to thin down the stress (*kl̤eṣa-tanookaraṇa*). Different yoga practices like yogic postures (*aasana*), breathing exercises (*praaṇaayaama*) and meditations (*dhyaana*) can reduce stress.

Meditation

Meditation is the most effective technique for stress. The meditation helps to reduce activities of the body to a minimal level and provide a deep relaxation. A relaxed state of body in turn relaxes mind and reduces the thought process. When the thought of the conscious mind seizes the subconscious mind opens. It helps to eliminate the hidden emotions and relives the stress.

Practice

Meditation is a technique to expand internal awareness. Even postures performed slowly with awareness of all minute changes will have an effect of meditation. Stretching and relaxation of various groups of muscles and auto suggestions will help the body and mind to get much calmness. After achieving much relaxation sit comfortably in comfortable posture (*sukhaasana*) or diamond posture (*vajraasana*). Relax the body as much as possible. Observe the breathing continuously. Find the rhythm and slow down the breathing. Observe the thoughts entering into the mind and be a witness. Allow the thought to vanish on its own. Try to be aware of the feelings and allow it to take its natural transformation. Continue the practice until the mind becomes totally silent.

Intellectual Sheath

Concept of inner peace is to be taught to the pregnant women. Counseling is also useful to correct the wrong notions to clear off the fear and anxiety from the mind. Women should undergo a systematic education process to various aspects of pregnancy. As in the epic stories of Abhimanyu and Prahl̤aada, latest studies also proved the knowledge collection of mother can be useful for the child also.

Spiritual Sheath

A preparation for pregnancy at spiritual sheath is to be initiated from early years. All yoga practices those help to transform the personality of an individual to the highest state of existence are attributed to this sheath. Deep internal awareness and detachment from sensual pleasures are key practices in this sheath.

Various research studies conducted in India and abroad have already proved the efficacy and safety of Yoga practice in pregnancy. Many more studies are initiated to understand its action more precisely. ■

Powder Pouch Fomentation

(Coorna Pinda Sveda)
A Therapeutic Procedure



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Powder pouch fomentation (*coorna pinda sveda*) is a modified form of both external unction (*baahya-snehana*) and fomentation (*svedana*). According to Caraka-samhitaa it is the modification of pouch fomentation (*samkara sveda*). It is done with the boluses of various powders. It can be done unctuous (*snigdha*) or dry (*rooksha*) according to the condition of the patient. It may be applied either as local fomentation (*sthaanika or praadeśika sveda*) or as whole body fomentation (*sarva-daihika or sarvaanga sveda*). In unctuous pouch fomentation, oil is applied over the body and the pouches are heated with warm oil. It can be also done with liquids like grain-acid (*dhaanya-amla*) [Grain-acid is an acetic fermented liquid prepared mainly from grains].

The present study is under two headings: 1) Textual methodology and 2) Clinical profile.

I. Textual methodology

Materials required:

1. Suitable powder (coarse/fine) – 1 kg
2. Cotton cloths (45×45 cm) – 4
3. Strings – 4
4. Vessels (Iron) – 2
5. *Raasnaadi coorna* – 5gms
6. Towel- 1
7. Medicated bath powder (*snaana coorna*) – Q.S

Personnel

1. Two therapists for whole body fomentation and one therapist for part fomentation.
2. Attendant 1

Pre- operative procedures:

The powder should be fried in the vessel till it attains golden brown color. It should be divided into four equal parts and tied into four pouches. Patient should sit on the table (*droni*) and *Raasnaadi coorna* should be applied on scalp. If necessary apply a medicated pad (*tala*) on scalp.

Procedure:

The hot pouches should be gently applied over the body or affected part of the body, after confirming the temperature (42-45°c). Just pressing the body or affected part with pouches should be done without kneading. Both pouches are used alternately after reheating to maintain uniform temperature throughout the procedure. For the whole body it should be done for 30 to 45 minutes in seven positions as in body irrigation (*kaaya-seka*). If done locally signs of optimal fomentation (*samyak-svinna-lakshana*) are to be observed.

Post operative procedure:

After the procedure, the pad should be removed with cotton and *Raasnaadi coorna* to be applied again over the vertex. Patient should take complete rest for at least half an hour and should take bath in hot water if bath is not contraindicated for the disease.

Precautions:

- Care should be taken to prevent charring while frying and also while reheating the pouches.
- Therapists on both sides of the patients should massage with the bolus in a synchronized manner.
- If the patient feels any discomfort or attains good perspiration at any time during the treatment, the therapy should be stopped.
- Ideal time to perform the procedure is between 7-11 am and 3-6 pm.

Complications and management:

- Shivering: due to uneven distribution of temperature or if body is exposed to cold air immediately after the procedure. In such conditions, cover the body with a blanket, give warm liquid for drinking or give hot fomentation.
- Fainting: due to increased temperature. Treat appropriately.
- Rashes: apply honey and ghee or *Satadhauta-ghrta*.

Other suggestions:

- Eyes, heart and genitals must be protected from heat.
- Circular movements on joints and pressing movements on other parts of the body.
- Pouches should be applied in downward (*anuloma* – in the direction of hair) direction.

II. Clinical profile

Osteo arthritis (OA) is the end result of a variety of joint failures and is characterized by:

a) Degeneration of articular cartilage

b) Simultaneous proliferation of new bone, cartilage and connective tissue, resulting in remodeling of joint contour.

c) Secondary inflammatory changes of synovium.

