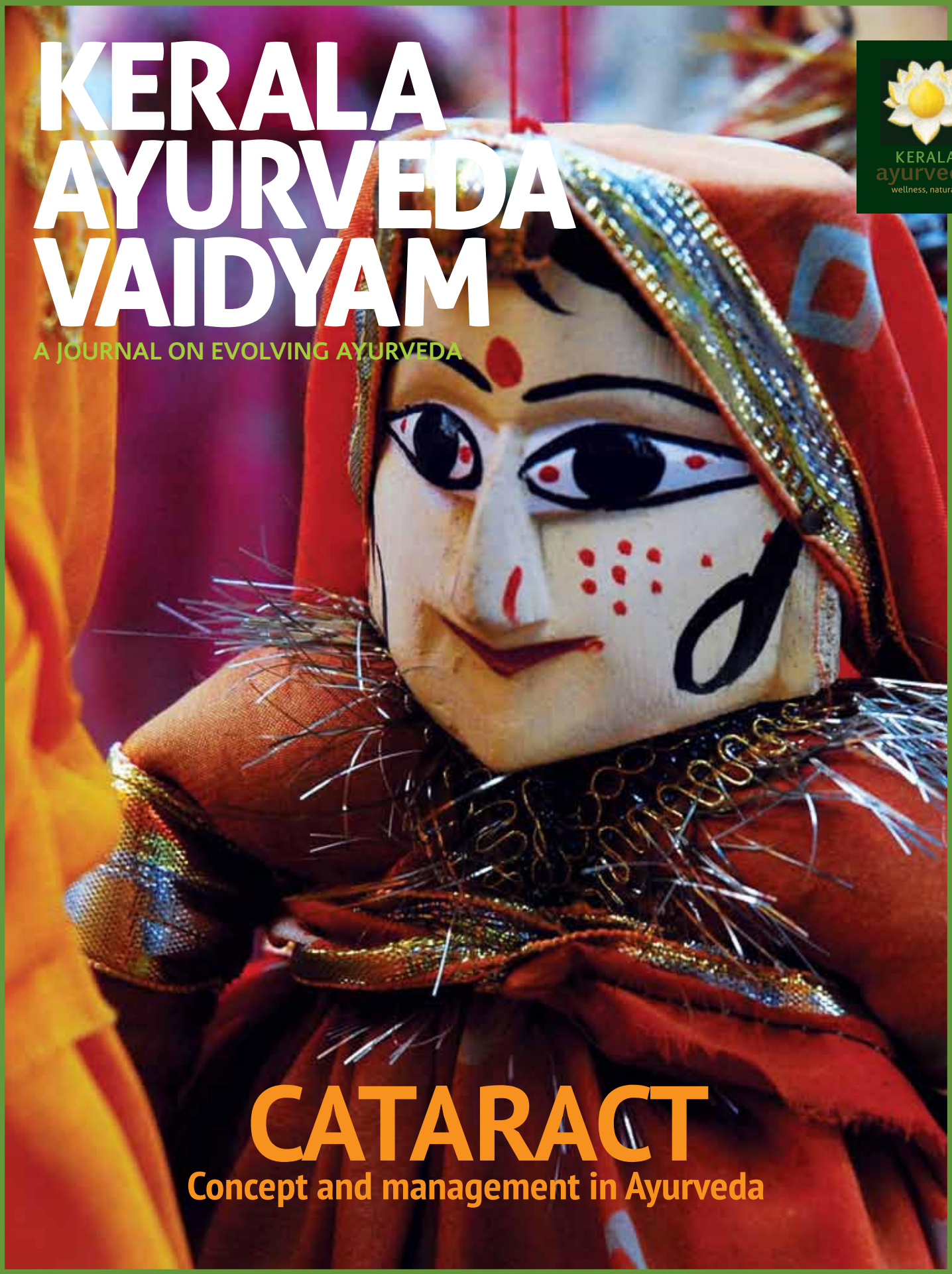
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KERALA AYURVEDA VAIDYAM

A JOURNAL ON EVOLVING AYURVEDA

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Concept and management in Ayurveda

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Ayurvedaachaarya Vaidyan
KGK Panicker
Founder of Kerala Ayuveda Limited

विमुखान्नार्थिनः कुर्यान्नावमन्येत नाक्षिपेत्।
उपकारप्रधानः स्यादपकारपरेऽप्यरौ।।



Do not turn away face to those who request you something. Do not contempt or insult them. Be mostly benevolent even to the enemies who are always intent at hurting you. (A.H.Soo.2.24)

To do benevolent things to those who favor, appreciate or praise you is nothing great. You should be great enough to help others even if they intent to ill-treat you or are harming you. That will be magnanimity. An eye for an eye is the old rotten rule. Helping others at the hour of need inconsiderate of their attitude to us is the highest form of humility and humanity. Do not ward off those who seek help from you. Help them according to your ability. If you are unable to help, do not misbehave to them by being sarcastic or rude. That will dehumanize you and you will be cheap. Don't be cheap. Be majestic.

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The Best Options of Ayurveda in the Career World



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Human life and the knowledge of its preservation as a continuous process and concern (in the face of overpowering and brute physical and biological environment) must have come into being almost simultaneously. Logically viewed, it has to be so. Historical evidences are conclusive to the fact that the art and science of healing existed in various configurations across the globe with striking similarities of function. There cannot be any other plausible explanation to account for the continuity of human race and survival of its several highly evolved bio-techniques in the backdrop of these remarkable human accomplishments.

In India, development and growth of the body of knowledge known as Ayurveda, meaning science of life, was in tune with the chronological growth and evolution of Indian civilization and culture. Vedas, which are considered to be the repositories of recorded Indian culture, have mention of this knowledge both in theoretical and practical form. There is discussion of theories about the composition of living and non-living matter, the physical, biochemical, biological, psychological and spiritual components of man and the vital motive forces working both inside and outside the body. In other ancient works there is mention of such current medical subjects like anatomy, physiology, etiology, pathology, treatment and environmental factors. This medical knowledge has been the work of ages.



Ultimate aim of the Teaching and Learning of the discipline 'Ayurveda' happens to serve the real life needs of various categories of people. During today's training in Ayurveda, the key skills required in the task are to have better observation, communication, numeracy, learning 'how to learn' and use of conventional methodologies as well as information technology.

It is the outcome of the great power of observation, generalization and analysis combined with patient labor of hundreds of investigators spread over thousands of years. All known cultures of the past - Egyptian, Babylonian, Jewish, Greek, Indus - Valley etc. had their own equally glorious and useful systems of medicine and health care. Futuristic considerations of Ayurveda must be appreciated at this level so that observations and predictions will turn extraordinary and refined.

Ayurveda is considered to have divine origin representing one of the oldest organized system of medicine for positive health & cure of human sickness. Making use of systematic and careful observations and documenting detailed experiences over the past several thousands of years, it has grown into a very comprehensive health care system with two major schools, of physicians and of surgeons referred in literature as '*Aatreya Sampradaaya*' and '*Dhanvantari Sampradaaya*' respectively. In course of time Ayurveda has progressed into a fully developed medical science with eight branches (basic specializations) which have parallels in the modern western system of medicine. In the last 50 years of development in teaching and training, it has developed into many sub-specialties of live traditions.

Ultimate aim of the Teaching and Learning of the discipline 'Ayurveda' happens to serve the real life needs of various categories of people. During today's training in Ayurveda, the key skills required in the task are to have better observation, communication, numeracy, learning 'how to learn' and use of conventional methodologies as well as information technology. Cognitive skills such as the understanding of methodologies or the ability in critical analysis and reflection are crucial. Subject-specific skills such as Laboratory skills, Clinical skills, and Therapeutic skills and professional etiquettes are mandatory. Above all, very good career awareness can be the single simple wisdom for the most successful candidate. This write up is to explore the scope of Ayurveda as a profession and line of business for a novice into this uncharted sea.

Ayurveda offers a variety of life and academic experiences. The best part of learning Ayurveda is to recognize and value these experiences. One has to identify the responsibility expected from adult learners while mastering the art of time management of studies with a clear mind focused on the aims and objectives. Thinking should be independent and tolerant with enough room for reflections. Ayurveda is one of the oldest medical sciences diligently following certain basic principles and practices kept unchanged over millennia. Curriculum and contents of the present Ayurveda education incorporate contemporary tools and language of science as well, often appreciated as two immiscible liquids in one jar. Great ability and balance is needed to integrate this ancient clinical wisdom to the present time in a measure of a variety of deliverables.

Educational opportunities in Ayurveda are well defined and systematized. Graduate, Masters, Post-Graduate Diploma and Doctoral levels of programs are open, admitted upon certain basic requirements and prior educational backgrounds. Having secured any of these qualifications, one can hook on to various domestic and global organizations in the healthcare sector. Entrepreneurship is challenging as in any other sector, but is highly rewarding as the demand for Ayurveda related products and services is steadily progressing. Herbal products and modified value added extracts belong to a special cluster, but can be integrated to Ayurveda on export possibilities and the chances arising time and again.

A Physician

Exploring the career opportunities in Ayurveda, the primary focus falls on the medical profession; a Physician practicing authentic Ayurvedic Medicine. Having trained for five and a half years stint, an Ayurvedic Graduate is expected to diagnose both acute and chronic ailments and prescribe necessary care interventions. Ayurvedic Medicine is rated to be superior in case of many chronic degenerative, auto-immune, metabolic, psychiatric, neuromuscular and musculo-skeletal disorders. Surgical conditions are to be identified and referred to appropriate centers while minor surgical procedures are contemplated if feasible. So is the case of emergencies and accidents, where one can identify the case and offer necessary first aid and pass on the case to secondary or tertiary level centers for proper management. With emerging sub-specialties in Ayurveda, experts in the field of surgery, orthopedics, ENT, ophthalmology, pediatrics, gynecology, psychiatry etc. are available with sufficient exposure to modern and conventional medical practices in relevant areas. Technically competent Ayurvedic physicians are on demand in the Government and private sectors catering clinics and hospitals.

Teacher

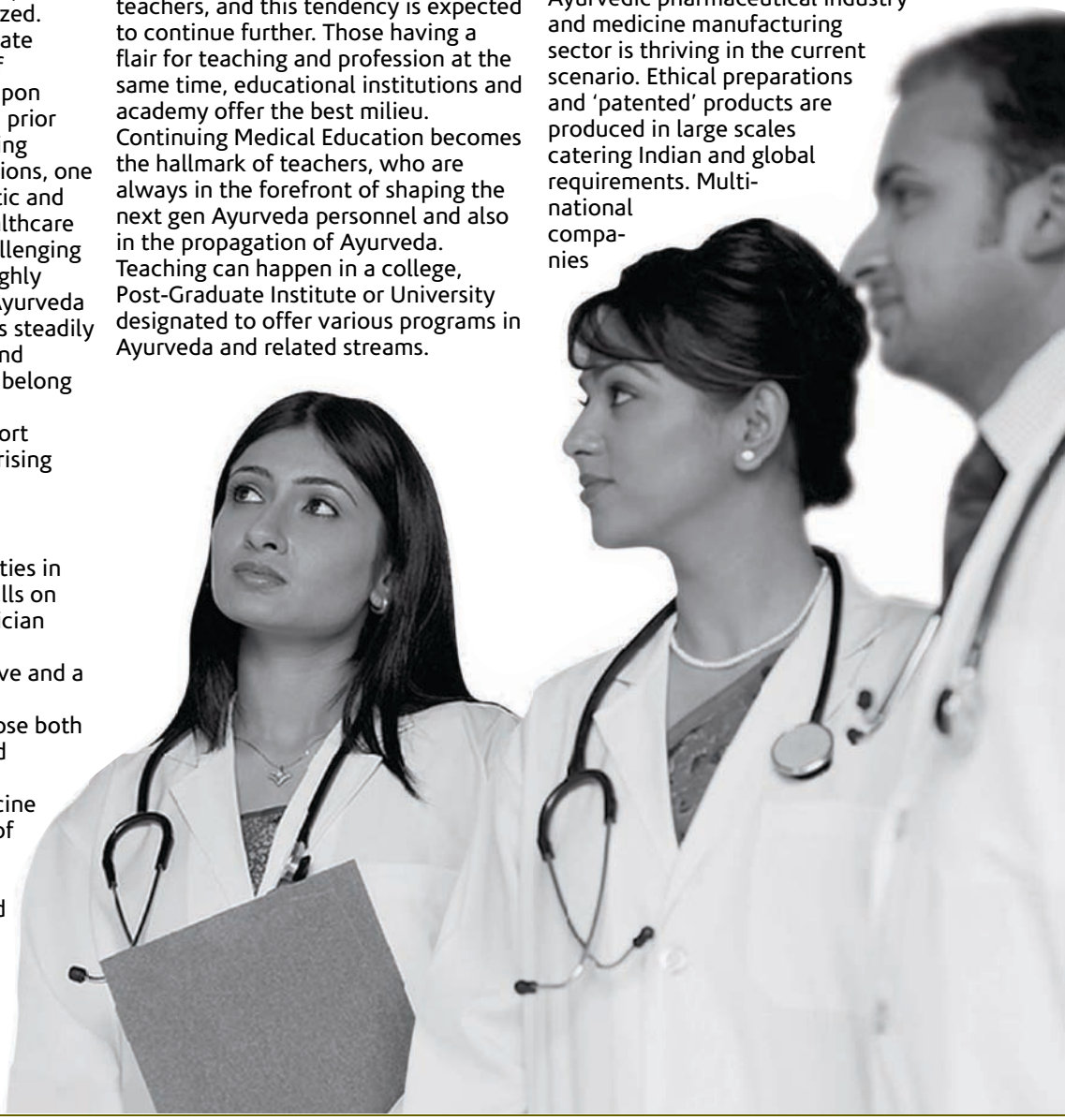
A master level study in Ayurveda is designed to produce skilled specialists as well as good Teachers of Ayurveda. Teachers are essentially required in Ayurveda Colleges and teaching hospitals. Recent trend has set number of Ayurveda colleges across the country creating dearth for qualified teachers, and this tendency is expected to continue further. Those having a flair for teaching and profession at the same time, educational institutions and academy offer the best milieu. Continuing Medical Education becomes the hallmark of teachers, who are always in the forefront of shaping the next gen Ayurveda personnel and also in the propagation of Ayurveda. Teaching can happen in a college, Post-Graduate Institute or University designated to offer various programs in Ayurveda and related streams.

Research Fellow

Research domain in Ayurveda is still unexplored. With the renewed interest of interdisciplinary areas of research, experts with cutting edge know-how are required by various organizations in both government and private sectors. Right candidate for the right project can contribute much while earning very good pay and perks. Fundamental research in Ayurveda is gaining momentum as the interpretation of principles is warranted at all levels of application. There are genuine attempts in ayurvedic research following the dictum of modern scientific research coming up with dependable models in healthcare. The 'original' trend of research making use of the ancient tools of Ayurveda is also in vogue, but often side-lined for want of 'evidence base'.

Quality Controller

Ayurvedic pharmaceutical industry and medicine manufacturing sector is thriving in the current scenario. Ethical preparations and 'patented' products are produced in large scales catering Indian and global requirements. Multi-national companies



are also in the fray, while small scale enterprises are getting firm footing. There are issues of setting standards for ayurvedic medicines, partially addressed by introducing GMP and other regulations. But the single issue of availability of raw drugs remains the growing crisis resulting in the escalating cost of products.
An ayurvedic graduate has several opportunities in the industry; in the supervisory, managerial and quality control sections. Entrepreneurship is really rewarding, but requires a strong R& D as well as marketing network. Areas like manufacturing ayurvedic food supplements and cosmetics are promising and there are successful companies with a track less than ten years!

Health Tourism

Medical tourism has opened up certain definite areas for a trained ayurvedic person. Accredited ayurvedic treatments such as '*panca-karma*' and '*rasaayana*' are globally marketed by many agencies and there is huge demand for genuine organizations providing these services. There are several major hospitals in metros offering Ayurveda facilities alongside competitive price tag for advanced surgeries and high-tech medical procedures. Export quality ayurvedic physicians are in demand for this sector as communication skill is the key requirement for anyone placed in this newly emerging field.

Ayuveda & IT

Information technology has marked its advent in Ayurveda as well. In the era of global village customs, electronic media and software techies are seriously into Ayurveda with simplified solutions across all the sectors of Ayurveda. This has made tremendous changes in the quality assurance of medicine manufacturing, setting standards, easing the research protocols, information dissemination and tele-medicine. Scope of ayurvedic physician who can also communicate electronically is increasingly recognized in recent times. Electronic giants like Google and Microsoft are planning to venture in every branch of medicine including Ayurveda. This is expected to turn around Ayurveda in an unprecedented manner.