OA of knee is a very common clinical presentation as knee is a weight bearing joint. Pain, swelling, crepitus, muscle wasting and restricted movements are the common features observed here. The goal of the treatment should be directed towards relieving symptoms, maintaining and improving joint function and minimizing handicap.

Sandhi-gata-vaata explained in Caraka-samhitaa, Susruta-samhitaa and treatises of Vaagbhata under *vaatavyaadhi* is congruent with OA. Unctuous sudation (*snigdha-sveda*) is one among the treatment modalities (*upakrama*) of vaata. As it fulfills the goals of treatment, this was taken for the present study.

Materials and methods:

20 patients of OA knee, between the age group of 35-65 years of either sex were randomly selected for the present study.

Treatment schedule:

• One day prior to the procedure laxation (*anulomana*) was advised with powder of *Terminalia chebula* (chebulic myrobalan – *hareetakee*) rind – 15gms in warm water.

• Fine powder of licorice (*yashti-madhu*) and galangal (*raasna*) (equal quantity) - one kg was made into four boluses as mentioned above.

• Sesame oil (*tila-taila*) was applied on the body (*abhyanga*).

• Duration of powder pouch fomentation for one week.

• Wholesome diet and activities that mitigate vaata are advised.

Criteria for assessment:

a) Pain

b) Swelling

c) Restricted movement

d) Crepitus and

e) Muscle wasting

were evaluated before and after treatment with appropriate gradation.

Observation and results:

1) Among 20 patients 12 were females and 8 were males.
2) All patients were having strainful work regularly.
3) 16 patients were following unwholesome food habits, untimely food habits.
4) 8 patients were obese.
5) 12 patients were having the history of constipation.
6) 6 patients were having habits like smoking, alcohol consumption and tobacco chewing.
7) Irregular sleeping habit was observed in 10 patients.
8) Psychological disturbance was viewed in 11 patients.

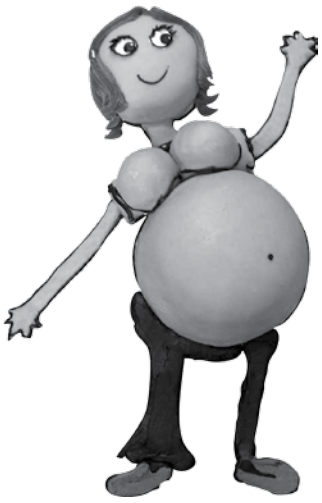
Etiological factors for *vaatavyaadhi* mentioned by Caraka-samhitaa viz excessive exercise (*ativyaayaama*), dry and light food (*rooksha-laghu-bhojana*), grief (*soka*), unwholesome activities (*ahita-vihaara*), keeping awake at night (*prajaagara*) and suppression of natural urges (*vega-avarodha*) were observed in present study.

After completion of course of treatment, following effects were observed. In 90% of patients pain was completely relieved whereas swelling was relieved in 80% of patients. Restricted movement was relieved in 86% of patients. Muscle wasting and crepitus were reduced only in 34% and 30% of patients respectively.

Both licorice and galangal have experimentally proved analgesic and anti inflammatory activities. Licorice is having cytoprotective and immuno-modulatory effects too. All these activities were observed clinically in the present study.

Above results reveal that unctuous powder pouch fomentation, a form of exterior cleansing treatment (*bahir-parimaarjana-cikitsaa*), is a safe, effective, easily administrable, patient friendly and cost effective topical methodology in treating osteoarthritis. ■

Skin care during pregnancy



Pregnancy hormones bring about huge changes to every part of a woman's body. To keep their pregnant bodies in top condition, they need to adjust their daily skincare to ensure that they feel and look great.

• Use a moisturising body wash wich will maintain the essential oils in pregnant skin and promote a healthy glow.

• Use a moisturising bath soak to re-hydrate the skin.

• Use products with UV filters to help and make sure you pay special attention to your face and hands.

• The turnover of skin cells is accelerated during pregnancy. Make sure you nourish and moisturise more than normal to keep skin looking healthy.

• Massaging your abdominal area with a tummy massage gel will keep skin supple and elastic in areas prone to stretch marks.

• After you wash, use a good moisturising body lotion to keep your skin in tip-top condition.

• Use a high quality, pregnancy-safe, facial cleanser for oily skin during pregnancy.

• Use shower or bath products which contain extra moisturising properties to maintain a healthy glow for pregnant skin.

• Use refreshing foot gel with menthol to pep up your feet during pregnancy.

• Drink a lot of milk and water of tender coconuts.

• Take butter, milk and ghee regularly.

• Milk consumed with saffron is good.

• White flesh of tender coconut is good for mother and fetus.

• Gruel of rice with milk, ghee and sugar is good and nutritious.

• Wash skin especially face with plenty of warm water and mild soap for dry skin.

Milk Steam Fomentation

Paalaavi (ksheera-baashpa-sveda)











Introduction

This is a variation of tube fomentation (*naaḷee sveda*). The difference is that medicated milk is used in the boiler and the process is usually done in neurological affections of head and neck. The procedure can be modulated for cosmetic purposes such as strengthening the facial muscles and removing wrinkles.

Synonym

The term *ksheera-dhooma* is usually used. It is a misnomer since *dhooma* means smoke. Smoke is not used for fomentation. This term is the literal Sanskrit translation of the Malayalam name *paal-puka* and it is better avoided. Even the Malayalam term *paal-puka* may be better changed to paal-aavi as it may sound more scientific.

paal [Mal.] = *ksheera* [Sans.] = milk

puka [Mal.] = *dhooma* [Sans.] = smoke

aavi [Mal.] = *baashpa* [Sans.] = steam

Indications

Facial paralysis, tempero-mandibular joint dislocation and paralysis of tongue, weakness of facial muscles, facial wrinkles.