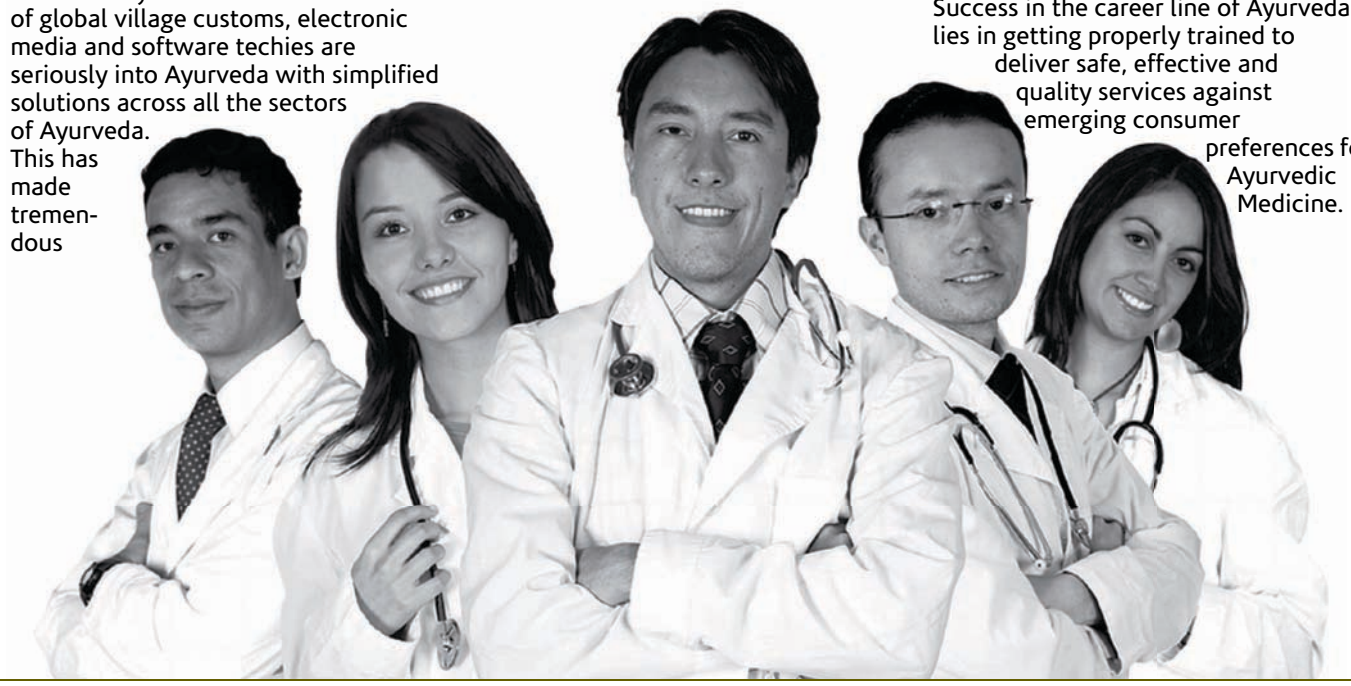
Lifestyle Consultant

The school of Ayurvedic lifestyle is slowly and steadily getting popular, to get universally accepted and accredited. The philosophical backdrop of Ayurveda projects and provides a superior art of living. Preventive, health promotive and curative potential of ayurvedic system of medicine is yet to be explored to its fullest degrees. The detoxification principles of Ayurveda are unmatched and there are internationally acclaimed scientists who believe in the true strengths of the rare specialties in Ayurveda. Skilled ayurvedic physicians are the backbones of centers offering these services at clinical or research levels. Going global, Ayurveda is rated as second amongst the CAM (Complementary and Alternate Medicine), Traditional Chinese Medicine being first. WHO has recognized Ayurveda in its schedule of CAM. There are new openings in the Middle East, Far East, Europe and United States for Ayurveda and related products. Several Ayurveda Doctors from India have migrated to these countries and are reasonably well placed, earning a good living. Opportunities are cropping up as several countries have accepted Ayurveda. Licensed clinics and Doctors are listed for providing authentic Ayurveda practices. Several universities in Europe and US are offering courses on Ayurveda creating positions for Indian trained Ayurveda specialists.

Identifying and analyzing the strengths and weaknesses in relevant areas of Ayurveda can equip the present day Ayurvedic graduate to pursue his career in the most accomplished style.

New attractions

World's interest in Ayurveda presently revolves around rejuvenation and detoxification therapies and formulations. Issues regarding the heavy metallic contents in ayurvedic tablets are part of the negative campaigns by the competitors of Ayurveda. It is a temporary phenomenon and has not affected the steadily growing demand of Ayurveda. Geriatric care interventions in Ayurveda are also in the limelight of modern scientists focusing on safety and efficacy. Identifying and analyzing the strengths and weaknesses in relevant areas of Ayurveda can equip the present day ayurvedic graduate to pursue his career in the most accomplished style. Success in the career line of Ayurveda lies in getting properly trained to deliver safe, effective and quality services against emerging consumer preferences for Ayurvedic Medicine. ■



CATARACT – Concept and management in Ayurveda

Dr. B. Mukhopadhyay M.D.(Ay)., Ph.D., D.O. Dy.NT.

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There existed a lot of misconceptions in the west regarding the lens, its position, structure and also about cataract during 16th and 17th centuries. The position of lens was thought to be in the centre of globe. Cataract was thought of as a corrupt humor in between the iris and cornea. In 1747 Jacques Daviel, a French surgeon, extracted the lens through an incision made on limbus which heralded better information regarding lens and cataract. Years before Ayurvedic seers have identified the structure of lens and have explained signs and symptoms of cataract as a lesion affecting the lens. Amazingly Susruta has detailed the indications, contraindications and complications of cataract surgery along with its management.

According to Ayurveda, cataract is a disease of the pupillary circular area (*drshti mandala*) which represents the refractive media of the eye and retina. Vitiated humors get lodged in different strata (*patala*) of *drshti* and cause various visual abnormalities culminating in blindness. There are three stages in this viz. *timira*, *kaaca* and *linganaasa*. *Linganaasa* is total blindness. The term *timira* is usually used by lay public, especially in Kerala, for cataract. But for an Ayurvedic ophthalmologist *timira* is visual failure of first degree due to various causes.

All pathologies generating defective vision are included under the diseases of *drshti* in Ayurveda. Susruta-samhitaa describes twelve diseases in *drshti*. Acaarya Vaagbhata describes 27 diseases in this area. The group of diseases *timira*, *kaaca* and *linganaasa*, six varieties each, put together constitute the majority (18) among the 27. These 18 varieties are sufficient to explain almost all pathologies related to visual failure.

Susruta-samhitaa has not enumerated *timira* among the diseases of the refractive media, but has detailed it in association with the 12 diseases mentioned by the book. It is considered as a defect and the status of full blown disease is not given to the stage. This may be perhaps of the inconsistency of the condition. It is incorrect to use the term *Linganaasa* for the initial phase or intermediate phase of cataract. *Timira* is a curable stage. We cannot regain vision in *linganaasa* except in *kaphaja linganaasa* where we can regain vision by surgery. Indication of surgery in *kaphaja linganaasa*, the signs and symptoms of mature (*sujaata*) and immature (*asamjaata*) cataract clearly indicate that the site of lesion in *Kaphaja- linganaasa* is the lens.

Etiology *(nidaana)*

The general etiology for the vitiation of humors, especially those are unwholesome to the eye are considered as the



etiological factors of eye diseases. (A.H.U.8.1). Susruta-samhitaa provides specific etiologic factors for eye diseases. Among them, factors that vitiate kapha may cause *kaphaja timira*. These include excessive intake of sweet, sour and salty food, food materials that stimulate excessive secretion (*abhishyandi*), food that cause burning sensation in the GIT after ingestion (*vidaahi*), indigestion, day sleep and excessive use of nutritive food.

Pathogenesis *(samprapti)*

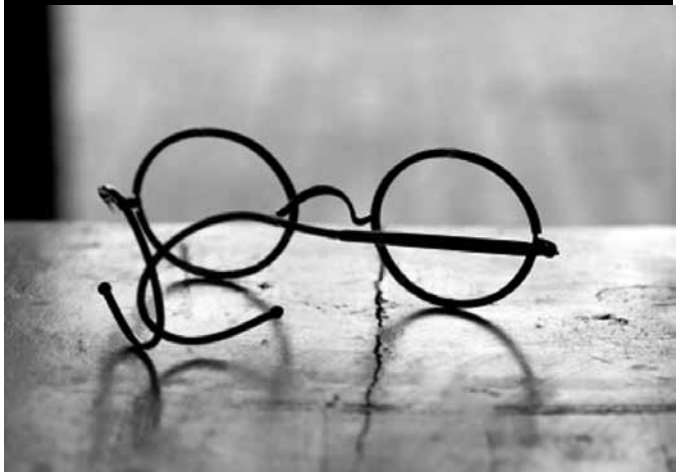
The anatomical consideration of strata of the eyes mentioned in Ayurvedic treatises poses difficulty in the proper understanding of diseases of the refractive media. Till date we are unable to arrive at a general consensus regarding this. The patala in general means the layers of eye. Susruta-samhitaa mentions about six layers in the eye, of which two are in the lids and the remaining four are in the eye ball. The book states that cataract occurs in the four strata of the eye ball (S.U.1.17). Structures of the eye like cornea, lens, vitreous and retina are together considered as *drshti*. Each of these structures may be considered as different units of *drshti*. Any disorder of these units can cause defective vision. For e.g., vaata vitiated in the cornea may produce symptoms of *vaata-timira*. The distortion of the cornea by vaata may generate astigmatism or keratoconus. This may cause distorted vision and blurred vision. Similarly if vaata changes the curvature of lens (lenticonus, a rare condition) the same symptoms are produced. As technology has improved, we are now able to measure these changes and understand the vitiation of the humors more clearly. The transparent refractive media of the eye are devoid of blood supply and hence we cannot expect inflammatory changes in these media. Vitiation of pitta usually invites inflammation but such a possibility is not there in the refractive media. Ayurvedic treatises mention about various kinds of photopsias (sensation of light in the visual field), halos and diminished vision due to pitta (A.H.U.12.13,14). Now we clearly know that corneal edema, swelling of the lens in the initial stage of cataract and retinal edema mimic the symptoms of *pitta timira* producing photopsias, halos and diminished vision.

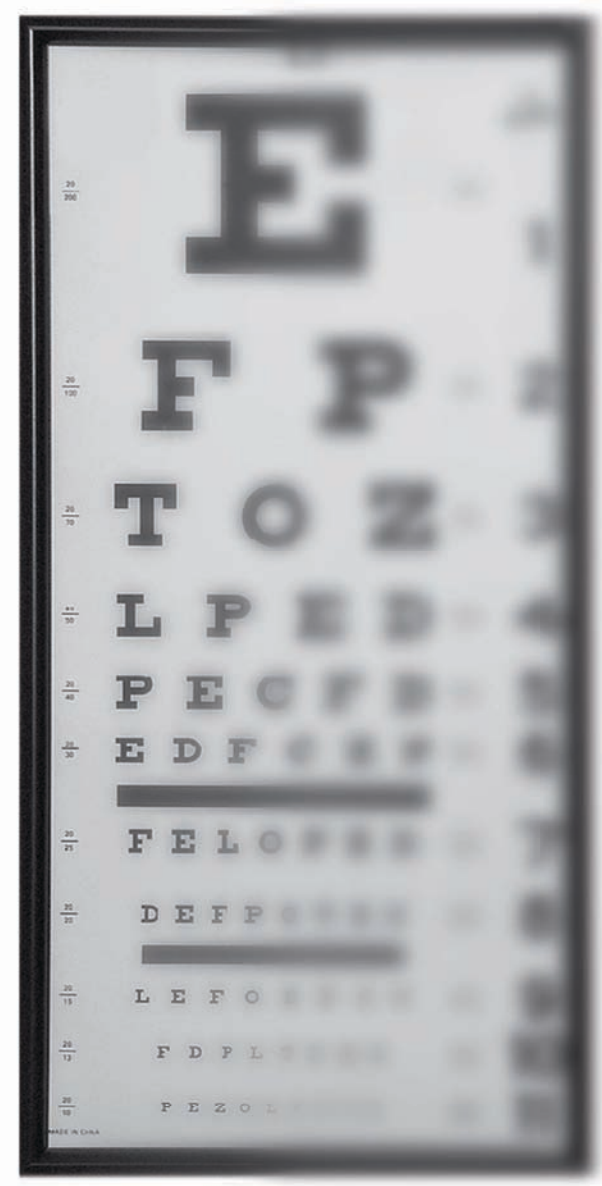
Though the structures of the refractive media are different, as the symptoms produced by each humor in them are similar and because of the importance of these structures in maintaining the normal vision they are grouped together as *drshti*. This view is sufficient enough to explain all the pathologies related to visual failure in terms of Ayurveda. It is not compulsory that a particular *timira* should follow the same pattern in its course. During the pathological process, depending on the intensity of etiology there is chance of involvement of other humors. If the provocation of blood is not intense in *rakta-timira*, it may not develop into *rakta-kaaca* and blindness. From the symptoms of *rakta-timira* it is evident that there is leakage of blood in the optical system. The site of such leakage may be anywhere in the refractive media. Because of depletion of tissue (*dhaatu-kshaya*) in *rakta-timira*, vaata will get aggravated and there is chance of manifestation of the symptoms of *vaata-timira* in the subsequent course of the disease. So there may be floaters (moving black spots) in the visual field, a sign of *vaata-timira*. These are produced by the resolution of a trivial intravitreal hemorrhage in the visual field. Here *rakta* is not strong enough to continue the pathology. This weakness may be due to the effect of intervention by treatment or due to weak etiological factors. It is the pathological factor that determines the course of disease.

Timira will not follow the same pattern of course till the end. The participation of other humors in the pathogenesis of *kaphaja-linganaasa* is mentioned in ayurvedic treatises. The color of the cataract is white if there is no accompaniment of other humors. Staining of refractory media with colors relevant to different humors in *kaphaja-linganaasa* is the proof of participation of other humors in the pathology (A.H.U.14.4).

Cataract is the common cause of blindness and usually commences in the fifth and sixth decade of life. In old age, the humor vaata is predominant in the body and pitta is diminished as evidenced by weakness of digestive fire (*jatharaagni-maandya*) leading to reduction of tissue metabolism (*dhaatvagni-maandya*) resulting in the accumulation of wastes (*mala-sancaya*). Lens is not an exception. The metabolic activity of the lens is reduced significantly in old age. The synthesis of protein glutathione – which is important in oxidation reduction mechanism – shows reduction in its action during advancement of age. With age, most of the soluble proteins in the lens changes to insoluble form *(mala)* and the lipid content of the lens increases. This accumulation can be identified macroscopically in the later stages of cataract. The membrane potential reduces considerably as age advances. At 20 years of age it is 50mv and at 60 it is 30mv. The elasticity of the lens capsule reduces and its permeability increases. The

Though the structures of the refractive media are different, as the symptoms produced by each humor in them are similar and because of the importance of these structures in maintaining the normal vision they are grouped together as *drshti*. This view is sufficient enough to explain all the pathologies related to visual failure in terms of Ayurveda.





migration of oxygen into the lens is impaired reducing the liveliness of the lens resulting in opacity and loss of vision. Oxygen may be related with the humor vaata and its main component *praana* which is having the function of supporting the sensory faculties. Thus in old age, all the three humors effect degenerative changes in the lens, which in turn has a say in the production of cataract. But there are slight changes in the pathogenesis of different cataracts. In nuclear cataract the role of pitta is minimal and hence the symptoms of *pitta timira* are not presented there. Here the main pathology starts as sclerosis or hardening of the nucleus of the lens and gradually involve the other parts of the lens. In cortical cataract symptoms of *pitta-timira* are pronounced. This type of cataract is initiated by difference in ionic transfer, imbibing and stagnation of water molecules in between the lens fibers leading to swelling of the lens and here treatment of *pitta-timira* is warranted. In case of post sub-capsular and posterior polar cataract we should try to elicit the accompanying humors. Here the pattern of the opacity is not uniform. Only blindness with accompanying humors exhibit such manifestations. These accompanying humors

In old age, all the three humors effect degenerative changes in the lens, which in turn has a say in the production of cataract. But there are slight changes in the pathogenesis of different cataracts.

may be generalized in the body as there are no other humoral symptoms in the eyes. Studies on the role of botulinum toxins injected into the vitreous to prove the effect of exotoxins in the manifestation of post sub-capsular opacity supports our textual references in this regard. Complicated cataracts, deficiency related cataracts and traumatic cataracts depend on etiological factors considerably and there may be slight differences in their pathogenesis that can be appreciated from the symptoms associated with cataract formation. The six complications enumerated in *kaphaja-linganaasa* explain the accompaniment of other humors.

It should be noted that opacity of the layers of the lens can cause complete loss of vision even when the other units of *dṛshṭi* are normal. Other units of the refractory media also can cause loss of vision when opacity affects them. But the strata related with *timira* are those in the lens. The major content of the lens is water amounting to 63%. The remaining 36% is proteins and the other entire solid contents amount to only1%. Water is the medium of transportation here. It carries out the function of extra-cellular fluid (*rasa*) and blood (*rakta*) in the lens. The way in which avascular lens obtains its nutrients and gets rid of waste products differ from that of vascular tissue. The metabolites must travel from the capillaries through the aqueous or vitreous humors and back. The adequacy and integrity of the ocular blood supply were examined by many experiments which proved that cataract developed following the obstruction of arteries or veins entering and leaving the eye (Waenmann 1890, Koster 1885). Thus it is clear that the functions of the two tissues *rasa* and *rakta* are present in the lens. For example carbohydrates are the main source of energy in the lens. Variation in its concentration leads to difference in osmolarity resulting imbibition of water equitable to *timira* affecting the first and second layers. This condition is reversible.

For instance, In diabetes, the additional glucose in the lens is converted to sugar-alcohol named sorbitol by aldose reductose and it is this change that make the difference in concentration gradient resulting in the imbibition of water and swelling of the lens which is reversible. The lens is formed of complex system of lens fibers which are proteins. There are various proteins inside the lens, the crysillins or water soluble protein is the critical protein on which the transparency of the lens depends. MIP (membrane intrinsic protein) is another important protein which maintains the structure of the lens. MIP-26 undergoes radical modification. The main modification is of ~5,000 mw peptide to that of ~22,000 mw protein known as MIP-22. In cortex at 57 years MIP-26 =MIP-22. In nucleus most of the MIP-26 is converted to MIP-22.

So these proteins are having the role of maintaining the normal architecture of the lens. According to Ayurveda, support

(*dhaarana*) is the function of bone (*asthi*) and coating is the function of flesh (*maamsa*). These functions can be attributed to the proteins in the lens. If these proteins are degraded, they cannot have these functions and the condition becomes irreversible. The lipid content of the lens, between the lens fibers, may function as lubricating cement substance. Lubrication is the function of fat (*medo-dhaatu*). Ayurveda has not considered the role of the last two tissues, marrow (*majja*) and semen (*sukla*) in the etio-pathogenesis of diseases of the refractive media. This may be due to the fact that by the time the disease encroaches the fourth strata, the structure might have lost its normal texture and vision is lost totally. Further, the role of semen is more in hereditary diseases (S.Soo.24.5).

Signs and symptoms

Both Susruta-samhitaa and Ashtaanga-hrdaya explain the general and specific symptomatology of *timira* and *linga-naasa* in detail. Susruta-samhitaa does not differentiate the phase *kaaca*. According to the treatise, it appears that both the conditions are the same. Ashtaanga-hrdaya gives details of six types of *kaaca*. But both the books are of the same view that localization of vitiated humors at the level of the third stratum causes staining of the refractive media. This staining is important in evaluating the involved humors. Susruta-samhitaa calls this phase as colored defective vision (*raaga-timira*) and considers it as incurable. As per the book, a prior condition to this without coloration is curable. It may be noted that the book uses the term *kaaca* as a synonym of blindness.

We can find all the signs and symptoms of cataract mentioned in classical ayurvedic treatises. Nevertheless references regarding this are scanty in Caraka-samhitaa and the book has frankly stated that for further details we may better refer relevant treatises.