Contra-indications

The contraindications for sudation are applicable, especially inflammatory conditions of the eye.

Time

Usually this is done in the afternoon when the sun is not very hot.

Course

This procedure may be done for 1 to 7 days according to the severity of the disease. Usually it is not done more than seven days. In rare cases it is done up to 14 days.

Materials and Equipment

1. Medicated oil for application on head, neck and shoulder – 50 ml. Oils like *kaarpasasthyaadi, ksheerabala, mahaa-raaja-prasaariṉyaadi, maasha-taila and mahaa-maasha taila* are used for the purpose. For cosmetic purposes cosmetic oils may be used.

2. Medicinal powder to be smeared on vertex – 250 mg. [*Raasnaadi-coorṉa or kacchooradi-coorṉa*]

3. Herbal leaves or coarse herbal powder to be boiled with milk – 50 g. Usually leaves or powder of the roots of sida [*balaa, kuruntoṯṯy* (Mal.) = *Sida rhombifolia ssp. retusa*] is used. Any other herb that has curative effect on vaata also may be used.

4. Milk 500 ml.

5. Water 500 ml.

6. Materials for bath [if indicated].

7. Blanket –1.

8. Cotton wool – one small pack. or wheat dough 100 g.

9. Bandage cloth.



Model: Harikrishnan

10. Lotus petals [optional]

11. Chair with hand rest.

12. Boiler with tube. Minimum capacity 2 liters.

The Boiler

There should be a boiler to generate steam. Domestic pressure cookers of five-liter capacity are ideal for the purpose. Remove the 'weight' from the steam out let. Connect a heat resistant rubber tube of two meters length tightly to the out let post. Insulate 15 cm. of the free end of the tube with appropriate material so that this area could be used as the handle of the tube. Instead, a convenient handle may be attached there. Conventionally a string tied towards the end was used as a handle.

13. Stoves 2.

14. A baffle plate with handle made of hard board or heat resistant plastic.[like a hand fan]

15. Room for fomentation.

16. Heat proof gloves for the operator.

17. Heat proof sheet.

Attendants -Two attendants are required.

Procedure

a) Preparation of steam

1. Pour the milk and water in to the boiler.

2. Add the chopped leaves or herbal powder to it.

3. Close the lid of the boiler.

4. Place the boiler on the stove and switch on the stove.

5. Let the mixture boil.

b) Preparation of the patient

1. Confirm that the patient is suited for the procedure.

2. Ensure that the patient is not very hungry or thirsty and that his stomach is not full.

3. Ensure that the patient is not under physical urges such as urination and defecation. If he is having such urges let him clear them.

4. Warm the oil for application slightly.

5. Apply the oil on head, neck and shoulders. The oil applied on head should not be hot.

6. Give a light massage on head (including face), neck and shoulders.

7. Seat the patient on the chair placed near the boiler assembly.

8. Protect the eyes. For this the conventional



method is to cover the orbits with dough and cover them further with lotus petals and secure the pack in place by bandaging. Now a day, cotton pads soaked in water are used as packs. Where lotus petals are not available, this method will suffice. When dough is used roll the dough into two spheres, compress them to form thick discs and place each disc on each orbit, after closing the eyes. At any rate the eye pack should be retained in place throughout the procedure

Note: - While one attendant is preparing the patient, the other attendant can prepare the steam so that when the patient is ready, steam will be available for the procedure. Only one stove will do if oil for application is heated over it before the boiler is placed on it.

c) Fomentation

1. Cover the lap and feet of the patient with the heat proof sheet.

2. Cover the head and trunk of the patient with blanket in such a manner that the breadth-wise ends of the blanket comes to the front and they can be approximated and separated to close and open the covering as a door.

3. Ensure that steam is coming out continuously through the tube.

4. Let the patient to lean forward and hold the flaps of the blanket. If the patient cannot hold the flaps, an attendant should hold it.

5. Open the blanket cover and one operator should hold the tube so as to direct the steam to the face of the patient. The steam should not directly hit the patient. The operator should hold the baffle fan in another hand and cut the direct hitting of steam on to the body of the patient. The tip of the tube should be kept at least 30 cms. away from the body of the patient and should be directed sideways. Frequently shift the direction of the tube.

6. Close the flaps of the blanket.

7. As the procedure progresses, frequently open and close the flaps. If not, the patient will choke or will get over heated.

8. When profuse sweating is observed stop the procedure.

9. Remove the covers.

10. Remove the covering of the eyes.

11. Wipe away the sweat and allow the patient to rest for some time.

Post operative procedures

a) Bath

Then the subject should bathe in warm water if bathing is permitted. If bathing is contra-indicated, wipe out the oil and sweat thoroughly and smear the medicinal powder on vertex.

b) Rest

The subject should rest comfortably for at least two hours. Bed rest is preferable.

c) Diet

Light watery diet is preferable after the process. Thin meat soups and watery gruel is preferable. Heavy food should be avoided.

Precautions

1. Steam should not directly hit the patient.

2. The tip of the tube should be slanting down and should point sideways to avoid condensed hot water from jetting out on to the body of the patient.