In Ashtaanga-hrdaya, the chapter dealing with diseases of refractive media (U.12) first details the general signs and symptoms of visual failure followed by signs and symptoms according to humoral states in three different categories viz. *timira*, *kaaca* and *linganaasa*. Among these general symptoms are 1) transient nature of blurriness, 2) defective distant vision 3) difficulty to see small objects 4) circular areas of opacity (scotomata) 5) diplopia and 6) polyopia. The specific signs and symptoms of *kapha-timira* are leucopsia (white colored vision) and slimy appearance of the objects. The whiteness is explained as similar to that of jasmine flower, conch, moon etc. But in practice, such white vision in cataract is not encountered. These symptoms are produced when the humors are localized in the first and second layers of lens or due to partial involvement of the structure of the lens.

Kaaca is produced when the humors further migrate deep to the third layer or further areas of lens. Here, vision is further deteriorated. It is mentioned that in this phase there will not be vision in lower part of the visual field. Though vision is retained in the upper half of the field, it is also defective as the patient sees the objects as though covered with a thin cloth. The color of the lens also may change. This change of color depends on the humor involved. The condition is incurable, but treatment can delay further progress of the disease. The specific signs and symptoms of *kapha-kaaca* include whitish discoloration of the lens. Vision becomes more deteriorated and patient cannot appreciate the brightness of luminous objects.

When all layers (total lens fibers) are involved in the pathology, the condition becomes *kaphaja-linganaasa* and the eye will have no vision. All types of *timira* culminate in *kaphaja linganaasa*. Mature and hyper-mature cataracts come under *kaphaja-linganaasa*. Hypermature cataracts were very prevalant in ancient periods as surgery for cataract was uncommon. Susruta-samhitaa describes that the vitiated humor is seen moving as a drop of water on a tender leaf of lotus and that the pupil constricts in sunlight and dilates in shade. This may be correlated to Morgagnian cataract where the cortex is liquefied and the nucleus sinks at the bottom of the capsule which results in the movement of nucleus in the milky cortex inside the capsular sac. This is very common in hyper-mature cataract. Another possibility is the dislocation or subluxation of lens in hyper maturity of cataract.

The treatment modalities of *timira* include intense internal unction (*snehapaana*), bloodletting, purgation, nasal medication (*nasya*), collyria (*anjjana*), retention of oil on scalp (*moordha-vasti*), enemata (*vasti*), retention of medicated ghee in the orbit (*tarpana*), coating on eye (*netra-lepa*) and irrigation of the eye (*netraseka*).

Management

All types of *timira* are curable. As the disease advances and reaches the stage of *kaaca,* it is not curable but is manageable. The next stage namely *linganaasa* is incurable and unmanageable except *kaphaja-linganaasa* which can be cured by surgery.

The treatment modalities of *timira* include intense



internal unction (*snehapaana*), bloodletting, purgation, nasal medication (*nasya*), collyria (*anjjana*), retention of oil on scalp (*moordha-vasti*), enemata (*vasti*), retention of medicated ghee on the orbit (*tarpaṇa*), coating on eyelids (*netra-lepa*) and irrigation of the eye (*netra-seka*). These therapies are to be repeated many times. There is detailed description regarding the management of *timira* according to the humors involved.

The management of cataract depends on various factors. We should also resort measures to check ageing. Any co-existing disease such as diabetes or hypertension is also to be addressed. The cataract patient may also present involvement of other structures of the eye like retina and in such cases the treatment will naturally vary. In case of complicated cataract (cataract developed secondary to other diseases of eye) the treatment strictly depends on the other signs and symptoms in the eye. It is not possible to design a single treatment package for all types of cataract. Even in different stages of a type of cataract the treatment may vary. For e.g. in the incipient stage of cataract there will be signs and symptoms of *pitta-timira* such as glare and colored haloes. We cannot prescribe a sharp collyrium (*teekshṇaanjjana*) or retention eye bath (*tarpaṇa*) in this condition. But purgation, irrigation of eye, eye drops (*aaścyotana*) mentioned in the context of the treatment of *pitta-timira* are more beneficial. Here blood-letting also may be done.



When to start treatment?

Treatment should commence in the middle age. This is the ideal time to start rejuvenation therapy for checking ageing. If possible, the management may begin at the age of 40 years when presbyopia usually manifests. Simultaneous rejuvenation therapy also can be done.

The sequence of therapy

1. Intense internal unction. Observe the standard regimen of intense internal unction.

2. Blood letting. (This is a method of eye care and is indicated in *timira*)

3. Purgation. (If other humors are not involved *Balliospermum montanum* (*kumbha*) and turpeth (*nikumbha = Operculina turpethum*) are used as purgatives. The *Poogaadi* decoction made from betel nut, *chebulic myrobalan*, dry ginger. long pepper, *balliospermum* and turpeth is ideal for purgation.

Sharp collyria should not be continued for a long time. But in cataract, it is the main option for long term therapy. It is very popular in Kerala because of the ease of administration, lack of strict restrictions, easy availability and affordable price.

4. Nasal medication (in *kapha timira*)

5. Collyrium (Many formulations are available for *kapha timira*)

Though packages are mentioned for the treatment of cataract in treatises, it is the duty of the physician to decide upon which specific treatment is to be employed at the given condition. In the treatment of *kapha-timira* enemata, eye coating, irrigation etc. are not essential. The choice of therapy is collyrium. Usually abrasive collyria (*lekhana-anjjana*) are preferred in *kapha-timira*. They are very sharp in quality. The course of such collyria, precautions to be observed in their long course, selection of formulation etc. are usually dubious.

Sharp collyria should not be continued for a long time. But in cataract, it is the main option for long term therapy. It is very popular in Kerala because of the ease of administration, lack of strict restrictions, easy availability and affordable price. Internal unction with ghee and nasal medication with ghee (*marṣa-nasya*) are advised when long-term application of sharp collyria is indicated. Even in Kapha predominant cases, it is not wise to prescribe long courses of sharp collyria alone.

The patient may be treated as inpatient once or twice yearly. This is to employ intense internal unction followed by bloodletting, purgation and major fatty nasal medication (*marṣa-nasya*). After that the patient is discharged. He has to continue collyrium, minor fatty nasal medication (*pratimarṣa-nasya*) and medicated fat indicated for *kapha-timira*. Follow up visits are made every month. Various methods of administration of the three myrobalans (*triphala*) are indicated to maintain the health of the eye. As a part of rejuvenation the three myrobalans can be prescribed with suitable vehicle depending on the condition. Special eye care by being always happy, cleanliness of feet and oil application to the soles is also advocated. Wholesome food also is suggested. It is expected that these procedures will delay the onset and maturation of cataract.

In Kerala, there is a practice of applying *Narikelaanjjana* (*Eḷaneer kuzhamb*) in the eyes regularly. In ayurvedic eye departments, there is a long queue of cataract patients to apply collyrium. Unfortunately, till date no statistical data is collected on the efficacy of the practice. We have to document the type of cataract, visual acuity and the method of treatment followed etc. This will yield

sufficient data on the efficacy of the practice. Once the cataract is mature, no medicine can cure the case; surgery is the only method to regain vision.

Surgery for cataract

In ayurvedic treatises, couching (*linganaasa-vedha*) of mature cataract is mentioned. This is done when vision is completely lost. Nowadays the need for quality of vision is much more important and the surgeons as well as the patients are not ready to wait till the cataract matures. Cataract surgeries became popular due to the advancement of technology. Recent advancement in surgery like SICS and Phacoerysis has made things easier. They need only 2-3 mm incision. Postoperative complications are comparatively rare. The patient can leave the hospital on the same day of operation. Introduction of bifocal IOL makes near and far vision possible without glasses. Cataracts remain as the main work load of every ophthalmic surgeon. Selection criteria of patients for surgery depend on condition of vision, signs of maturity, complications in the eye and general condition of the body. Ayurveda recommend surgery when *kaphaja linganaasa* is devoid of complications in the form of whirlpool (*aavartakee*), sand (*sarkaraa*) umbrella (*chatrakee*), striations (*raajeemati*), moon (*candrakee*) and torn cloth *(chinnamsuka)*. Regaining of vision is at risk in the presence of complications. According to the treatises, mature *kaphaja-linganaasa* will be white and there will be total loss of vision. In immature cataract the opacity is uneven (*vishama*) the color is not dense white. It may be like whey. Even special diets and regimens are suggested to augment maturing of cataract so that surgery can be done early to regain vision. On the other hand there are diet and regimens to delay the maturing in the cases where surgery is contraindicated.

Contraindications for surgery

According to classical treatises surgery is contraindicated in the following cases: -

1)Persons not suited for venesection

2) Thirst (prodromal symptom of diabetes)

3) Running nose (upper respiratory tract infection)

4) Cough

5) Indigestion

6) Headache, earache, pain in the eye

7) Cowardice

8) Just after vomiting

Even after the introduction of sophisticated equipment for investigation and surgery there is not much change in the inclusion and exclusion criteria.

Classical method of surgery

Most suited period for cataract surgery is a common month (*saadhaarana maasa*). According to Indian calendar, the months of *sraavana* (mid July to mid August), *kaartika* (mid October to mid November) and *caitra* (mid March to mid April) are common months. It is done before noon in presence of sunlight. The patient is made to sit facing the surgeon and is immobilized by attendants. Introduction of probe is made at the limbal area so that there is no bleeding or leakage of aqueous humor. The probe held with the thumb, index finger and mid finger is inserted with churning movements and the lens is detached and dislocated from the position so that pupillary area is cleared and vision is spontaneously regained. This is the earliest method of cataract surgery called couching. Details of postoperative care and medication are also prescribed. The clarification collyria (*prasaadanaanjjana*) after the surgery mentioned by our seers indicate their clear perspective in maintaining perfect sight.

To maintain proper vision Ayurveda advocates wholesome diet, activities, internal and external medication, adequate rejuvenation and daily and seasonal regimens. There are lots of risk factors during cataract surgery especially in hyper-mature cataract. Here the post capsule is thin and may rupture during surgery leading to many problems. Posterior sub-capsular cataract, posterior polar cataract, complicated cataracts and cataracts in diabetics and hypertensive patients are challenges to the surgeon. These are the areas where interdisciplinary work is warranted. Let us hope for a new era where egos never bar the patients from getting the benefits of both Ayurveda and modern science. Let the vision of all be safe in our hands and let us toil together for it. ■



Edema *(Sopha)*



Excerpts of discussion with
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Edema *(sopha)* is the basis of many diseases. Some form of edema is met with in a multitude of diseases, right from common cold (nasal catarrh) to cancer. In Ayurveda any disease having swelling or inflammation comes under the purview of edema *(sopha)*. So in tonsillitis, blepharitis, bronchitis, arthritis etc. the theory of *sopha* in ayurvedic treatises is applicable. Even according to modern medicine edema is a vast subject. The terms *sopha*, *sotha* and *svayathu* are synonyms. *Sopha* means that which spreads. *Sotha* means hard.

According to various criteia Caraka-samhitaa classifies edema into two, three, four, seven, or eight types. But essentially edema is one because of the commonness of swelling in all the types. In Ashtaanga-hrdaya edema due to corrosives like marking nut are included in traumatic edema.

Sites of edema

According to the sites of edema, it is considered as different diseases. In Caraka-samhitaa different names are thus attributed to edema (Soo.18. 19-36)

Outgrowths such as extra muscle or sarcoma *(adhimaamsa)* and cancer *(arbuda)*, named separately, may also be included under the category of *sopha*. Thus there are innumerable types of edema according to the nature of pain, colour, cause, site, size and nomenclature. Since edema includes grave diseases such as *gulma* and *arbuda* we should give due importance to its seriousness.

Susruta samhitaa (Soo.17) mentions about edema as the basis of diseases like tumor and lymphadenitis *(grandhi)*, inflammation *(vidradhi)* and *alaji*. Since edema or inflammation is the basis of many diseases we are able to prescribe formulations such as *Amrtottaram kvaatha* that controls inflammation in many diseases.

Pathogenesis

According to modern medicine there are many theories regarding the genesis of edema. Shift of water compartment, hydrostatic pressure, osmotic pressure, sodium-potassium balance etc. are some of them

The main causes are: -

1) Lowered osmotic pressure of blood (liver failure, nephrotic syndrome, malnutrition or mal- absorption)

Classification		
Classification of edema according to different treatises is tabulated below: -		
Caraka-samhitaa (Soo. 18)	**Ashtaanga-hrdaya** (Ni.13)	**Susruta-samhitaa** (Soo. 17)
According to the humors		
Monohumoral	Monohumoral	Monohumoral
Vaataja	Vaataja	Vaataja
Pittaja	Pittaja	Pittaja
Kaphaja	Kaphaja	Kaphaja
Bihumoral	Bihumoral	
Vaata-pittaja	Vaata-pittaja	
Vaata-kaphaja	Vaata-kaphaja	
Pitta-kaphaja	Pitta-kaphaja	
Trihumoral	Trihumoral	Trihumoral
According to origin Endogenous (nija)		
Incidental (aagantu)	Traumatic edema	Incidental
	Toxic edema	
		Raktaja
According to site		
	Generalized	Generalized
	Localized	Localized
		External
		Internal
According to nature		
	Wide	Wide
	Elevated	
	Solidified	Solidified
		Even
		Uneven

2) Increased capillary permeability (locally with infection or inflammation, systemically in severe sepsis, drug related e.g. Calcium channel blockers)

3) Increased hydrostatic pressure

a) Venous

- Deep venous thrombosis or venous insufficiency
- Other local causes of obstruction like pregnancy, tumor
- Heart failure (Common cause of generalized edema)
- Renal failure with intravascular volume expansion

b) Lymphatic – Lymphatic obstruction (lymphedema when chronic) nonpitting. Always localized

- Infection – Filariasis, lymphogranuloma venereum
- Malignancy
- Radiation injury
- Congenital abnormality

According to Ayurveda the disease is trihumoral and also involves blood. Here the stimulator *(kartaa)* is vaata. This means that there is the neurological influence in edema. Occlusion of the external veins is mentioned. Even in monohumoral and bihumoral varieties the background of edema is trihumoral. Edema can occur even when protein content is reduced in the blood (hypoproteinaemia). Here, to increase protein, food rich in proteins such as peanuts are prescribed. Since the defects of blood will cause edema, it is mentioned that treatment of edema may also be adopted in the treatment of anemia (A.H.Ci. 16. 57). Edema can be even congenital. Milroy's edema is an example. This is a congenital lymphatic deficiency disease characterized by non-pitting edema.

As the term *siraa* is used in ayurvedic pathology, venous obstruction such as deep venous thrombosis and thrombophlebitis are to be considered. In such cases the obstruction is to be removed. In modern medicine anticoagulants are given. We can bandage the area applying *Shaddharaṇa* or *Piṇdataila*. This means that treatment of *vaata-rakta* is to be followed here. *Shaddharaṇa* can be given internally too. In *vaata-rakta* it is mentioned that through the channel of blood vaata reaches the external path way *(śaakhaa)* and the middle pathway *(sandhi)* of diseases and destroys them (C.Ci. 29. 35). Hence block may occur in head, heart and bladder. Here we should resort to the treatment of *vaata-rakta* which also combats kapha.

Edema can occur even without inflammation (e.g. in hypoproteinaemia). In ascites also there is no inflammation. Hence one may suspect whether we can resort to the treatment of *vaata-rakta* in all cases of edema. As per the definition of Caraka-saṃhitaa (C.Ci. 29. 10), in *vaata-rakta* there is blockage of blood vessels. From the ayurvedic point of view there is only one approach. In modern medicine, if the edema is related with heart, they give digoxin etc. Digoxin is not removing the disease. K^+ supplementation should not be given in cardiac edema. Hyperkalaemia may result.

In some cases of edema all findings may be normal. Thyroid problem may generate edema. Both hypo and hyperthyroidism can cause edema. Similarly in a*ama-vaata* abdominal edema and pain is mentioned in Maadhava-nidaana (M.N.25. 10). Hence *aama-vaata* is not only affecting the joints. According to the prognosis of *aama-vaata* in Maadhava-nidaana, unihumoral *aama-vaata* it is curable, bihumoral is manageable and trihumoral *aama-vaata* with edema all over the body is incurable. (M.N. 25.12).

Prognosis

In *Ashṭaanga-hṛdaya* it is mentioned that new and uncomplicated edema is curable (A.H.Ni. 13. 42). Incurable edema is mentioned in the knowledge of fatal signs *(vikṛti-vijnjaana)*. Accordingly edema with multiple complications starting from feet in men and from face in women is fatal. If edema starts in abdomen and genitals it is incurable in both men and women (A.H.Saa. 5. 92).

Shaddharaṇa coornam, Citrakaadi kashaayaṃ, Maṇdoora vaṭakaṃ, Daśamoola Hareetakee etc. can be administered. Application of the five major medical procedures *(pancakarma)* are dangerous in edema. Acetic irrigation *(kaancika dhaaraa)* can be given.

Cardiac edema starts from the feet. But all edema of feet are not cardiac. In obese women there may be edema of feet. Those who sit long with legs down may develop edema of feet. Some drugs such as Amlodac also may cause foot edema. In such cases diuretics may help. *Navaayasaṃ* also can be given.

Renal edema starts from face esp. with periorbital edema. This is not the only condition. Hyperthyroidism may cause facial edema. Blood is to be examined to assess renal function. Factors like creatinine are to be examined to confirm renal edema. There is no meaning in denying perceptive knowledge *(pratyaksha)*.

Caraka-saṃhitaa states that the following types of edema may turn fatal (C.Ci.12.15): -

- Edema affecting the emaciated

Site	Disease	Humor
Under the tongue	Sub-lingual glossitis *(upajihvikaa)*	Kapha
Tonsil	Tonsillitis *(galasunthikaa)*	Kapha
Outside neck	Goiter *(galaganda)*	Kapha
Inside throat	Difficulty to swallow *(galagraha)*	Kapha
Skin	Erysipelas *(visarpa)*	Pitta-rakta
Skin & blood	Carbuncle *(piṭakaa)*	Pitta
Skin & blood	Moles and black patches *(tilaka, piplu, vyanga, neelikaa)*	Pitta
Temples	Temporal headache *(śankhaka)*	Pitta
Mastoid process	Mastoiditis *(karṇamoola śopha)*	Pitta
Spleen	Splenomegaly *(pleehodaraṃ)*	Vaata
Sites of gulma	Phantom tumor *(gulma)*	Vaata
Loins & scrotum		
	Hernia *(vṛddhi)*	Vaata
Between skin and flesh of abdomen	Abdominal enlargement	Vaata
Abdomen	Tympany *(aanaaha)*	Vaata

- Edema of those weakened by diseases
- Edema with complications and with vomiting first
- Edema with striations and exudation
- Edema affecting vital areas *(marma)*
- Edema of the weak

On the other hand if there is no wasting of muscles, if the disease is unihumoral and new edema is easily curable, if the patient is strong enough (C.Ci.12.15).