3. The condensed hot water should not drip on the lap or leg of the patient.

4. Do not cause the patient to choke.

5. Do not over-heat the patient.

Adverse effects and management

The adverse effects are accidental burns and effects of over sudation. They should be managed as mentioned in the chapter of sudation. If signs of dehydration occur measures of oral re-hydration should be taken. ■

[This article is part of the unpublished book 'A Handbook of Ayurvedic Procedures' by Dr. C. R. Agnives.]

SIN and SKIN

Dr. C.R.Agnives
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In the description of the pathology of many diseases in Ayurveda, sin is considered as an important etiologic factor. We find that the term *paapa* or *paapmaa* meaning sin is used as a synonym for disease. It is considered that some sort of sin is involved in the formation of disease. The sin may be a simple violation of a dietary norm or a wrong method of medication. It can also be a violation of an ethical norm. Hence antisocial activities like stealing and homicide are also sins. Ayurveda has enumerated ten sins, something like the Ten Commandments. The model disease in Ayurveda is fever (*jvara*). The term *jvara* is a synonym of disease and the term *paapmaa* is a synonym of fever. This again proves that sin and diseases are closely knit.

Sin generates guilt complex. If you commit a socially unacceptable activity, most secretively, no one else might know it. You may escape from the punishment for the crime most artfully as no one has identified the crime to victimize you. But no one can execute a crime without the knowledge of any one. If no one else knows it, the person committing the crime at least knows it. Even if he is escaping from the punishment his superego will not let him free. Time and again, it will remind the hidden criminal, playing innocent, by

Model: Aju

stating that "you have committed a sin." That is the story of 'Crime and Punishment'. These frequent free reminders become a nuisance for the psyche and soma of the criminal and they start to react to the self accusations. This irritation of mind may culminate in a fulmination, so that the personality of the person is shattered and as an escaping phenomenon the person may assume a new personality in which his or her act of sin is permissible. This is usually called the possession syndrome. Ayurveda has correctly identified that possession syndrome is the spontaneous emergence of a new personality. In other words there is non-personality in a person. If a person is of pious disposition, his sudden transformation into an arrogant personality is such a change. Agony and ecstasy replayed! Hence the simpleton suddenly turns into a god, beast or monster. Psychiatrists will label him as a patient or insane individual. If the society likes the new personality there are chances that the simpleton is simply adored as a God-man. If not, the society may stone him to death or burn at the haystack as a witch. It all depends.

Ayurveda states that such personality changes are motivated by three subconscious urges – violence, reverence and libido. If a feeble minded person has grudge with someone else and cannot exhibit his enmity openly as himself, he can turn himself to a rogue, another person and openly exhibit his enmity and shock everyone. Hence violence otherwise not permitted can be executed. So is the case of hidden libido, the unsatisfied sexual urge. If one cannot explore and enjoy sex because of his clean gentleman image, due to social taboos and restrictions, he can very well enjoy it in the crudest form by unconsciously changing his personality to that of a rapist or of a gypsy demigod (*gandharva*). Those who are not properly respected in his immediate society can gain reverence by changing his personality to that of respected elders, leaders or demigods. In any case, a sudden personality disorder is a condition deserving treatment.

Looking into the basic cause of such personality changes, Ayurveda identifies immediate or prior 'intellectual error' as the pre-conditioner. It also should have a weak mind as its backdrop. On the background of the mental feebleness, the intellectual error weaves the fabric to attire the personality so as to commit violence, seek sex or extract respect. But the manifestation of the personality change as a blast is effected by some precipitating factor, again of a criminal, antisocial or unethical nature. These precipitating factors that trigger the events are technically called vents (*chidra*) in Ayurveda. It is through the vent that the morbid personality enters the person and possesses him or her. In short a vent is a violation of any accepted ethical norm. The following is a sample list of such vents (A.H.U.4. 6-8): -

1. Onset of sinful activity
2. The maturing of a hated act
3. Solitude in forbidden places or at bewitching hours
4. Nudity
5. Contempt of preceptors
6. Perverted sex
7. Worship without hygiene
8. Mingling with unhygienic persons
9. Improper performance of rituals and religious activities

These usually form the curtain raiser or the opener of the Pandora's Box. Opening the Champaign bottle might spill and shatter the contents. Opening up a closed mind is more a tricky and risky job when there is the background of an intellectual error.

An intellectual error is a bad act executed inconsiderate of knowledge, memory and willpower. It means that the act is not based on correct judgment, correct memory and self restraint. Such an act is prone to be bad. But necessarily it need not be bad. Sometime by mistake you can do a good thing. In that case it is not an intellectual error. Only those acts culminating in evil or inauspicious ends are termed intellectual errors. Intellectual error is one of the three major etiological factors in Ayurveda, the other two being improper union of objects, and transformation.

In the case of a morbid sinful mind one may be able to mask it under the blanket of a borrowed personality. What about a sinful corpus? With what will we cover our body? The normal cover of the body is the integument called skin. Every sin reflects on the skin as pathological changes. From simple discolorations like anemia, rashes, cyanosis to pimples, eruptions and exfoliations and so on and so forth, skin reflects the mind and the body. A spotless skin with proper complexion, shining and shade is the index of health. Worries and hurries color your mind and consequently discolor the skin. They also denature the skin. You may flush on a thought worth shrinking, especially the skin of your face, expressing the hidden joy that you are enjoying with a bit of guilt feeling. Hence the lover may flush when caught red-handed by her friend on her secret affair. It is much of a sin. But how can you escape from the declaration of the sin by the skin? So is a bleached face on accidental revealing



of something hidden in your mind. How clever and efficient an actor or actress you may be, your sins will be flashing luminous hoardings on your skin. This is because emotions are mediated through hormones which control your peripheral circulation. These hormones that prepare you to react, fight or flight should have say on the circulation so that the circulation could cope up with the emergency to supply more energy to the muscles than the internal organs that could wait a bit to overcome the emergency.

The integument is the fort of your body. A crack or discontinuity on the skin means a vent for the whole external world to enter into you without your permission. That is bad. In a healthy refined system admittance without permission is an encroachment. It is an attack. It should be checked. Hence permission and permeability is important. There are natural ports for the normal entry of the exterior world into your personal world, yourselves. By passing the natural ports without a valid visa or through places which are not natural ports is sneaking in. Here shoot at sight is the golden rule. That is defense. If you have a worthy militia with intelligentsia to tackle the invaders, i.e., if you have a strong immune system, please don't worry. The system will tackle the problem. If not, your security is at stakes. The skin is your barrier. Anything outside the skin is not you. Anything that is not you will not go amicably with you. Anything that goes amicably with you should obey the rules of your biology. They should not stand against your biology and dictate commands for you to obey. The game in your body should obey the rules of your biology. Yes, play by the rules. They are not expected to dictate their rules on your biology and enslave your system. If they do so you will not be at ease. You will be in disease. Hence skin is important to enable you to stand on your own legs, to be a *swastha*, a healthy person.

Sin is capable of creating cracks on your skin fort by making you scratch on it. Sin makes irritation. Mild irritation causes itching of the skin. When there is itching, you naturally scratch. Scratching is an addiction. Once you scratch, you go on scratching until there is a burning pain.



Intellectual errors are major factors in ayurvedic pathology . Guilt complex is the product of intellectual error. They precipitate various physical and mental diseases. Many skin diseases are caused by guilt complex. A concealed guilt may be concealed from everyone else but not from the criminal. This is the story of 'Crime and Punishment'.

Burning pain at the site of itching and scratching indicates that your skin has a crack at that spot. Yes. You have attacked your skin fort and damaged it. You have let it open for the invading oppressors. Sin can direct you to let open your fort of defense voluntarily.

Guilt complex is a compulsive itching. You want to express the thing out. You want to confess. But how can you confess without others knowing that you have committed a crime? The most secretive confession is to scratch. According to the depth and gravity of the sin it can produce a masochist scratching episode to paroxysms of scratching to hurt you. A symbolic confession is scratching the back of your head before the boss. It is as good as saying, "Sir, I am sorry. I have done a mistake. I will not repeat it Sir."

[You scratch my back and I will scratch your back is a convenient mode of mutual confession and consolation. It is convenient as far as the confession secrets are not pronounced loud at the time and hour of furious enmity that is too common among friends. But however thick the friends are there is the primary human nature to find fault of others, especially with friends, and to spell it out loudly as an effective weapon to ground your rival, even though he or she is your best friend, or even spouse. Thicker the friendship, stronger should be the weapon to ground the enemy and weapons in social confrontations are always inevitably drawn from the armory of the enemy. So if you get a sin or two of your friend by a mutual scratch, store it. You may need it. But be wiser to think that he will also store your sins for the future.]

Coming back to the scratching sins, the commonest skin disease caused by constant scratch is eczema. The weeping eczema is a way of letting out the filth inside, the sin through the skin. But is it a very convenient mode of purging the sin? Of course, not! The skin is designed to sweat. Sweat is a waste. Hence skin is an excretory organ. The skin can also expel a bit of energy as temperature. That is all. You cannot purge your sin through the skin. It will tend to rebound, go back to the interior. It may go deep enough into the bony joints and cause arthritis. Not only eczema, psoriasis is also notorious for causing arthritis. Generally collagen diseases are associated with sin and guilt complex. The mental make up of persons with rheumatoid arthritis have compelled me to think that there is a strong psychic background for the disease. This is also true with psoriasis and eczema. Major skin diseases, causing deformity are included in the group of *kushṭha* in Ayurveda. They all begin with itching and itching has a strong psychic background. They may have a criminal background. Whatever you averse or disapprove causes itching in your mind and it is simply transferred on to the skin. It is usual for people to say that "It itches to see him." Any unpleasant thing can turn into an itch. This itching may be a disapproval of the methods of the society. In other words it is an incompatibility with the environment. Many revolutionaries have an allergy to the existing social system. That is why they want to change the system. That is why many revolutionaries were strong victims of asthma.

Asthma has a close relation with skin. It affects the respiratory system. The lungs are also excretory organs. It excretes carbon dioxide and water vapor. Drugs including alcohol are also excreted through the lungs. But can the sin be excreted through the lungs? Attempting it is good, but the fee levied is heavy. You will develop asthma. You can manage asthma with bronchodilators etc. But naturally, the sin tries to find out a better outlet. Sin seeks self expression. Usually the next way out is skin. Skin is not the natural outlet either. So the sin will have to cut open the skin and make its way out. Now that the victim is freed from asthma, his attention is totally directed in scratching the itching skin and generating wounds. As the wounds hurt, the next plight is to anoint the wounds with anti-inflammatory and antiseptic ointments and creams. As they close the channel, again the sin tries to come out through the lungs. This is a shuttling business. Asthma changes to skin disease and skin diseases change to asthma. On a closer look, the lung also is membranous like the skin. In fact all excretory organs are membranous. Look at the renal tubules. They are also thin membranes, just a cell thick. Naturally if you suppress asthma and skin disease together, the next victim of the sin is kidney. Treating skin diseases is usually a very close shave because you may cure the skin disease at the cost of the kidneys. Hence we should be able to handle the sin with care.