In Cikitsaa-manjjari the description of edema begins with prognosis. It implies the importance of prognosis in the disease. Scrotal edema etc. occurs at a later stage of abdominal edema.

In Ayurveda, allergic edema is included in toxic edema. Today we should also think about weak and slow poisons *(dooshee-visha)* in this context. In short, *dooshee-visha* is a substance with low toxicity. Any such substance including incompatible food materials are *dooshee-visha*. The symptomatology of *dooshee-visha* is mentioned in Susruta-saṁhitaa (S. Kal. 2. 27-29). *Dooshee-vishaari-agada* mentioned there can be given in various conditions. Compounded poisons *(gara)* also can be included in *dooshee-visha*. In Ashṭaanga-hṛdaya it is mentioned that *dooshee-visha* causes diseases of tissues. (A.H.U.35. 33-36, S.Kal.2. 25-29). This includes diseases such as heart disease. All allergies can also be included in the range. There is a theory that all diseases are due to antigen antibody reaction.

In edema we usually give *Punarnavaasava*. *Punarnava* (hogweed) has a lot of potassium in it. It was Dr. Chopra who identified punarnavin, an alkaloid in hogweed.

Since *punarnava* contains a lot of potassium it should be used with care as it may cause hyperkalaemia. Wrong treatment *(mithyopakrama)* also can produce edema. It is mentioned in Ashṭaanga-hṛdaya as etiology of edema (A.H.Ni.13. 28). The same idea is expressed by Caraka as *gadaati-caara* causing heart disease *(hṛdroga)*. Cakrapaaṇi explains this term (C.Ci.26. 77) as improper treatment. Crataeva nurvaala *(varuṇa)* is preferred in kidney diseases. It is an ingredient in most of the formulations for kidney diseases. Terminalia arjuna *(arjun)* is preferred in heart diseases. It can also be useful in diseases of bones. In our **Ostoact** it is an ingredient.

The location *(sthaana)* of humor in edema is important. The importance of the abodes of humors is mentioned in the first part *(sootra sthaana)* of Ashṭaanga Hṛdaya. It states that the physician should quickly execute treatment after knowing the nature, difference of location and the special etiological factors of the disease (A.H.Soo.12. 66). Hence considering the locus of the humors triggering and maintaining the pathology is important. Coming back to the locus in edema, four regions are suggested – upper *(oordhvaṁ)*, lower *(adhah)*, middle *(madhyaṁ)* and generalized *(sarvaangaga)* (A.H.Ni.13. 29).

When the humors are located in the upper region of trunk (chest), there may be facial edema. Facial edema may be of two kinds, primary or secondary. Primary diseases *(svatantra roga)* have their own etiology and subside on its own treatment. Secondary diseases *(paratantra roga)* subside not by their treatment, but by the treatment of the primary disease (A.H.Soo. 12. 60). The edema may be secondary to some tumor in the chest. Chest is the most important location of kapha (A.H.12.3) and tumors are predominant in kapha. Tumor of the thymus may cause facial edema. To confirm, we may resort to X-ray, scanning or even MRI. Tumor causes obstruction and this may be the cause of edema. Here treatment should be aimed at mitigating Kapha and drugs like *Rasagandhi mezhuk* and *Gulgulu-tiktakaṁ kvaatha* are to be tried.

Facial palsy *(ardita)* is another example. It may be due to a swollen gland causing compression of the course of the nerve. Formerly facial palsy was common due to the swelling of glands in syphilis. Due to the advent of antibiotics such secondary facial palsy is rare. It is mentioned that some diseases subside after causing another disease (M.N.1.19., C.Ni.8.21). In secondary diseases we may not find the classical etiology or symptomatology. Hence carrying head load etc. mentioned as etiological factors of *ardita* need not always be present in facial palsy.



The edema of the middle trunk is also important. This region is predominant in Pitta. Hence active inflammation of internal organs is to be suspected here. When humors are located in the middle region we should look for the disease in other bases of pitta too.

When the vitiated humors are located in the lower region, i.e. the *vasti*, diseases of water balance may occur. Here we should understand that there are two vastis – the upper and lower ones. The upper *vasti* can be correlated to the kidneys. According to



Susruta kidneys are formed from the clear portion of blood and fat (Su. Saa. 4.31). Diseases like nephrotic syndrome and hypothyroidism produce myxedema. They are also related with fat metabolism. Now NIDDM type of diabetes also is understood as related to fat metabolism. Caraka-samhitaa has mentioned the importance of head, heart and kidneys (C.Si.9.9). *Vasti* is defined as the organ where all water channels converge as all rivers join the sea. Here it is mentioned that there are many types of waters *(udaka)* in the body. These are listed only in Ashtaanga samgraha (A.S.Saa. 5.90). The term *Vrkkaa* means the averter of disease (Monier-Williams: Sanskrit English Dictionary). *Vasti* is considered as a root of vital areas *(moola marma)* (C.Si.9.4). In Ayurveda such relations are important. For example in *grahani* asthma may occur (A.H. Ni. 8.21). In cough *(kaasa)* too asthma *(tamaka)* is mentioned (A.H. Ci. 3.70). In that condition *Dasamoola-katutrayam* decoction will not suffice. We should give *Vidaaryaadi* or *Draakshaadi*. Ayurvedic treatment should be with such discriminative insight. Kidney is connected with water metabolism and has a say in edema.

The pathway of disease is another point to ponder. The gravity of diseases depends on the pathway. It is mentioned that if a disease is occurring only in one pathway it is easily curable (A.H.Soo.1. 31).

Edema affects two pathways namely the external pathway *(saakhaa)* (A.H.Soo.12.45) and the internal pathway *(koshthah)* (A.H.Soo.12. 47). The term *koshtha* is to be understood here in two senses – 1. the alimentary canal and 2. the internal organs like liver and spleen. Susruta-samhitaa has defined *koshtha* as the location of *amaasaya, agnyaasaya, pakvaasaya, mootraasaya, raktaasaya*, heart, caecum and lungs (Su.Ci.2.12). Pneumonia is the edema of lungs. Hepatitis is the edema of liver. Appendicitis is the edema of the vermiform appendix. Thus any inflammation of the internal organ can be considered as edema *(sopha)*. Edema can be incidental *(aagantu)*. All parasitic infestations and infection by microbes, bacteria and viruses causing inflammation can be considered as *sopha*. The list of incidental diseases include *bhoota* which can be interpreted as infecting agent (A.H.Soo.4.32). In Ashtaanga Samgraha it is mentioned that the bhootas are of innumerable varieties (A.S. U.7.2). Now prions are also considered as pathogens. They are certain substances generated from transforming food esp. from non-vegetarian food. Prions are smaller than virus. Jakob Creutzfeldt disease is an example of disease caused by prions. (A rare slow encephalopathy with partial degeneration of the pyramidal and extra pyramidal systems named after two German Psychiatrists, Alfons Jakob and Hans Creutzfeldt.) Agnipuraana states that bhootas are generated on the bursting of asteroids *(ulkaa)*.

To combat such pathogens we will have to apply even poisonous drugs. We know that in ascites it is advised to administer poisons. In Yogasaara such application of poisons are mentioned. In Ashtaanga-samgraha there is special chapter on the use of poisons named *vishopayogeeyam* (A.S.U.48). The use of poison as antidote is mentioned there. The chemotherapy of modern medicine is a similar thing.

In incidental edema we should treat the cause too. If there is infection with pathogenic organisms treatment should also aim at combating them. Antimicrobial formulations such as *Guggulu-tiktakam*, *Mandoora bhasma* and *Rasasindoora* are relevant here. Most of the pills mentioned in the treatment of fever are antibiotics. Generally bitter drugs act against microbes. It is in Saarngadhara-samhitaa that most of the formulations that we frequently prescribe now such as *Candraprabhaa vati, Yogaraaja guggulu, Mahaaraasnaadi kvaatha, kaisoraguggulu* and *Dasamoolaarishta* are first mentioned. Saarngadhara was the pioneer to incorporate chemicals in Ayurveda and mix chemicals with herbs. Formulations like *Lakshmee-vilaasa-rasa* for fever have antibiotic activity. We can study the specific antibiotic activity of such drugs by using microbial cultures in Petri-dishes and adding the drug to such cultures. In infection we should administer chemical drugs in combination with bitters.

Formulations for diseases of *kapha-pitta* are comparatively very less. *Guloocyaadi gana* and *Patolaadi gana* are effective against *kapha-pitta*. *Aaragvadhaadi* with honey is also useful in *kapha-pitta*.

When internal edema is treated we can give medicines for other edemas too.

(Edema to be continued) ■

Clinical Yoga for Diabetes Mellitus



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India has a dubious distinction of being home to the largest number of diabetics in any one country. It is predicted that the present prevalence of 4 crore diabetics will be doubled by the year 2025. Surveys have also shown that the prevalence of Impaired Glucose Tolerance (IGT) is also high. It has been reported that the prevalence of IGT is around 8.7% in urban and 7.9% in rural areas. It is observed that around 35% of those with IGT will develop full blown diabetes within five years. The problem has now reached, in a "pandemic" proportion. There is a collective response among the medical personnel in the setting up of a complete infrastructure to prevent as well as making diabetes care "Available, Accessible and Affordable" to all persons with diabetes. Yoga has proved its capability to be a strong arm in an integrated programme of diabetic care.

Now, because of the epidemic of obesity and inactivity in children, type 2 Diabetes Mellitus is occurring at younger ages. Although type 2 Diabetes Mellitus typically affects individuals older than 40 years, it has been diagnosed in children as young as 8 years of age who have a family history of diabetes. In addition to that increased stress in professional and family life of modern age is an important causative factor for the increased incidence.

Stress and Diabetes

During a stressful event adrenocorticotrophic hormone (ACTH) is released into the bloodstream and causes the

cortex of the adrenal gland to release the stress hormones, particularly cortisol, which is a corticosteroid hormone. Cortisol increases the availability of the body's fuel supply, glucose. In the process of increasing the availability of fuel supply, cortisol and other hormones like growth hormone, catecholamine and glucagon inhibit the release of insulin. During stress due to increased muscle activity, the levels of blood glucose fall down. Then the alpha cells of the pancreas release glucagon into the blood which in turn replenishes the glucose levels. Repeated long standing emotionally demanding situations that pour in large quantities of stress hormones tend to draw out glucose into the blood stream from stores. If a person is genetically not capable of supplying the required extra quantities of insulin to balance these stress hormones, the blood glucose remains high. When this situation is often repeated, beta cells undergo degeneration and diabetes develops.

Pathogenesis of Diabetes mellitus according to Yoga

When we analyze the etiology of type 2 diabetes mellitus, often it is observed that prior to the period of onset the person would have undergone one of the most stressful experiences in his life. Person who has heredity of diabetes, happened to be exposed to heavy stress will easily become diabetic. Here the *Aanandamaya-kosa* is affected with heredity of diabetes. Ignorance at *vijjnaanamaya-kosa* leads to excessive desire to achieve the sensual objects. As such goals are beyond his natural potencies, he has to fight hard to earn more. That stress causes misbalance in *Manomaya-kosa* leads to many negative emotions. This causes dysfunction of *Praanamaya-kosa* to cause pre-diabetes and gradually percolate into the *Annamaya-kosa* to manifest as overt diabetes.

Management through Yoga

The objectives of the treatment of Type 2 diabetes mellitus are:-

- Relieve the stress from body and mind
- Provide more physical exertion to the body
- Give deep rest to body after the exertion
- Reduce the insulin requirement in the body
- Enhance insulin production
- Maintain optimal blood glucose level
- Maintain optimal serum cholesterol
- Regulate all metabolic functions
- Prevent complications
- Promote positive health

Annamaya-kosa

At physical level a judicious combination of diet modification, kriyas, loosening exercise (*sithileekarana vyaayaama*), yogic postures (*yogaasana*) and medication should be followed in the management of Diabetes Mellitus.

Diet

A low carbohydrate, sugar free, natural vegetarian diet should be adopted. Follow *saatvika* food. Those foods which are fresh, wholesome, natural, of good quality, mild in spices, neither over cooked that lends calmness, alertness and energy is called *saatvika* diet.

Kriyas

i. Cleansing emesis (*vamana-dhauti*) cleanses the gastro-intestinal passages and gives mastery over basic reflexes of digestive tract. The patient has to take stomach full of lukewarm salt water in the empty stomach, and mechanically trigger the vomiting sensation by inserting the fingers in the mouth. Induce vomiting until the entire water comes out. This will greatly reduce the intensity of hunger and reduce kapha.

ii. *Agni-saara-kriya* and *nauli* increase the blood flow to all the structures in abdominal activity including the pancreas. In *agni-saara-kriya*, abdominal muscles are repeatedly flapped. In *nauli*, an active massage of the abdominal muscles is performed by voluntarily contracting the abdominal muscles. These procedures can be practiced daily in the morning.

iii. *Laghu-samkha-prak-shaalana kriya* is another cleaning technique that cleanses the entire gastro intestinal tract. In this practice one has to drink approximately16 glasses of warm salt water and perform a series of five specific postures: *taadaasana, tiryak taadaasana, katee-cakraasana, tiryak-bhu-jangaasana* and *udara-karshanaasana*. After every two glasses of water *aasana* should be performed until water starts flowing through the anus. Constipation is a common problem in diabetes. A weekly practice of *laghu-samkha-prakshaalana* kriya is a very useful technique to develop mastery over the functional imbalances, in the digestive system. The practice would delay the gastric emptying time and provide better mastery over the excessive hunger and craving for sweets.

Loosening Exercises

(*sithileekarana vyaayaama*) Loosening exercises are characterized by quick and dynamic movements performed with deep internal awareness and synchronized breathing. This muscle work-out is performed with closed eyes so that mind can be fully concentrated with internal awareness. The practice is repeated rhythmically in



It is said that Yoga leads to liberation - freedom from all myseries. Ayurveda also wages war against misery. Hand in hand, shoulder to shoulder Ayurveda and Yoga can combat the misery of breathlessness and liberate you.



synchronization with inhalation and exhalation. Deep relaxation is followed after every practice.

1. Jogging

- Stand erect and place the fists loosely on the chest. Start skipping on the toes and touch the buttocks with the heel in a relaxed way.
- Increase the speed gradually and come to a steady jogging speed.
- Carry on deep rhythmic breathing and relax the whole body during jogging and continue for a while.
- Switch over to the forward jogging by raising the knees to the chest level. Repeat for 3 minutes.
- Continue the practice with side jogging by spreading the legs sideward and raising the heels upwards by bending the knees. Stand a while and perform *mukha-dhauti*.

2. Cleansing through a single blast breath

(mukha-dhauti)

- Stand with a slight forward bend of the trunk, palms on the thighs and legs about a meter apart. Inhale deeply and expel the air forcibly through mouth continuously.

3. Ankle stretch

- Stand erect. Raise and stretch up both hands from the front while inhaling. Balance on the toes. Bring down the hands and feet while exhaling. Repeat 10 times.

4. Knee stretch

- Stand erect with hands straight down. Inhale completely. Breathe out through the mouth while going down by bending the knee-joints and keeping them together. Keep the body straight without bending at the waist. Come up while inhaling. Repeat 10 times.

5. Forward and Backward Bending

- Stretch the arms straight above the head with the palms facing forward. Inhale and bend backwards with arms stretched above the head. While exhaling, bend forward as much as possible. While inhaling come up and bend backwards and go on rapidly to forward with exhalation. Repeat 20 times with increasing speed. Gradually slow down and ultimately stop the practice.

6. Side Bending

- Keep the legs about half a meter apart. Raise the hands sideways parallel to the ground while inhaling. Bend to the right till the right hand touches the right heel while exhaling. Look at the palm of the left hand directing forwards. Come up with inhalation. Repeat 5 times to the right and left side alternatively. Relax in *taadaasana*.

7. Spinal Twisting

- Stand erect with hands spread out parallel to the ground, feet about half meter apart. Keeping the legs firm on the ground twist to the right, right hand straight and left hand bend at the elbow touching the chest. Exhale continuously during the twist. Come back while inhaling. Repeat on the left side. All twisting should be above the waist. Repeat 30 times with increasing speed.

8. Shoulder Rotation

- Stand erect. Take the right hand back and up. Rotate in anticlockwise direction. Gradually increase the speed of rotation. Return to the original position. Repeat with left hand. Repeat with both the hands together.

9. Pavana-muktaasana Kriyaa

- Lie on supine position. while inhaling raise the right leg up to 45° position, without bending the knee. Keep the left leg firm on the ground. At 45° exhale and again while inhaling raise the leg further up to 90° position. Now while exhaling, bend the right leg at the knee and pull the right knee towards the chest with the hands (fingers interlocked) and lift the head simultaneously and place the chin on the right knee. Normal breathing. Maintain and lift the left leg and rotate five rounds clockwise and five rounds anti-clockwise without bending the knee with normal breathing. Then lower the left leg to the ground. Inhale, release the hands and bring the head back on to the ground and straighten the right leg. While exhaling lower the right leg to 45° position. Here inhale and

while exhaling again lower the right leg further down to the ground. Relax for a while. Repeat the same practice on the left side.

Stage II: Rock and Roll

• Lie on Supine Position. Inhale and raise both legs to 45° position. Exhale here and while inhaling again, raise the legs further up to 90° position. While exhaling fold both the knees and pull them towards the chest with the hands interlocked around the knees and place the chin on the knees. Normal breathing.

a. Rocking

• Rock the body forward and backward 5 to 10 rounds. While rocking forward, try to stand on the feet and while rocking backward, feel the nice massage to the spine. Relax for a while in the same position and go on for rolling.

b. Rolling

• Roll the entire body to the right until the right elbow touches the ground. Then roll to the left until the left elbow touches the ground. Repeat this rolling alternately to the right and left (5 rounds). Stop the movement. Inhale, release the hands, bring the head on to the ground and straighten both the legs to 90°. While exhaling, lower the legs slowly to 45° position. Inhale here and while exhaling again lower the legs further down till the legs are on the ground. Relax in *Savaasana*.

10. Tiger stretch

• Sit in *Vajraasana*. Keep the knees one arm apart. Measure one arm forward from the knees. Place the palm there and stand on knees. Keep the heels apart. Bring the head inward by flexing the spine up while exhaling fast through the mouth. (spine convex). While inhaling raise the head up, arch the spine towards the floor (spine concave). Repeat and increase the speed gradually. Repeat for 10 times and relax.

11. Back stretch

• Rest on the toes and palms. Jump backwards keeping the hands straight, extending knees giving a concave shape to the spine. Stretch the trunk forward and look up. Inhale. Bend the trunk and bring the feet between the palms. Keep the palms firm on the ground. Exhale completely in this sitting position. Jump backwards. Repeat for 10 times.