Religions have a method of freeing people from sins. It is confession. People confess because they believe that confessing will free them from sin. It is true. If you believe you will be saved. Some religions want you to confess to the agents of God. Others ask you to directly confess and confide to God. You may have your own choice. You may repent. In Ayurveda, repenting or restitution is a synonym of treatment. Sometimes, not always, it is far better than a thousand capsules, tablets and hospitalization. That is why Ayurveda often advises you to have divine therapy. Every science has its limits. When Ayurveda reaches its scientific limits, it resorts to divine therapy. But, the divine therapy is to be instituted not by the physician. It is done by a competent priest. Let God have his share and the physician may better satisfy with his own humble share.

There is another way too to purge out sin. It is the elimination therapy. It is mentioned that elimination therapy will cleanse the body and mind. It is supposed to give you a clean mind. Hence the five purification therapies of Ayurveda are as good as confession in eliminating sins and skin diseases. ■

Courses that carry you to career

Ayurvedacharya KGK Panicker, a doyen in the field of Ayurveda, founded Kerala Pharmacy (presently Kerala Ayurveda Ltd) in Aluva, Kochi. His mission was to promote the richness of Ayurvedic tradition by providing quality products and services to the humanity. Kerala Ayurveda Ltd is a research oriented pharmaceutical and healthcare company with a heritage of over six decades.

As an extention to Kerala Ayurveda hospital at Aluva, Kerala Ayurveda Academy is a unique place for developing efficient professionals and paramedical personnel with high caliber and professional skills. A team of most efficient and experienced mentors to impart theoretical knowledge and practical wisdom are employed at the centre.
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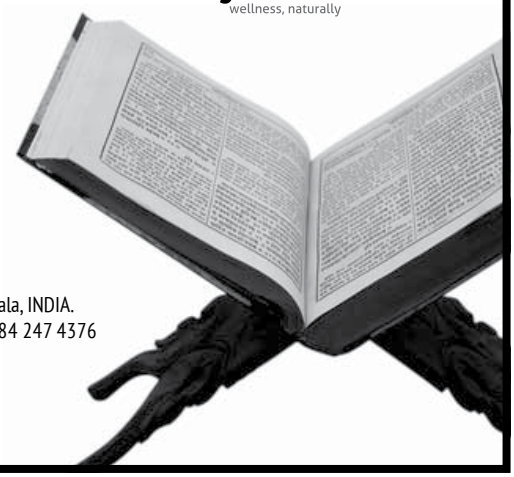
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A Case of Jaundice

Case of the trimonth



Dr. Sreeraj I. P
Senior Medical Officer,
KAL Hospital, Kasaragod

Patient named Sujana of 18 years came with fever, headache and body-pain. She had 102^{0}F temp. for one day.

Hematology	
Hb	11.6 gm/dl
ESR	7 mm/1hr.
TC	11200 cumm
Neutrophil	78 %
Lymphocytes	15 %
Esnophils	5 %
Monocytes	2%
SGPT	150 IU/L

Urine analysis	
Albumin	Faint trace
Sugar	Absent
Bile salt	Absent
Bile Pigment	Absent
Epi.cells	6-8
Pus cells	2-4

Considered the case as viral fever and prescribed the following medicines,

Amṛta-arishṭam+ *Sudarśana-asavam* - 30 ml. after food.

Vettumaran pills - 2 tablets with *arishṭam*

Tab.Histantin.

Tab. Septillin and

Dhanvantaram pills for five days.

After two days fever subsided but she had general weakness, severe abdominal pain, vomiting tendency, burning micturition, sleeplessness etc.

After 4 days she came. She had severe general weakness, upper abdominal pain, anorexia, nausea, severe pain on both legs and sleeplessness. The urine was dark and the sclera was yellow. There were enlarged cervical lymph nodes. So I suggested another blood test and urine analysis.

REPORTS		
Investigation	**Result**	**Normal range**
Blood		
Total Bilirubin	7 mg/dl	(0.2-1.2)
Direct	5.2 mg/dl	(0.0 –0.4)
Indirect	1.8 mg/dl	(0.2 –0.6)
SGPT	1170 IU/L	(8-40)
Hb	12 gm/dl	(12-16)

Urine	
Albumin	Faint trace
Sugar	Absent
Bile salt	Present (+)
Bile Pigment	Present (+ +)
Epi.cells	1-2
Pus cells	4-5

Now the case was diagnosed as **Jaundice (*kaamalaa*)** – Viral Hepatitis.

We may give the treatment of jaundice (*kaamalaa cikitsaa*) in all Viral Hepatitis cases. As per the text purgation followed by mitigation is to be attempted. **(*Recanam kaamilaartasya… tathaa prasamanee kaaryaa kriyaa vaidyena jaanataa*)**. Hence the following treatment was done:

Purgation with *Avipatti coorna* 15 gm mix with warm water in early morning.

Draakshaadi decoction + *Paṭolamoolaadi* decoction 15 ml + 60 ml sterile water.

Syp. Heposem - 10 ml thrice daily.

Tab. Liv.52 - 1-1-1

Dhanvantaram pills - 1-0-1 for 10 days.

Advised to take rest, avoid spicy and oily food and drink plenty of water.

After 10 days she came. She had occasional severe abdominal pain and general weakness. Her eyes were deep yellow in color. She had itching all over the body. Skin was also pale yellow in color. Urine was reddish.