Benefits

• Reduces the fat, especially from abdominal region which is very important in diabetes mellitus.

• Helps in reduction of body weight in over-weight diabetes and improves the body weight in under-weight diabetes.

• Increases the strength, stamina and tones up the body. Exercise provides protection to heart and blood vessels and increase lung capacity.

• Most importantly, it creates better gradient to transport glucose from the blood to the cells using the available insulin effectively without demanding extra insulin. Hence, the blood glucose level is reducing.

Yogaasana

In Diabetes a combination of standing, sitting, supine and prone postures are needed. These postures will regulate the metabolic function generally and give proper stretch and relaxation to almost all muscles of the body. A special emphasis is given to the *aasana* which bring deep rest to the pancreas and release *praana* blocks. Hence *aasana* that stretch, compress, or twist the abdominal area to bring awareness to the pancreatic area are selected.

Important *aasana* for Diabetes.

• *Arddha-katee-cakraasana*
• *Arddha-cakraasana*
• *Paada-hastaasana*
• *Parivrtta-trikonaasana*
• *Vakraasana*
• *Ardha-matsyendraasana*
• *Ushtraasana*
• *Mayooraasana*
• *Bhujamgaasana*
• *Dhanuraasana*
• *Sarvaamgaasana*
• *Matsyaasana*
• *Savaasana*

Praanamaya-kosa

At *Praanamaya-kosa* balancing of *Praana* through a basic set of *praanaayaama* is very useful. *Naadee-suddhi* is the best *praanaayaama* technique that reduces the blood glucose values. Rapid breathing practices like *kapaala-bhaati* are also useful to bring about the balance quickly. All slow breathing practices are useful in slowing down the mind, which in turn reduces the stress response in the body.

praanaayaama recommended in Diabetes.

• Sectional breathing with emphasis on abdominal breathing
• *Kapaala-bhaati*
• *Naadee-suddhi praanaayaama*
• *Soorya-bhedana praanaayaama*
• *Ujjayee*
• *Bhastrikaa*

Manomaya-kosa

Relationship between Stress and Diabetes is very well understood. Yoga is considered as one of the most important tools to relieve stress. Meditation (*dhyaana*) and devotional sessions are helping in slowing down the mind. During meditation the person has to stay in silence and just be a witness of all the emotions and thought. After some practice the mind slows down and transcends to deeper silence. Prolonged stay in silence resolves emotional conflicts and promotes healing.

Vijjnaanamaya-kosa

Diabetes is an outcome of wrong lifestyle. Ignorance is the reason for unhealthy food habits, activities and emotions. Predominantly diabetes occurs in highly ambitious type A personality. As one acquires right knowledge, he ceases doing mistakes. A systematic analysis and logical thinking will clarify the misconceptions at intellectual level.

Aanandamaya-kosa

Action without selfish motives as prescribed in *Karmayoga* will transform one's personality to a high *saatvika* level. As one elevates in line of *saatvika* personality more and more bliss emerges. He becomes free from all diseases.

Yoga in Diabetic complications

Apart from the general instructions, specific subtle exercises (*sookshma-vyaayaama*) can be practiced in various complications of Diabetes. Flexing of fingers (*angulee namana*), flexing of ankle (*gulpha namana*), ankle rotation (*gulpha cakra*), flexing the knee (*jaanu namana*), knee rotation (*jaanu cakra*) are some of the practices advisable for Diabetic neuropathy. Likewise, staring (*traataka*) practice is useful in diabetic retinopathy.

It is high time to propagate and teach yoga practice as a daily regimen from school level so as to prevent the pandemic of diabetes which is the epicenter of many other lifestyle disorders. ■

KNOWLEDGE WITHOUT BOUNDARIES

Dr. Manmohan R

Medical Superintendent, AyurvedaGram

Over a period of five thousand years since it was conceptualized, Ayurveda was able to adapt itself to the requirements of the general conscience of the societies prevalent at each point of time. At several times during the last few millennia it found itself placed comfortably within the realm of the intelligentsia and enjoyed the buoyancy provided by the patronage from them. On other occasions it found itself skirting precariously on the periphery of societal acceptance. But even at such times, the principles and the values that were conceived during the genesis of this science were accepted and admired by a dedicated minority – both overtly and covertly.

Developments, in general, within the realm of Ayurveda were freely discussed and debated in appropriate forums under guidelines as in any science since ancient time onwards. New theories were postulated, scrutinized and accepted. Old ones that were relevant were maintained and others when found invalid and incapable to prove themselves were debunked. However, the evolution of Ayurveda enabling itself to be integrated to the world of post-industrial revolution became a slow and grossly delayed process. Most of the patrons of the science in the land of its origin failed to use their influence to promote, propagate and expand the frontiers of acceptance by declining to provide the necessary resources to initiate much needed research into this science.

Lovers of the science were left frustrated with the negligence of the people concerned who were supposed to protect and provide sustenance to this science even today. Universities and educational institutions have made provisions for grants for research into the various fields of Ayurveda. Unfortunately most of them are namesake or remain confined to the paper on which they were printed. In this context it is heartening to note that private entrepreneurs with drive and zeal coming forward to invest hugely in the research on the differing aspects of Ayurveda including its governing principles so that it could gain wide acceptance among societies the world over. True practitioners of the science were excited by the avenues that were opened before them and the infinite possibilities and methods available to probe scientifically into theories that they once learned by-heart at school, some of them often taken with a pinch of salt.

Kerala Ayurveda and AyurvedaGram in particular, are privileged to be the hub of path-breaking research that is bringing out nuggets of gold from the annals of this ancient treasure trove called Ayurveda. Each week the dedicated team of researchers throw light on knowledge that once defied explanation and now awes modern science. The ability of the rejuvenative techniques of traditional Ayurveda to complement modern stem cell therapies and the area of cognitive therapy are few examples. We would be able to share the immense knowledge that arises out of the ventures we are involved at present with the global Ayurvedic fraternity and the lovers of this science.

Students in our Academies in the US are visiting AyurvedaGram and our Academy in Aluva, Kerala to get first hand training on the theoretical and practical application of Ayurveda. Our experts in various fields of Ayurveda visit our academies abroad to teach and share their knowledge. At AyurvedaGram we are overwhelmed by the interest and dedication shown from the aspiring practitioners of Ayurveda who come from abroad, especially Germany, the United States and Switzerland. Processing of knowledge is not the right of a selected few. Knowledge should be open for scrutiny and analysis by those interested in them. Such knowledge becomes part of the causes sustaining humanity once it is practiced with deep seated passion. Students of Ayurveda who frequent AyurvedaGram from different parts of the world experience this first hand. It is our conviction that in future we would be able to cater to the needs of students of Ayurveda from all parts of the world in a professional manner. ■

Glimpses of participation of KAL in Global Ayurveda Summit 2010



Mr. Ramesh Vangal, Chairman KAL Chairing the first plenary session



Dr. K. Anil Kumar, Executive Director KAL presenting paper



Mr. S. Gopalakrishnan (KRIS), CEO & MD Infosys visiting KAL stall.



Sharing global views

Dr. C.I. Jolly, Scientific Advisor KAL presenting paper





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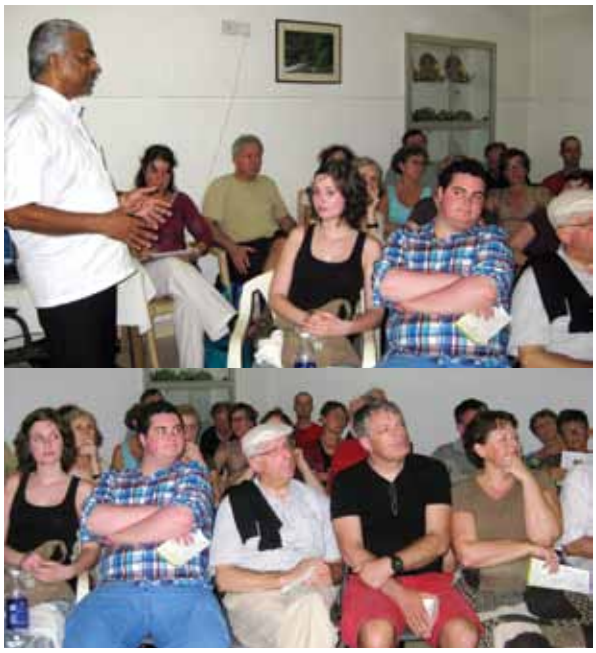
Mr. Ramesh Vangal, Chairman KAL delivering opening remarks



Team from UK at the herbal garden on their visit to KAL



Medical camp held at Vyttila



The team from Brazil attending the class by Dr. K. Sasidharan, Medical Superintendent KAL



A team of Japanees doctors after completion of training at Kerala Ayurveda Academy with faculties and staff

The Omnipotent, Omnipresent and Omniscient



Dr. C. R. Agnives

Editor in chief
Kerala Ayurveda Vaidyam &
Publication Division

According to most of Indian philosophies the Soul is omnipotent, Omnipresent and omniscient. The absolute conscience *(paramaatmaa)* or the Absolute in connection with living body is considered as empirical soul *(jeevaatmaa)*. It is worthy to contemplate why such an almighty is limited in potencies in the living human being. In fact Agnivesa, the disciple of Aatreya has posed such doubts to his guru. His questions in this connection with the answers of Aatreya Punavasu, the great teacher of Ayurveda are given below: -



Diseases are consequences of wrong deeds or sins. In Sanskrit the term *'paapa'* (sin) is a synonym of disease. The responsibility of the wrong deeds by the soul is to be borne by the soul itself. The cause and effect theory is very strong in Indian philosophy.

The soul is devoid of action. Then why he is considered as the doer?

■ The mind is not sentient and is with action. The causation of action cannot be attributed to a non-sentient thing. It is the soul that instigates the mind to act. Hence even though the soul is not doing anything, the responsibility of the work done is attributed to the soul or person.

In this connection, we should remember that in a case of homicide by stabbing with a knife, the fatal wound is generated by the knife. But as the knife is a non-sentient object, it is not held responsible for the murder. It is just an instrument in the hand of the murderer who really made the knife to pierce unto the belly of the victim. The real murderer is the person who stabbed. Similarly, though the mind is acting, it is just an instrument of the soul and cannot be held responsible for action. That is why the soul is attributed with action and held as the doer.

The soul is totally free. Then why the soul happens to be trapped in unfavorable bodies such as those of animals and insects?

■ It is true that the soul is free. It is also true that the soul gets trapped in unfavorable bodies. But it should be noted that the cause of such lowly births is the soul itself. Past actions of the soul are responsible for such low births. The imprints of past actions are on the soul. They are accumulated by the soul in past life. No one else could be held responsible for its past actions.

A free soul freely exercises its free will and executes actions. Naturally the fruit of the action, bitter or sweet is also due to the soul only. Hence there is nothing wrong in a free soul getting trapped in a despicable body.

If everything is under the control of the soul why he is suffering from diseases?

■ It is true that the soul is omnipotent *(vasee)*. The soul itself selects the actions and using its instruments for collecting information and does action. The result of the action is to be obtained by the soul. It is the soul that

controls the mind. It also instigates the mind for action.

Thus the mind or faculties cannot be blamed for the wrong deeds of the soul. Diseases are consequences of wrong deeds or sins. In Sanskrit the term *'paapa'* (sin) is a synonym of disease. The responsibility of the wrong deeds by the soul is to be borne by the soul itself. The cause and effect theory is very strong in Indian philosophy. Similarly one should be rewarded or punished according to his actions. This is known as the theory of action and fruit *(karma-phala-siddhaanta)*. Most of the religions accept that one should be rewarded according to his action. The concept of heaven and hell is mostly accepted by all religions. The entry into heaven or hell after death is considered to be on the basis of benevolent and evil actions of a person. Diseases as rewards for evil actions may be of this life or past lives. The fruits of past life are considered as the fate *(daiva)* in Ayurveda. It is also considered that we can amend the fate by willful proper action of this life.

Why the omniscient soul does not know everything?

■ Though the soul is omniscient, in a living body availability of information to it is limited by its sense faculties *(indriya)*. Hence it can know only the things channeled through these sense faculties.

Conceptually, the Absolute is omniscient. The empirical soul is not omniscient. It can perceive and know things only when it is sequentially connected to the mind, the faculty and the object.

Why the omnipresent soul is not seeing things covered by other objects?

■ When objects are covered by obstacles such as walls or mountains, the faculty cannot be in contact with the object. Hence perception of things covered with obstacles cannot be perceived.

The sequential connection as mentioned in the answer for question 4, cannot occur when something is hidden or covered by blocking things. For example, light rays cannot fall on the retina from a person on the other side of a high wall. Hence the linkage for perception is not completed and perception will not occur. Unlike the Absolute, the empirical soul is not omnipresent. Its extent is limited by the body. The sense faculties are the windows through which the empirical soul can communicate with the exterior world. The faculties being made up of the five existents *(panca-bhoota)* have limitations of range. They also require optimal working conditions. For example in a pitch dark room one cannot perceive anything for want of working light. Even if there is sufficient working light we can see only if the object is in the range and field of vision.

The soul has no effects or denature. Then how he is affected by diseases?

■ The empirical soul is not alone. During life it is always conjugated with the mind. Hence though the independent soul cannot have denature, the complex of soul and mind can undergo denature. The coloration of mind is reflected on soul. The mind-soul complex residing in the body thus suffers diseases.

Pure distilled water has no color, odor or taste. But when some dirt is mixed with it, it will have color, odor and or taste. Similarly coloration (denature) is possible to the soul in conjugation with mind though it is originally free from denature. Mind is always prone to pollution by the mental pollutants namely *rajas* and *tamas*.

The empirical soul mentioned in Ayurveda is the aggregate person and not the individual soul. But in many contexts the individual soul also is considered in Ayurveda. In the questions and answers detailed above, rather than an aggregate person, the individual soul is referred to. The individual soul is also known as the un-manifested *(avyakta)* and is designated as the fielder. (C.Saa.1. 61). Here the body is considered as the field *(kshetra)* and the soul is considered as its fielder *(kshetrajjn̲a)* or knower of the field. This idea is also met with in Bhagavad Geetaa (13.1). In Caraka-samhitaa it is mentioned that the un-manifest fielder cannot be cognized as an existing thing *(bhaava)*. It cannot be simply perceived. It is considered as eternal and one without change.

But Susruta-samhitaa categorically states that such ominipresent and eternal fielder (soul) is not advised in Ayurveda. The subject matter of Ayurveda is not such omnipresent soul. Here we are concerned with souls limited to the living body. That is why it was formerly (S.Soo1.22) stated that here the person or the treatable person is the inherence of the five existents and the *s̲areeri*. (S.Saa.1.16). *S̲areeri* referred here is the sentient part of the living person. It is composed of the mind and the soul.

The part on body of Caraka-samhitaa is amply confusing for the beginners of Ayurveda. The first chapter on this part is especially confusing because of the philosophical contemplations contained in it. It should be noted that Caraka-samhitaa is not the work of one person. It has three planes, the Agnivesa plane, the Caraka plane and the Drdhabala plane. These authors lived in different periods and thought differently. Hence the possibilities of varied views in the book cannot be overruled. Nevertheless we were discussing about the Ayurvedic concept of the soul and persons in three consecutive issues based mainly on this chapter and this topic is better concluded now with the comment that the concept of Susruta-samhitaa is more frank, simple and unambiguous in this regard. ■

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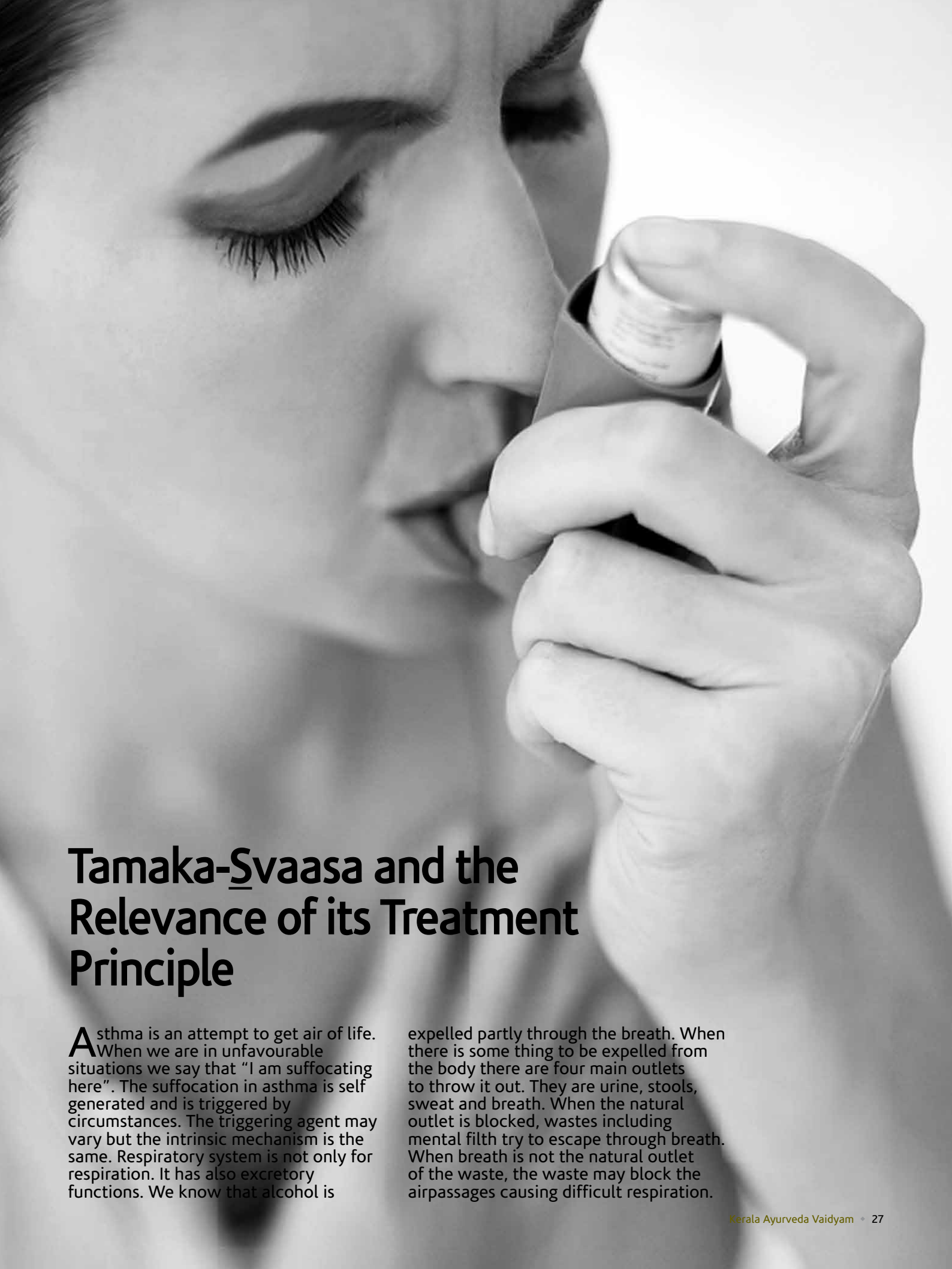
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Tamaka-Śvaasa and the Relevance of its Treatment Principle

Asthma is an attempt to get air of life. When we are in unfavourable situations we say that "I am suffocating here". The suffocation in asthma is self generated and is triggered by circumstances. The triggering agent may vary but the intrinsic mechanism is the same. Respiratory system is not only for respiration. It has also excretory functions. We know that alcohol is expelled partly through the breath. When there is some thing to be expelled from the body there are four main outlets to throw it out. They are urine, stools, sweat and breath. When the natural outlet is blocked, wastes including mental filth try to escape through breath. When breath is not the natural outlet of the waste, the waste may block the airpassages causing difficult respiration.

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Asthma is a chronic inflammatory disease characterized by hypersensitivity reaction causing broncho-spasm, swelling of the mucous membranes and increased bronchial secretion leading to respiratory distress. It is a typically reversible disease of the air-ways. Asthma is explained in Caraka-samhitaa as *svaasa roga*. According to the treatise, asthma is caused by dust, smoke, excessive exertion, excessive sex and intake of dry and cold foods etc. Physiology of respiration is available in ayurvedic and Sanskrit literature. In Yajur Veda, it is mentioned that air (vaata) in the form of *praana* and *apaana* enters the nose.

(*vaatam praanena apaanena nasike*: (Yaj 15/12)

Vijaya-Rakshita, the commentator of Madhava-nidana has mentioned about increased rate of respiration, as if the function of a bellows, due to exercise.

Tamaka svaasa

This disease mentioned in Ayuredic treatises can be correlated with Bronchial Asthma. Bronchial Asthma is a complex and heterogenous syndrome characterized by episodic obstruction of intrathoracic airways, hyper-responsiveness of airways and inflammation of airways resulting in occurrence of dyspnoea and wheezing which varies widely over time either spontaneously or in response to treatment. Diffuse narrowing of the bronchi causes an increase in resistance to air flow, especially during expiration, and produces symptoms of wheeze, breathlessness and tightness of chest.

General features:

Running nose (*peenasa*), sweating of the brow (*lalaata-sveda*), dryness of mouth (*sushkaasyataa*), loss of taste (*aruci*), pain on flanks (*paarsva-soolaa*), thirst (*trshnaa*), insomnia (*anidraa*) and difficulty to speak (*bhaashana-asakti*) are the general symptoms of asthma. They manifest in varying degrees.

Cardinal features:

Dyspnoea (*svaasakrchrataa*), wheezing (*ghurghura-dhvani*) and cough (*kaasa*) come under this category.

According to Ayurveda mucous is the bye-product of digestion. Mucous is located in the gastrum (*aamaasaya*) which is the abode of kapha. Due to the etiological factors kapha gets stagnated in the gastrum and leads to the formation of the undigested filth (*aama*). This finally blocks the respiratory pathways (*praanavaha srotas*) and leads to the symptoms of asthma. The difficulty in breathing is caused as a result of obstruction of *praana vaayu* by the vitiated kapha in the airways leading to the reverse movement of air (*pratiloma-gati*). As a result there will be abnormality in the breathing pattern and pain in the chest associated with audible respiratory sounds. Consequently, cough sets in to expel out the obstructed mucous (kapha) in the airways. The patient becomes very restless due to this and on expulsion of mucous there will be a temporary relief.

Management of Asthma

Treatment principle: Any drug, food or drink that mitigates kapha and vaata, hot, and directing vaata in its natural direction (*vaata-anulomanam*) is wholesome for patients of asthma and hiccup. (C.Ci.17.147). None of them should be exclusively opposite to vaata or kapha as that which is opposite to vaata will generate kapha and opposite to kapha will generate vaata (C.Ci.17.148). Of the two, those mitigate vaata is preferable. In all diseases of similar nature, addition treatment (*brmhana*) is safer as the adverse effects of addition treatment can be combated easily. In mitigation there will not be much danger. On the other hand reduction therapy may produce very severe adverse effects which are incurable (C.Ci.149). Hence after purification or even without purification, mitigation and addition therapies are to be employed generally in asthma and hiccup. (C.Ci.150)

Patients with asthma or hiccup are of two types – the strong and the weak. Again they may be either with profuse mucous or with dryness. If the patient is strong and there is excessive mucous he may be subjected to emesis and purgation. After that he should resort to wholesome diet and then mitigating inhalations and jam like medicines may be employed. Children, the aged and those with increased vaata should be subjected to mitigation therapy. They should not be subjected to purification therapy. Nutritive therapy with fats, vegetable soups,



According to Ayurveda mucous is the bye-product of digestion. Mucous is located in the gastrum (*aamaasaya*) which is the abode of kapha. Due to the etiological factors kapha gets stagnated in the gastrum and leads to the formation of the undigested filth (*aama*). This finally blocks the respiratory pathways (*praanavaha srotas*) and leads to the symptoms of asthma.



meat soup etc. are to be employed in their case. (C.Ci.17. 88-90)

Purification:

The patients with asthma and hiccup are to be first treated with unction and sudation. For unction, oil with salt is to be applied on the body. Then sudation may be done with tube fomentation (*naadee-sveda*), mat fomentation (*prastara-sveda*) or bolus (pouch) fomentation (*samkara-sveda*). By this the solidified mucous will liquefy in the airways. The channels will become soft and the movement of air will become natural. (C.Ci.17.71,72). After attaining optimal sudation, he should be fed with unctuous rice prepared in the stock of fish or pork or whey. This is to dislodge the mucous from its attachment.
As the mucous is detached, induce vomiting. The emetic drug should be administered with the powder of long pepper, rock salt and honey. Once the mucous is vomited out and the airways are clear, the patient will have relief (C.Ci.17.74-76). Any residual mucous could be eradicated with inhalation of medicinal fumes. For this the following are used.

- Smocking stick prepared with the paste of turmeric, *Cassia cinnamon* leaves, castor root, lac, realgar, deodar and spikenard. This is to be moistened with ghee and lit for inhalation.

- Smoking stick prepared with barley powder moistened with ghee.

- Bee's wax and Indian dammer moistened with ghee may be enclosed in a closed earthen pot (hookah) for smoking.

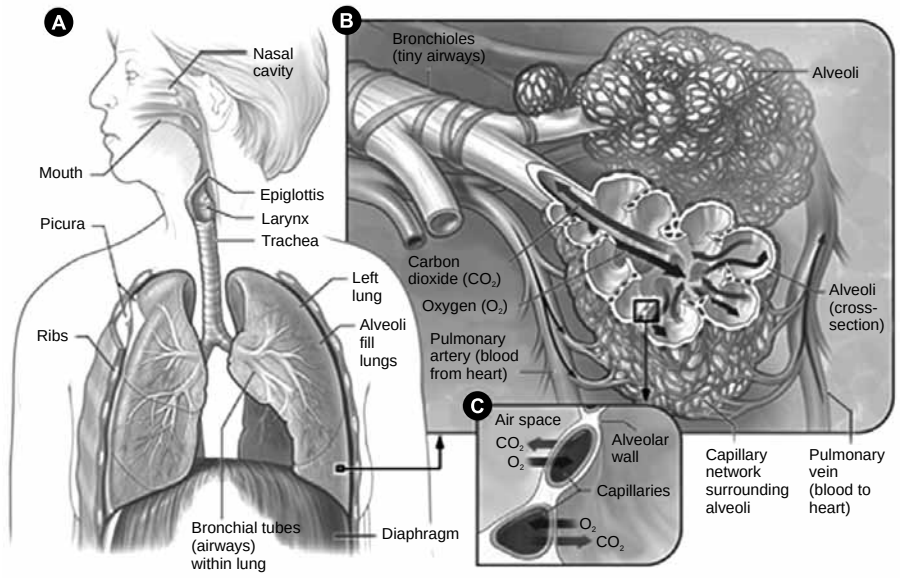
Mitigation:

On attaining relief through purification, the patient should be nourished with unctuous vegetable soups and meat soups that mitigate vaata. (C.Ci.17.90). Mitigation without purification may be employed in the case of persons with excessive vaata, the weak, children and the aged.

Treatment of complications:

Complications like hoarse voice, diarrhea, bleeding disorder, burning sensations etc are to be treated with sweet, unctuous and cold things. (C.Ci.17.81). In case of blockage of urine, feces and flatus (*udaavarta*) and tympanites (*aadhmaana*) downward movement of vaata is ensured by providing laxative diet. This diet may include pomegranate, sour cucumber (*Solena amplexicaulis = S. heterophylla = Melothria heterophylla*), asafetida, toothbrush tree (*Salvadora persica var. wightiana = S. indica*) and vit salt. (C.Ci.17. 87). In case of thirst, drinking of the decoction of the ten roots (*dasamoola*) and alcoholic

Asthma and Hiccup patients	
Treatment Line 1	**Treatment Line 2**
Strong patient with profuse mucous (*balavaan kaphaadhika*)	**Weak patient** with excess of vaata (*Vaataadhika Durbala*)
unction, sudation (*snehana*, *svedana*)	*Vaatahara tarpana*, *Brmhana*
Food that dislodges kapha (*kaphotklesakara aahaara*)	*Samana sneha, yoosha, rasa* etc.
Vomiting (*vamana*) Purgation (*virecana*)	
Wholesome inhalation (*pathya-dhooma*)	
Pacifying medicated jams etc. (*lehadi samana*)	



beverages (*madiraa*) may be beneficial. In case of dryness of mouth, palate, throat and chest and in those who are dry naturally ghee is to be administered.(C.Ci.17.139).

Procedures

Step 1	1. Unction with salted oil.
	2. Sudation
Benefits:	1. Liquification of solid mucous.
	2. Softening of airways
	3. Restoration of normal movement of vaata.
Step 2	1. Diet to dislodge mucous
	2. Induced vomiting
	3. Inhalation of medicated fumes
Benefits:	1. Clearing of the airways
	2. Relief

Role of purgation in Asthma

■ According to Caraka-samhitaa an intelligent physician should give emesis in cough and hoarseness of voice and purgation to asthmatics, both with with drugs alleviating vaata and kapha. (C.Ci.17.121)

■ According to Caraka-samhitaa and Vagbhata purgation is indicated in asthma.

■ Purgation removes mainly kapha and pitta and facilitates the proper movement of air (*vaayu*).

■ Arundatta comments that when the normal course of air is obstructed by kapha, it will go off track (*vimaarga-gamana*) due to the obstruction (*aavarana*) of kapha (A.H.Ci. 4.8). Here the treatment should mitigate kapha and ensure the natural course of vaata. Purgation is capable of doing this.

■ The origin of asthma is from the abode of pitta. Chakrapaani has explained that this is the lower stomach (*adho-aamaasaya*) C.Soo. 20.18. Purgation purifies this abode of pitta. Hence purgation is curative to asthma.

■ Haareeta-samhitaa has stated that there will be no asthma without vaata. (*na vatena vinaa svaasa*). The regular therapy of the humor vaata includes unction, sudation and mild purgation.

■ Asthma can be considered as vaata blocked by kapha. Hence treatment that is against kapha, which directs the vaata in its natural path and clears the channels, is to be employed.

Avoiding etiological factors

(*nidaana-parivarjanam*)

Avoidance of all types of precipitating or predisposing factors are to be strictly followed. If the precipitating or predisposing factors are not avoided, the humors involved in the pathogenesis will further be aggravated and the prognosis will be worse.

Principle of management in modern medicine:

- Prevention of antigen-antibody reaction
- Broncho-dilators
- Neutralizing IgE
- Suppression of inflammation and bronchial hyperactivity
- Prevention of release of mediators
- Antagonism of released mediators
- Blockage of constrictor neuro-transmitters

Conclusion:

Svaasa roga (asthma) originates from the abode of pitta. Hence treatment for the localized humor is to be done first. Purgation is recommended with drugs which mitigate vaata and kapha. Aged patients with predominance of vaata should be given nutritive and mitigating therapy. In children, all tissues are not fully developed. Hence they cannot withstand purification therapy. Addition therapy in childhood asthma will enhance the growth of tissues and immunity. Mitigating therapy is preferred for aged asthmatics, in whom depletion of tissues is progressive. Purification in old age cause augmented depletion of tissues producing the increase of vaata. By using mitigation therapy, this can be controlled. Nutritive diet, unction, vegetable and meat soups are advocated by Caraka-samhitaa for addition therapy and mitigation. ■



The Doctor





Sasikumar D.

Executive Editor,
Kerala Ayurveda Vaidyam

A good doctor should be knowledgeable and should keep abreast of development in his field of expertise. He should be a skillful diagnostician. He should neither under-prescribe nor over-prescribe. He should have a high Emotional Quotient. He should have a warmer personality, be a better listener and communicator and should be able to inspire confidence in others. He should also be a good philosopher and treat his patients in a holistic way. He should educate his patients on their diet, exercise, and stress management. He should understand the limits of efficacy of the medicine and should have an open mind. He should not be dogmatic and arrogant.

What seems more important to a patient during a medical crisis however, is the attitude of the doctor. Doctors may be sure of their diagnosis. His patient focused sincerity in taking time to explain to a patient his condition reflects a doctor's compassion, concern and empathy. It is simply caring for another fellow being. Due to increasing commercialization of the profession, doctors become careless, spend limited time with patients, over prescribe expensive drugs and recommend unnecessary investigations - all for personal gains. As a result the noble ideals of service to humanity with honesty, integrity and compassion are lost.

A doctor should be professionally competent. He should literally know something of most of the ailments that inflict humanity. It must be remembered that there are too many variables inherent in treatment of human beings and it is difficult to capture all the alternatives in a single decision. Doctors should not practise defensive medicine; at the same time the mere saving of costs should not affect his clinical judgement.

A good doctor is sincere, dedicated and courteous. He is able to complement his medical knowledge and clinical judgement with humanistic qualities of integrity, respect, commitment and compassion. He sees his patients as fellow human beings and not as a 'case' with an illness. A good doctor is one who not only demonstrates professional competence, but also manifests personal qualities of patience, maturity and confidence. He listens attentively to his patients' complaints and tries to answer all their questions to the best of his knowledge. He treasures his relationship with his patients based upon mutual respect and open communication. He is motivated by the well being of his patients rather than material or other gains. If a doctor can offer relational approach to medical practice, healing may be experienced beyond the physical dimension.

A doctor who has all the above qualities will still be inadequate if he has bad traits or bad character. An ill mannered doctor or a doctor who does not turn up in emergencies is likely to drive away his patients. A good doctor is expected to have a more complete understanding of healthcare systems and health economics, socio-cultural and behavioural patterns of the population, ethical and legal issues of the society which have an impact on healthcare and medical practice.

He is some one who knows his field, makes the right diagnosis of an illness and recommends the best treatment towards recovery. ■

Congratulations



Padmasree Dr.K. Rajagopalan MBBS, DAM, FAIM is awarded with ASHTANGA-RATNAM award of the Government of Kerala for the year 2009. This is the highest among the awards presented by the Government every year. It is usually presented to a veteran Ayurveda doctor of meritorious professional standing considering his lifetime achievements in and contributions to the science of Ayurveda. Dr.K. Rajagopalan is one among the directors of Kerala Ayurveda Limited and is revered at a highest order by the Ayurvedic Community. His clinical wisdom and research expertise is unparalleled. He has recently written and published a book on Panchakarma. He has in depth knowledge in all Ayurvedic treatises. Ashtanga-ratna award comprises of a cash prize, memento and certificate.

Mode of Action of Nasyakarma



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INTRODUCTION

Medicine or medicated fat which is given through nose is called *nasya*. It is the treatment of choice for diseases of head and neck. Here one might suspect how the drug is absorbed into the systems and what is the mode of action? All our seers have explained that nose is the doorway to head. To clarify this, an attempt is made. In classical treatises we do not get direct references regarding the exact mode of action of errhines (*nasya karma*). To explain scientifically this, a bird's eye view on Anatomical and Physiological aspects of nose is necessary.

MODE OF ACTION

For any drug to act upon any particular system of the body, the drug has to be absorbed into the system. The absorption of drugs is mainly based on the following: -

- Routes of Administration
- Physical state of Drug
- Solubility and absorbing surface
- Some classical references and Anatomical considerations
- Time of administration, pre-operative and post-operative procedures.

Routes of Administration

The routes of drug administration play an important role. Some important routes of drug administrations are nasal, oral, rectal, skin, etc.

Inhalation

Drugs administered through inhalation are quickly absorbed and produce rapid local and systemic effects.

Trans-Nasal Route

Through this route it may reach the brain along with lymphatic channels. (Pharmacology by: - Sathoshkar & Bhandarkar).

Physical state of Drug

For the better absorption and for good results the physical state of drug plays

an important role. The drugs such as ghee (pure ghee), oil (*anutaila*), juice (cane sugar juice etc.), powder (*katphal - Gmelina arborea, trikatu-* the three acrids), paste etc. are used in nasal medication.

Fatty substances (*sneha dravya*) are having properties like liquidity, heaviness, unctuousness, spreading, sluggishness and minuteness. (C.Soo.22.5)

Liquidity
Due to their liquidity fats spread quickly. (Arunadatta)

Heaviness
Heaviness increases the bulk of the body, is nutritive and mitigates vaata. (Hemaadri)

Unctuousness
Causes unction, softness and generates strength. (Hemaadri)

Spreading
Causes movement and clarification. (Hemaadri)

Sluggishness
Sluggish substances are generally palliative.

Minuteness
Enters into the minute pores and channels.

Rock salt (*saindhava-lavana*) is mentioned as one of the drugs for nasal medication. This is hot, sharp, highly spreading and minute. These properties help it to enter minute channels and act. The dosage forms like powder and juice are mostly irritants and stimulate the nerve endings.

While explaining the types of drug action Sathoskar explained that stimulation increases the activity of specialized cells. (Pharmacology – Sathoshkar& Bhandarkar).

Liquids are better absorbed than solids. (Pharmacology).

Solubility and Absorbing Surface

Absorption of the drugs depends upon the solubility of the drugs. Water soluble drugs act quickly but the duration of the action is short. Lipid soluble drugs have delayed action and their duration of action is long.