On that day the following tests were done.

Platelet count: 276000

Blood test for Malarial parasite: Negative

Liver Function Test		
Investigation	**Result**	**Normal range**
Total Bilirubin	11.6 mg/dl	(0.2-1.2)
Direct Bilirubin	7.5 mg/dl	(0.0 –0.4)
Indirect Bilirubin	4.1 mg/dl	(0.2 –0.6)
Total Protein	8.0 gm/dl	(6-8)
Albumin	4.5 gm/dl	(3.5 –5)
Globulin	3.5 gm/dl	(2.5-3.5)
Alb/glb Ratio	1.2:1	
SGOT	55.0 IU/L	(5-40)
SGPT	88.0 IU/L	(8-40)
Alk.phosphate	212 IU/L	(25-147)

HBs Ag Negative

Blood Leptospira: Negative

Widal reaction	
S.Typhi O	Negative
S.Typhi H	Negative
S.Paratyphi A H	Negative

Sonography of abdomen was done.

Impression: Mild hepatomegaly, normal in texture, no other abnormality.

In viral hepatitis (Hepetitis A) development of jaundice may increase up to two weeks. With the above investigations we can exclude the other possibilities.

Medicines given:

Avipatti coorṇa 5 gm at bedtime with water daily.

Paṭolamoolaadi decoction + *Draakshaadi* decoction.

Tab. Nirocil 1-1-1

Tab. Heposem 1-1-1

Dhanvantaram pills 1-0-1

Advised to consume the juice of *taamalakee* (*Phyllanthus amarus*) 15 ml bd. and to drink 12 glasses of water daily.

After 10 days her symptoms almost subsided. There was muscle pain on both legs. Appetite was less. Urine colour normal. On that day the following tests were done:

Investigation	Result	Normal range
Total Bilirubin	3.1 mg/dl	(0.2-1.2)
Direct Bilirubin	1.5 mg/dl	(0.0 –0.4)
Indirect Bilirubin	1.6 mg/dl	(0.2 –0.6)
Hb	9.8 gm/dl	(12-16)

Advised to continue the same medicines for 10 more days.

Syp. Iogen 2 tsp bd.

Myaxyl Balm - For external application on both legs.

After 10 days

She was found to be very energetic, appetite was good and pain in the legs subsided.

On that day the following tests were done.

Investigation	Result	Normal range
Total Bilirubin	1.8 mg/dl	(0.2 – 1.2)
Direct Bilirubin	0.5 mg/dl	(0.0 – 0.4)
Indirect Bilirubin	1.3 mg/dl	(0.2 – 0.6)
Hb	11 gm/dl	(12-16)

Continued same medicines including Iogen.

Paṭolamooladi decoction was stopped, only *Draakshaadi* decoction was continued.

After 10 days

She was perfectly all right. On that day the following tests were done.

Investigation	Result	Normal range
Total Bilirubin	1.2 mg/dl	(0.2-1.2)
Direct Bilirubin	0.4 mg/dl	(0.0 –0.4)
Indirect Bilirubin	0.4 mg/dl	(0.2 –0.6)
Hb	12 gm/dl	(12-16)
SGPT	29 IU/L	(8-40)

Advised to take Tab. Heposem 1-0-1 and Iogen 1 tsp. bd for one month as a hepato-protector and to enhance immunity.

Theory

In jaundice, treatment should mitigate pitta but it should not be antagonistic to anemia.

'Kamilaayaam tu pittaghnam paandu-roga-avirodhi-yat' (A.H.Ci.16.40)

This case is to be considered as jaundice of the tissues (*sakhaasrita kaamalaa*), as indicated by the symptoms present (A.H.Ci.16.47, 48). Treatment to mitigate vaata-pitta and kapha-pitta are to be employed here. In this case *Paṭolamooladi* decoction and *Draakshaadi* decoction were given.

Draakshaadi decoction pacifies vaata-pitta. *Paṭolamoolaadi* decoction pacifies kapha-pitta. We can give both decoctions separately.

Paṭolamoolaadi decoction is very bitter in taste. In this condition with nausea, anorexia etc. giving *Paṭolamoolaadi* alone will not be ideal. Prescribing *Draakshaadi* + *Paṭolamooladi* will be more useful and patient friendly. In my experience this combination is very good in this condition.

Note

In all cases we need not mix decoctions. While mixing decoctions there should not be any incompatibility of potency (*veerya-viruddha*) or action (*karma-viruddha*).

It is also important to note that we may change the ingredients of classical formulations according to logic (*yukti*).

Posology

The dose of the medicine differs with various criteria. Here the patient is young and strength is low (*heena-bala*).

So 7.5 ml of each decoction is enough. ■

Rasam

Make Soup

Tuvar Dal 250 g
Cook in 1 litre water
Collect the soup after straining.

Mix with soup

Tamarind pulp 12 g and add
Tomato – 3 Nos. Chopped into pieces
Turmeric powder ½ teaspoonful
Chilli powder 1/4 teaspoonful
Coriander powder 1 teaspoonful
Black pepper powder ½ teaspoonful

Crush and add to the soup

Cumin seeds ½ teaspoonful
Garlic – 10 pods
Small onion – 1
A small piece of asafetida or a pinch of asafetida powder.
Ginger - a small piece
Salt to taste
Jaggery one small piece (optional)

Boil the soup

On boiling add some coriander leaves

After boiling

Season with oil, curry leaves, small onion and mustard.
Filter or decant the clear *RASAM* and use.