Example:-

The drugs which are used in nasal medication will be volatile, water soluble and highly lipid soluble. Mucus membrane is a good absorbing surface. The mucus membrane of the nose, nasopharynx, conjunctiva, vagina, and rectum are more accessible. Any drug, instilled in the nose, will have local action as well as general action. High lipid solubility of the drug favors its absorption (Pharmacology).

Classical Aspects

To the statement of Vaagbhata that nose is the gateway of head (A.S.Soo.29.3) Indu comments that drugs administered in the nose reach various parts of head.

In Ashtaanga-samgraha, Vaagbhata has given an idea about the absorption of nasal medication. The drug reaches *srngaataka marma*, spreads there and acts after reaching the channels of head, eyes, ears, etc cures the diseases of head and neck. The preceptor provides an analogy of removing a minute foreign body with the help of instruments. Similarly nasal medication eliminates the vitiated kapha.

To the statement of Vaagbhata that nose is the gateway of head (A.S.Soo.29.3) Indu comments that drugs administered in the nose reach various parts of head. In Ashtaanga-samgraha, Vaagbhata has given an idea about the absorption of nasal medication. The drug reaches *srngaataka marma*, spreads there and acts after reaching the channels of head, eyes, ears, etc cures the diseases of head and neck.



Susruta-samhitaa opines that the *srngaataka marma* is situated at the junction of channels supplying to nose, ear, eye and tongue. He further states that the injury to this vital area is fatal.

Indu in his commentary of Ashtaanga-samgraha has opined the vital area srngaataka as the inner aspect of the medial part of the head (*siraso-antar-madhya*). Probably he has referred to the paranasal areas consisting of sinuses and blood vessels.

Treatises like Ashtaanga-hrdaya (Soo.20.1), Susruta-samhitaa and Caraka-samhitaa (Si.2.8) and their commentaries agree that errhines spread all over the head. Medicated fats spread completely in head and eliminate the disease. Bhela-samhitaa (Si.2) states that by nasal catharsis the purification of ears, nose and tongue are achieved. Moreover the channels of body fluid (*rasa*) and the buccal cavity are also purified. This is due to the elimination of kapha.

Nourishing nasal medication

(*brmhana nasya*)

The drug used in this type of nasal medication is unctuous, minute, and sweet in taste. Fats satisfy all these qualities. Hence they are easily absorbed through the mucosa. The active principles of drugs used here are lipid soluble.

Palliative nasal medication

(*samana nasya*)

These are palliative to vitiated humors. The drugs will be both water and lipid soluble.

Nasal catharsis

(*siro-virecana nasya*)

The drugs used in this are hot, sharp, and minute in properties. These drugs are more water soluble. They penetrate through mucous membrane of nose and spread in head because of their minute property.

Anatomical aspects

The cribriform plate of ethmoid bone:

It lies between the two orbital parts of the frontal bone. It separates the fossa from the nasal cavity, the roof of which helps to form 1) foramen ceacum 2) foramina in cribriform 3) anterior and posterior ethmoidal foramens. Through

the anterior and posterior ethmoidal foramen the nerves and blood vessels are passed and forms connection from nasal cavity to cranial cavity. This is the passage between nose and cranium. Hence the contention that nose is the doorway to head is true.

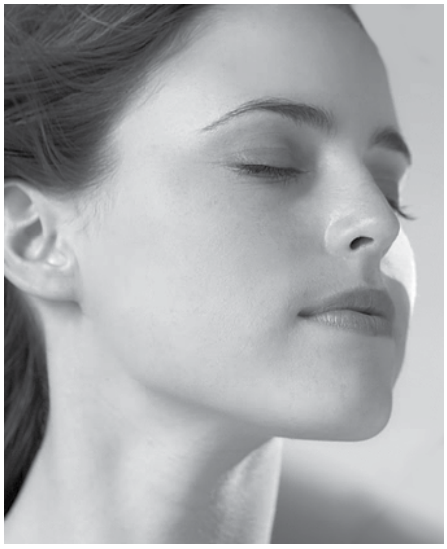
The nasal mucosa which comes into direct contact with these drugs in nasal medication is supplied by both ophthalmic as well as maxillary branch of trigeminal nerve. Nasal medication provides direct counter irritation or stimulation to these nerves.

Apart from these, small veins enter cavernous sinus of brain. A pair of venous branches emerging from ala nasi also drains into facial vein.

Just in the opposite direction inferior ophthalmic veins enter the facial vein. These ophthalmic veins also drain in to the cavernous sinuses of meninges. Neither the facial vein nor the ophthalmic veins have any valves. So the facial veins drain into the cavernous sinus when head is lowered. The drug carried through veins of ala nasi has a chance to enter the meninges.

The nasal cavity directly opens with the frontal maxillary and sphenoidal sinuses. The epithelial layer is also continuous throughout them. The momentary retention of drug in nasopharynx and its secretion causes oozing of drug material into the air sinuses. These sites are rich with blood vessels entering the meninges through the existing foramens in the bones.

The *sṛngaaṭaka marma* has been explained as middle cephalic fossa of the skull consisting of paranasal sinuses and meningeal vessels and nerves. The drug administered enters paranasal





When drugs come in contact with nasal mucosa, they irritate and stimulate the olfactory nerve cells lying in superior turbinate which send efferent fibers to olfactory area in floor of cerebral cortex. The impulse from olfactory bulbs reach the primary olfactory cortex, amygdaloid complex and many other areas. Efferent fibers from amygdaloid complex go to the hypothalamus and stimulate it which in turn gives feed back to the pituitary.

sinuses where the ophthalmic vein and other veins spread out. The mucous membrane of nasal cavity to throat is highly vascular. It is also a good absorbing surface. Due to this vascularity, the drug is mainly absorbed through the capillaries. The capillaries of mucous membrane joins venules which anastamose with each other to form plexus. Some of these venules open into the spheno-palatine veins. Others join facial vein, some end in ophthalmic vein. Thus blood is drained into the systemic circulation.

The mucous membrane of the nose is continuous with frontal, maxillary, sphenoidal and ethymoid sinuses. Any drug, which is administered through the nose, will certainly penetrate through the mucous membrane and will have its action on these sinuses.

Stimulation Theory

When drugs come in contact with nasal mucosa, they irritate and stimulate the olfactory nerve cells lying in superior turbinate which send afferent fibers to olfactory area in floor of cerebral cortex. The impulse from olfactory bulbs reach the primary olfactory cortex, amygdaloid complex and many other areas. Efferent fibers from amygdaloid complex go to the hypothalamus and stimulate it which in turn gives feed back to the pituitary. Nasal medication probably acts by increasing the immunity of the nasal sinus mucosa and reduces its hypersensitivity to external inhalable irritants.

Role of Time and Position

According to Vaagbhaṭa, time factor is important in nasal medication. After completion of nasal medication the patient should lie down supine for a period required to spell 100 long vowels. This indicates that it requires a particular time for the nasal medication to be absorbed and to generate optimal action. To obtain quick and better action, the nasal medication is to be properly processed.

Role of pre-operative and post-operative procedures.

Unction and fomentation to head, forehead and face.

Patient should be lying supine with slight lowering of the head.

Administration of medicine to both nostrils slowly.

Retention of medicine in naso-pharynx for few seconds.

Comfortable smooth massage on forehead, around the ears, sides of neck, soles and palms

Inhalation of medicinal fumes, gargling and full mouth retention of medicines also are post operative procedures.

The procedures like lowering of head, elevation of the lower extremities and giving mild fomentation seems to have an impact on blood circulation to the head. This augments stimulation and increases blood flow to the brain. ■

Cow's urine (Gomootra) – an Ayurvedic Medicine



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Animal materials are still rich resources of many natural products, most of which are extensively used for human welfare as drugs and cosmetics. The variety and diversity of animal products that have medicinal values have been recognized several centuries ago. Among these, cow's urine has been used as a medicine from time immemmorial. In Veda, cow's urine was compared to the nectar. Cow's urine is described in ancient Ayurvedic classics like Caraka-samhitaa, Susruta-samhitaa and Ashtaanga-samgraha as the most effective secretion of animal origin with many therapeutic values. All the religious scriptures like Skanda puraanam, Vishnu puraanam and Mahaabhaarata have also described the importance of cow's urine as a purifier. It is instructed to bath in cow's urine and or drink it to get rid of all sins.

A number of researches were carried out by the modern scientists to trace out/utilize the therapeutic values of cow's urine. It is found that it has detoxicant and antiseptic property.

Properties:

According to Ayurveda, cow's urine is light *(laghu)* and dry *(rooksha)*. It is acrid and salty in taste. Its metabolic effect *(vipaaka)* is acrid and it is of hot potency. It promotes digestive power and intelligence. It is anti-inflammatory, anti-febrile and anti-toxic. It has analgesic and purgative actions and it is a liver stimulant.

Chemical Constituents:

The principal normal constituents of urine are water, urea, creatinine, purines (Uric acid, Xenthine, Hypoxanthine etc), allantoin, hippuric acid, ammonia, aminoacids, neutral sulphur compounds, inorganic salts and the pigments urochrome and urobilin.

(Detailed information is given in tabel A)

Uses

It is used both internally and externally. It has different aspects of uses i.e.

As detoxicant

Many poisonous plants/ metals are used as medicine both internally and externally after purified with cow's urine.

(Detailed information is given in tabel B)

As a medicine

Internally it is highly recommended for cirrhosis of the liver in doses of 1 to 2 ounces. It is also used in obstinate-abdominal diseases including ascitis (udara roga), hardening of the bowel, flatulence and for the purpose of purgation therapy and decoctional enema *(aasthaapana-vasti)*. Simply, cow's urine with milk diet is very



useful in edema. It is also used in enlargement of abdomen, dyspepsia, ascites, jaundice, skin diseases *(kushtha)* and chronic prurigo.

In congestive fever with constipation, chronic malaria, flushed face and headache, an ounce of fresh and warm cow's urine is given as a domestic medicine. It cures all bodily and mental illnesses. It is a divine drink of yogis to obtain divine powers. It is believed that Ganga always resides in cow's urine. It is destroyer of all sins (diseases). Even researches in America have proved that cow's stomach always contains vitamin B.

Cow's urine brings goodness in thoughts. By drinking it regularly for six months, man's nature becomes benevolant. It destroys passion and ignorance. It purges out toxins from the whole body through urine, sweating and excreta. It is destroyer of psychological diseases. In Ayurveda it is said that cow's urine is a great elixir and proper diet which is pleasing to heart and that it gives mental and physical strength and enhances longevity. It removes all blood disorders. It balances pitta, kapha and vaata.

Cow's urine has the following therapeutic values

- Germicidal activity
- Ability to balance the humors
- Corrects functions of liver
- Enhances immunity
- Compensates for deficiency of nutrients
- Contains many minerals especially Copper
- Presence of gold salts
- Strengthens brain and heart
- Reduces mental strain
- Antitoxic and arrests ageing.

Chemical Constituents of cow's urine and cure of diseases as per them **Table A**

Sl. No.	Name of chemical	Diseases
01	Nitrogen	Removes blood abnormalities and toxins, Natural stimulant of urinary track, activate kidneys and it is diuretic.
02	Sulphur	Supports motion in large intestines. Cleanses blood.
03	Ammonia	Stabilise bile, mucous and air of body. Stabilises blood formation.
04	Copper	Controls built up of unwanted fats
05	Iron	Maintains balance and helps in production of red blood cells & haemoglobin. Stabilises working power.
06	Urea	Affects urine formation and removal. Germicidal.
07	Uric Acid	Removes heart swelling or inflammation. It is diuretic therefore destroys toxins.
08	Phosphate	Helps in removing stones from urinary track.
09	Sodium	Purifies blood. Antacid
10	Potassium	Cures hereditary rheumatism. Increases appetite. Removes muscular weakness and laziness.
11	Manganese	Germicidal, stops growth of germs, protects decay due to gangrene.
12	Carbolic acid	Germicidal, stops growth of germs and decay due to gangrene.
13	Calcium	Blood purifier, bone strengthener, germicidal
14	Salt NaCl	Decreases acidic contents of blood, germicidal.
15	Vitamins A,B,C,D,E	Vitamin B is active ingredient for energetic life and saves from nervousness and thirst, strengthens bones and reproductive ingredient for energetic life and saves from nervousness and thirst, strengthens bones and reproductive power.
16	Other Minerals	Increase immunity
17	Lactose	Gives satisfaction, strengths heart, removes thirst and nervousness.
18	Enzymes	Make healthy digestive juices, increase immunity
19	Water	It is life giver. Maintains fluidity of blood, maintains body temperature.
20	Hipuric acid	Removes toxins through urine
21	Creatinine	Germicide
22	Aurum Hydroxide	It is germicidal and increases immunity power, highly antibiotic and anti-toxic.



Above all it has a special power to purify mind from sins.

Some home made medicines from cow's urine

Constipation

■ Drink filtered cow's urine many times daily.

■ Soak powder of chebulic myrobalan (Teminalia chebula Retz) in cow's urine. Heat it on low flame. Evaporate to dryness. Those who cannot use cow urine directly may use this powder.

Old fever, jaundice, swelling – Cow's urine with decoction of *chirata (Swertia chirayita*). Take this mixture for seven days every morning and evening.

Cough, asthma, cold – Drink filtered cow's urine.

Jaundice – Drink filtered cow's urine in empty stomach every morning for one month. According to Caraka-samhitaa *loha bhasma* should be soaked in cow urine and taken with milk. This gives quick relief in Jaundice. This preparation should be filtered before intake.

Dry cough of children – Give filtered cow urine mixed with tamarind powder.

Diseases of stomach

■ Drink filtered cow's urine.

■ Add some salt and sugar in equal amounts to cow's urine and drink.

■ Add rock salt to cow's urine and drink.

■ Salts from cow's urine are given.

Stomach ache & distention of abdomen of children – give one spoon cow's urine mixed with some salt.

Ascites – Drink cow's milk side by side with cow's urine mixed with honey.

Edema – Drink cow's milk side by side with cow's urine.

Liver & Spleen enlargement – Heat up a brick and dip it in cow's urine. Wrap the warm brick in a cloth and put it over swollen liver or spleen.

Worm infestation – Give *Gardenia gummifera* powder with cow's urine.

Skin disease

Make a paste of yellow arsenic *(hartal), Babchi (Psoralia corylifolia)* and seeds of climbing staff plant *(malankangani - Celastrus panniculatus)* with cow's urine apply over the affected part. 2) Mix powdered black cumin *(Carum carvi)* with cow's urine. Use this for massage on skin.



Vitilligo – Apply paste of the powder of *babchi* seeds in cow's urine.

Itching, boils and eczema – drink cow's urine mixed with mango-ginger *(Curcuma amada)*. In itching massage with cow's urine and take bath in it after.

Itching – Apply neem leaves made into a paste with cow's urine.

Ring worm, leprosy, and elephantiasis – Drink cow's urine mixed with old jaggery and tamarind power.

Ring worm – Grind leaves of thorn apple *(dhatoora - Datura metel)* and boil it in cow's urine till it becomes thick. Apply it on affected parts.

Elephantiasis – Take cow's urine in empty stomach.

Ear pain – Use cow's urine as an ear drop.

Urinary obstruction – Take cow's urine in empty stomach.

Arthritis & joint pains – Drink cow's urine mixed with caster oil.

Rickets – Drink cow's urine mixed with saffron in the morning and evening.

Tuberculosis – smelling cow's urine destroys the tuberculosis germs.

Hair care – Applying cow's urine on hairs and massage. Wash with water after some time.

Burning sensation of eyes, constipation, laziness and aversion to food – Add sugar to cow's urine and drink.

Preserve Health – By regular intake of cow's urine, body maintains fitness and remains energetic, hunger increases and blood pressure becomes normal.

Cow's Urine is used an ingredient in various Ayurvedic medicines

Some examples are given in table C

Table B

S. No	Ingredient	Method	Reference
01	General purification of all metals	Quenching	Rasa-Ratna-Samuccaya
02	Gloriosa superba *(laangalee)*	Impregnation	Ayurveda-Prakasa
03	Seeds of Datura metal	Impregnation	Rasaamṛta
04	Strychnous nuxvomica seeds *(kupeelu)*	Impregnation	Rasaamṛta
05	Aconitum ferox *(vatsanabha)*	Impregnation	Rasaamṛta
06	Marking nut *(bhallataka) - (Semicarpus anacardium)*	Impregnation	Rasaamṛta

Table C

Sl. No.	Formulation & Ref.	Useful in
01	Punarnava- Mandoora C. Ci.16. 93-96.	Jaundice, Anemia
02	Gomootra Hareetakee A.H.U.22.102	Diseases of Oral Cavity
03	Pancagavya-ghṛta A.H.U.7.18	Epilepsy, Fever, Jaundice, Cough, Inflammation, Phantom tumor *(gulma)*, Piles Enlargement of abdomen *(udara)*
04	Naaraaca-ghṛta B.R.40. 143,146	Enlargement of abdomen Rheumatism, Phantom tumor, Diseases of spleen, Fistula in ano, Sciatica
05	Punarnavaadi Coorna B.R.40. 40	Colic, Wounds, Edema, Enlargement of abdomen
06	Mandoora-vatee C.Ci.16.102-104	Diseases of spleen, Anemia, Piles, Malabsorption syndrome *(grahanee)*
07	Sanjeevani-vatee (trituration) Saa.S. II.7.18	Indigestion, Phantom tumor, Gastro-enteritis, Snake-bite
08	Hingvaadi-ghṛta B.R.24.58	Psychosis
09	Canda-Bhairava-Rasa B.R.25.31	Epilepsy
10	Kaaseesaadi Taila A.F.I.Part I p 131	Piles

[Of the above except the last one intended for external use, all others are for oral consumption.]

Modern Science & Cow's Urine

We find that modern science and scientists are taking interest in cow's urine for its various uses.

■ Application of large amounts of cow's urine to grassland resulted in a marked increase of grass growth and did not affect soil quality.

■ A process has been developed wherein distillation of cow's urine was used for production of vermicompost. It has been observed that addition of cow's urine in compost pits led to production of superior quality vermicompost with higher concentrations of major macro and micro-nutrients. Such vermicompost was found to be superior in terms of useful microflora (fungi, bacteria and actinomycetes).

■ Protective effect of distillate and redistillate of cow's urine in human Polymorphonuclear leukocytes challenged with established genotoxic chemicals.(Environmental Biotechnology Division, National Environmental Engineering Research Institute, Nehru Marg, Nagpur-440 020, INDIA.)