Instruction for use

RASAM can be used as an appetizer, as an after drink after a heavy meals and mixed with rice in the meal. It is a carminative and digestive. Regular use of *RASAM* will ward of digestive problems.

Note: -

The *rasam* with additional fried cumin powder is known as cumin *rasa* (*jeeraka rasam*). Similarly adding more black pepper to it makes pepper *rasa* (*mulaku-rasa*).

Now readymade *RASAM* powder is available. If you are using it follow the instructions on the cover of the powder.

Rasam can be prepared even without the initial dal soup. In that case plain water is used for mixing the tamarind pulp and making the tamarind water. In this case the product is better called *puli* (meaning tamarind or sour) or specifically Kottaarakkara *puli*. Kottaarakkara is a taluk in Kollam district.

The term *rasa* in Sanskrit has many meanings.
The tissue fluid or first tissue of the body is called as *rasa,* as it is the essence of food (*anna-rasa*). Taste (*madhuraadi rasa*), water, juice, meat soup (*maamsa-rasa*), enjoyment obtained from art and literature (*kaavya-rasa*), the emotions expressed in dance (*navarasa*), mercury, poison etc. are also termed *rasa.*

Rasam is a regular dietary article of South-Indian meals especially in Kerala and Tamil Nadu. ■



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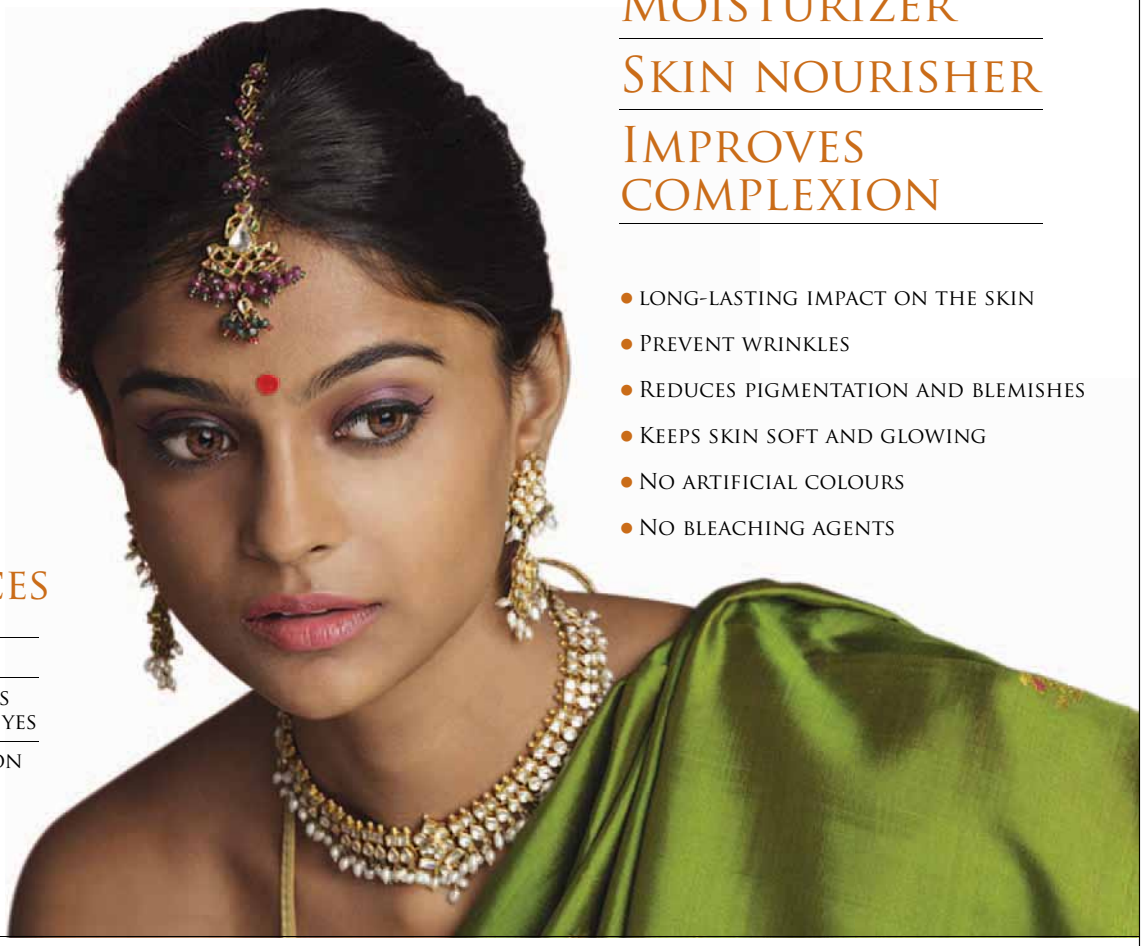
Bacopa monnieri (Brahmi)	300mg
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Clitoria ternatea (Shankupushpi)	200mg
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Ocimum sanctum (Thulsi)	100mg
Aegle marmelos (Bilwa)	100mg
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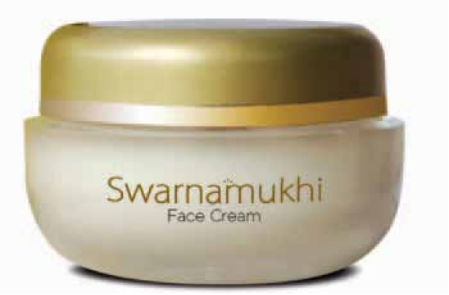
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