■ In Susruta-samhitaa, several medicinal properties of cow's urine have been mentioned and are known to cause weight loss, reversal of certain cardiac and kidney problems, indigestion, stomach ache, edema, etc. However, the literature and scripture did not mention the antigenotoxic properties of cow's urine. In the present investigation, the antigenotoxic/antioxidant properties of cow's urine distillate and redistillate were studied in vitro. The antioxidant status and volatile fatty acid levels were determined. Actinomycin-D (0.1µmol/L) and hydrogen peroxide (150 µmol/L) were used for inducing DNA strand break with 0.1% DMSO as negative control. Dose for the antigenotoxic effect of cow's urine was chosen from the dose response study carried out earlier.

Results:

Both actinomycin-D and H_2O_2 caused statistically significant DNA unwinding of 80% & 75% respectively ($P < 0.001$) as revealed by Fluorimetric Analysis of DNA Unwinding (FADU), and the damage could be protected with the redistilled cow's urine distillate (1,50 & 100 µL) in simultaneous treatment with genotoxic chemicals.



Conclusion:

The redistillate of cow's urine was found to possess total antioxidant status of around 2.6 mmol, contributed mainly by volatile fatty acids (1500 mg/L) as revealed by the GC-MS studies. These fatty acids and other antioxidants might cause the observed protective effects.

Experimental studies on the "cow's urine mixture"

Samples of the "Cow's Urine Mixture" (a traditional remedy for convulsions) administered intraperitoneally to fasting grey rabbits were found to produce significant depression of their plasma glucose. A similar effect on the plasma glucose was produced by a sample of Cow's Urine Mixture given by the nasogastric route. These findings confirm that the mixture has a significant hypoglycaemic effect when given both parenterally and interally, the latter being the usual mode of administration of this concoction. The probable nature of the hypoglycaemic agents contained in the mixture is discussed.

Ref.- PMID: 6185066 [PubMed - indexed for MEDLINE])

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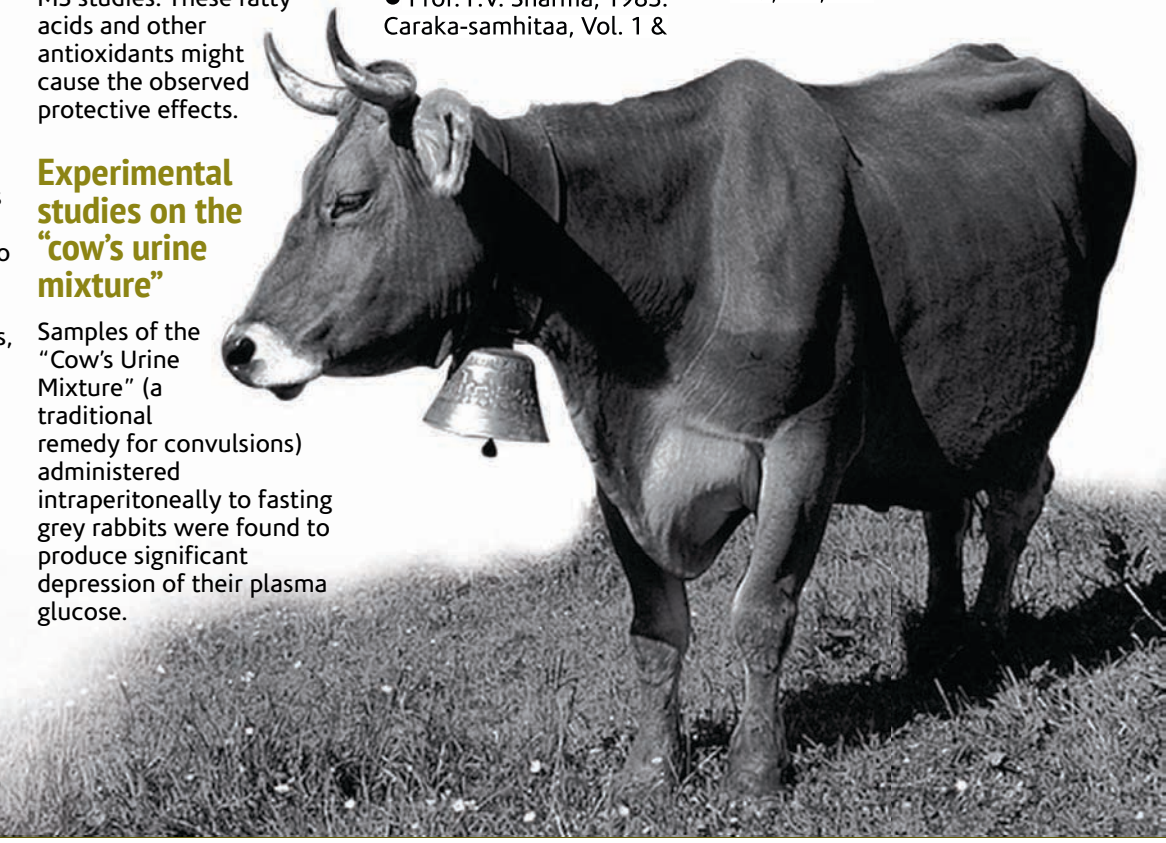
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The Vessel and the Dish

Cooking vessel has a say on the dish. The dining dish also has its say. Let us see what Ayurveda speaks about the dish that you use to dine.

Gold vessel – improves sight, is wholesome and mitigates all the three humors.

Silver vessel – is good for your eyes and mitigates all the three humors.

Bronze vessel – improves intelligence, augments taste and clarifies pitta and kapha.

Brass vessel – is dry, hot, increases vaata, but cures worm infestation and kapha.

Iron vessel – cures anemia, edema and jaundice and is strengthening.

Quartz vessel – has the same effects of iron vessel.

Rock vessel and earthen ware – are not considered auspicious.

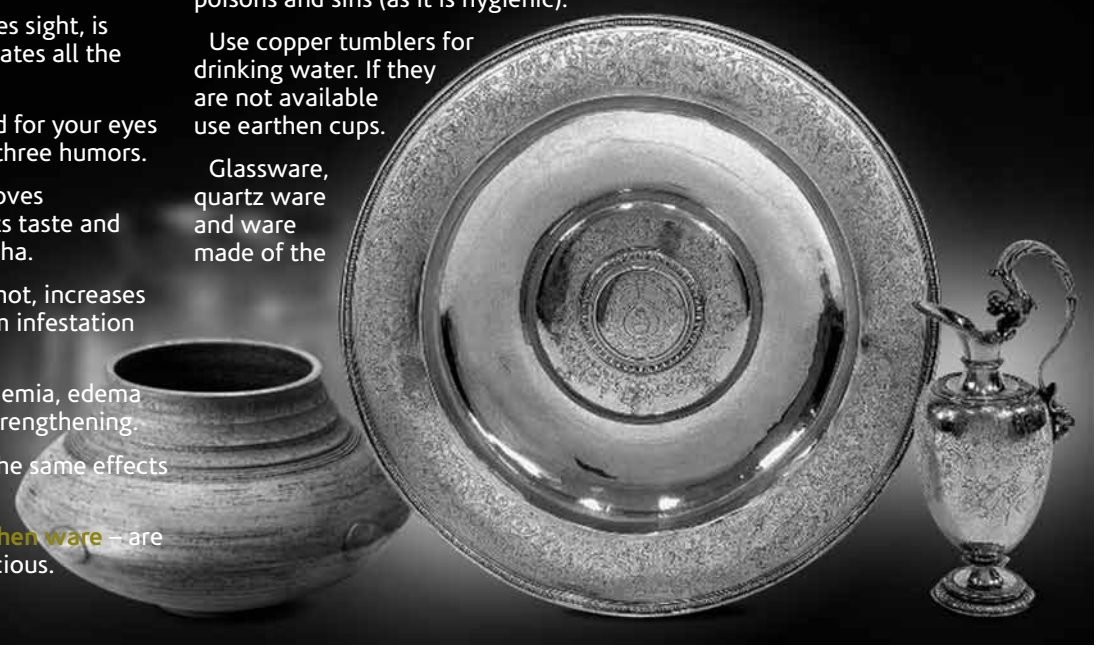
Wooden vessel – improves appetite and increases kapha.

Leafy vessel – generates appetite, is carminative (*deepana*) and mitigates poisons and sins (as it is hygienic).

Use copper tumblers for drinking water. If they are not available use earthen cups.

Glassware, quartz ware and ware made of the semiprecious stone vaidoorya are cold in nature and are pure.

(Compiled from *Bhojana-kutoohalam*)



Some classical rice preparations

From page no: 42

It provides nutrition and appetite. It is known as pongal in Tamil.

4. Refrigerent rice *(taapaharee)*: Deep fry black-gram dough with turmeric powder in ghee. Add well washed rice to the vatas in a frying pan. Add water, salt, asafetida and chopped ginger and cook. This is called taapaharee in North India. It is strengthening, aphrodisiac and will increase kapha. It increases the bulk of the body and is nutritive. It is tasty and heavy. This is a type of fried rice.

5. Ultimate rice (*paramaannam*): Rice is washed well in six times water. To the washed and strained rice add one and a half part water and boil. This is called plain rice (without straining). To two part of plain rice add six parts milk, three parts of restorative herbs (or vegetables) and one and a half part of jaggery powder. Cook and evaporate water to required consistency.

6. Turmeric rice *(haridraannam)*: Add four times churned milk to the rice. Add a pinch of turmeric powder, black gram and cumin seeds. Cook and evaporate.

7. Curd rice *(dadhyodanam)*: Mix two parts of sweet and sour curds with one part of plain rice. Add sliced ginger, salt and powdered black pepper.

8. Sesame rice *(kṛsaraannam, miśrakaannam, miśraannam)*: This is known as khiccadee in Hindi. Rice and dhal are cooked in water with salt, ginger cuttings, and asafetida. It is not strained. This increases semen and is strengthening. It is heavy and increases pitta and kapha. It is difficult to digest. It may cause constipation and increases the quantity of feces and urine.

9. Jaggery rice or sweet rice *(gudaannam)*: Ghee 2 parts. rice 2 parts, milk 6 parts, water 3 parts and jaggery three parts. Fry rice in ghee. Add water and milk and boil. Add jaggery only after the rice is sufficiently cooked. Add sliced plantain fruits towards the end of cooking.

10. Exhortation rice *(bhootaannam)*: Rice mixed with curds, turmeric, powdered pop rice and sesame seeds is used in exhortation of evil spirits.

Ghee rice, meat rice *(biriyaani)*, various types of fried rice, *pulaavs* etc. are now available. The method of preparation also have changed considerably. Nuts, raisins, cardamom etc. are usually added to fried rice and sweet rice. Ayurveda has mentioned lots of rice and gruels prepared with specific herbs in specific diseases. Jeera rice, lemon rice, tomato rice, sour rice *(puliyodarai)* etc. are in fashion now. ■

Case of the Bli-Month

Management of `*Pooya sukl̲am̲*' (pus cells in semen).

40 year old male patient presented with complaints of no issues after five years of marriage.

It was diagnosed as a case of *pooya sukl̲am̲*. He was admitted in Kerala Ayurveda Hospital, Aluva on 18th December 2009 [OP No 5997, IP No 6851(A)] and discharged on 28th December 2009.

Investigations were done at the time of admission and at the end of treatment.
The reports are as follows:

SEMEN ANALYSIS		
	Before treatment	**After treatment**
	17/12/2009	20/02/2010
Period of abstinence	Not known	4 days
Macroscopic examination		
	17/12/2009	20/02/2010
Volume	1.0ml	2.4ml
Colour	Opaque grey	Opaque
pH	8.0	8.0
Viscosity	Normal	Normal
Microscopic examination		
Sperm count	3.6million/ml	8.2million/ml
	17/12/2009	20/02/2010
Actively motile	60%	40%
Sluggishly motile	20%	25%
Non motile	10%	30%
MORPHOLOGY		
	17/12/2009	20/02/2010
Normal	70%	75%
Immature and abnormal forms	30%	25%
OTHER OBSERVATIONS IN SEMEN		
	17/12/2009	20/02/2010
Agglutination	Present	Not detected
Pus cells/germ cells/ HPF	>50	Not detected
RBC/HPF	Nil	Occasional
Epithelial cells/HPF	1-2	Occasional

Patient was feeling good and had good appetite all along the period of unction except the last two days. In the last two days patient felt slight discomfort in the stomach. Signs of optimal unction began from fifth day and by seventh day he was optimally unctuous.

TREATMENT Period-10 days

Internal Unction for 7 with Indukaanta- ghr̲tam̲

Days ..... Quantity

1st day .....50 ml
2nd day.....75 ml
3rd day..... 100 ml
4th day ..... 130 ml
5 th day ..... 175 ml
6 th day ..... 200 ml
7 th day ..... 225 ml

After unction, sudation was given for 2 days. This was followed by one honey-oil enema *(maadhutailika-vasti)*, two royal management enema *(raaja-yaapana-vasti)* and dose-enema *(maatraa vasti)* with *Pippalyaadi tailam̲* for 3 days.

After 11 days of treatment paitent was discharged on 28th of Dec. 2009. .

He was advised to continue the following medicines for two months.

1. *Nyagrodhaadi ghr̲tam̲*- 1 teaspoon twice daily.
2. *Gokshura coornam̲* ½ tsp + *Asvagandha coornam̲* ½ tsp mixed with warm water at bed time.

After treatment the investigations showed no agglutination and pus cells.

INDUKAANTAM̲ GHR̲TAM̲ - This wonderful medicine is indicated in neurological disorders, emaciation, ascites, phantom tumor, colic, fever and in general, it helps to increase immunity. Here, this formulation is prescribed to control inflammation which generated pus cells. This formulation is noted for its ability to correct tissue fire *(dhaatvagni)*. The medicines used here should be unctous, anabolic and should enhance tissue-fire.

He was advised to repeat the lab investigation after two months and to take following medicines for increasing the sperm count.

1. Naarasim̲ha rasaayanam̲ –

This is a rejuvenating medicine. It nourishes the tissues and strengthens bio-fire.

2. 4 g each of cotyledens of cowhage *(kapikacchu)*, fruits of land-caltrops *(gokshura)* and roots of winter cherry *(asvagandha)* are powdered and mixed with honey and ghee. This is administered orally.

This combination can improve the structure and function of reproductive tissue *(s̲ukra dhaatu)*.

"Achieving world standards through Quality in Raw materials"

*Report on paper presented by **Dr. C.I. Jolly**, Scientific Advisor, Kerala Ayurveda Ltd at the Global Ayurveda Summit 2010*

During Global Ayurveda Summit 2010 in the international convention centre, Le Meridien, Cochin, Dr. Jolly, our Scientific adviser presented a paper on the topic "Achieving world standards through Quality in Raw materials". To achieve world standards, he emphasized the specific need for Authenticity, Purity and Quality. Through the above parameters our herbs should find a place in all pharmacopoeia of the world. As the global scenario is upgrading its standards is getting more stringent so it is necessary to follow the same by all ayurvedic industry.

Authenticity means strictly following a single scientific name adhering to all norms of binomial nomenclature by all countries. The parts used should pass all histological screening datas to ascertain its authenticity.

Next need is the critical study of ash, both for inorganic components and heavy metal presence. Useful minerals play a vital role in utilization while the toxic heavy metals will depict the problems encounter by the masses in spoiling the health care rather than preparing a society with good health. WHO has prepared the standards for heavy metals, microbial count and pesticide residue as guidelines to follow the minimum presence of these. This will ensure the purity of the raw materials.

The quality of the raw materials both fresh and stored are to be ascertained by utilizing active or major marker compounds followed by possible bioassay. Dr.Jolly mentioned specially the finger print with mass spectroscopy for the extracts and isolates. It is also essential to identify the stability of these extracts before usage.

Later Dr. Jolly explained how one should approach ayurvedic herb by citing the example of ginger which is used in three major forms i.e., fresh juice, decoction (kashayam) and powder form. The modern scientific forum proclaims marker compounds as oleoresins in ginger (gingerol, shagoal, zingeberine) which are not water soluble. But the ayurvedic industry largely uses the water extract of dried ginger. So there is a need to identify Ayurvedic Marker Compounds (AMC) and inform the same to various pharmacopoeias. Today the world is patenting pungent principle P from the juice and the decoction is identified as the one which protects from gastric disturbance and is identified as a powerful antibacterial.

It is a change that is needed while dealing with our traditional wisdom "ayurveda and ayurvedic herbs." It is a fact that traditional wisdom of our country is the best even though, the question of credibility and reputation is concerned. But at the same time, even if there is perception about the unscientific nature of ayurvedic thoughts, there should be some mechanism to deal with it. Let the ayurvedic industry come together and achieve this goal. ■

Declaration

The following particulars regarding the ownership of Kerala Ayurveda Vaidyam, the English Quarterly Journal are published as called for, by the Rule-8 of the Registration of news papers (Central Rules 1956)

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I hereby declare that the particlars above are true to the best of my knowledge and belief.

S/d.

Dr. K. Anilkumar
Printer, Publisher & Owner

Aluva
15th March 2010

Some classical rice preparations

Various rice preparations are mentioned in ayurvedic treatises. They are commonly used as regular food as well as diet of patients. Here is a brief sketch of the scenario of cooking rice. Rice preparations are named according to the water content of cooked rice and according to the ingredients used.

According to water content

Washed rice is boiled in 14 times of water. When cooked it is strained. The rice part is plain cooked rice *(kevalaannam, bhaktam, odanam)* and the strained liquid is rice-water *(mandam)*. There are differences of opinion regarding the water to be added to boil rice. Rice should be washed well and soaked before boiling. Rice can also be boiled in lesser quantity of water and evaporated to required dryness without straining.

Rice-water and Gruels

■ Rice-water *(mandam)*: Lightest product of cooked rice. It provides strength to the patients and the convalescents. Easily digested. The starch particles in it may be absorbed even without digestion.

■ Light gruel *(peyaa)*: 200 g of rice is cooked in 2800 ml of water. It is consumed without straining. It is the lightest form of gruel. A slightly thicker varity of it is called yoosha in Sanskrit. (The term *yoosha* is also used to denote vegetable soups and decoctions.)

■ Thick gruel *(vilepee)*: Rice is cooked in 4 times of water. It is not strained. If we grind the rice in its water it will form a paste. It is nourishing, sweet, mitigates pitta and is considered to have aphrodisiac property.

■ Medium gruel *(yavaagu)*: Rice is cooked in 6 times of water and is not strained. It is more liquid than thick gruel. It is constipating, strengthening, nourishing and mitigates vaata.

■ Milk gruel *(paayasa)*: A thick gruel of rice (vilepee) cooked in milk is called paayasa.

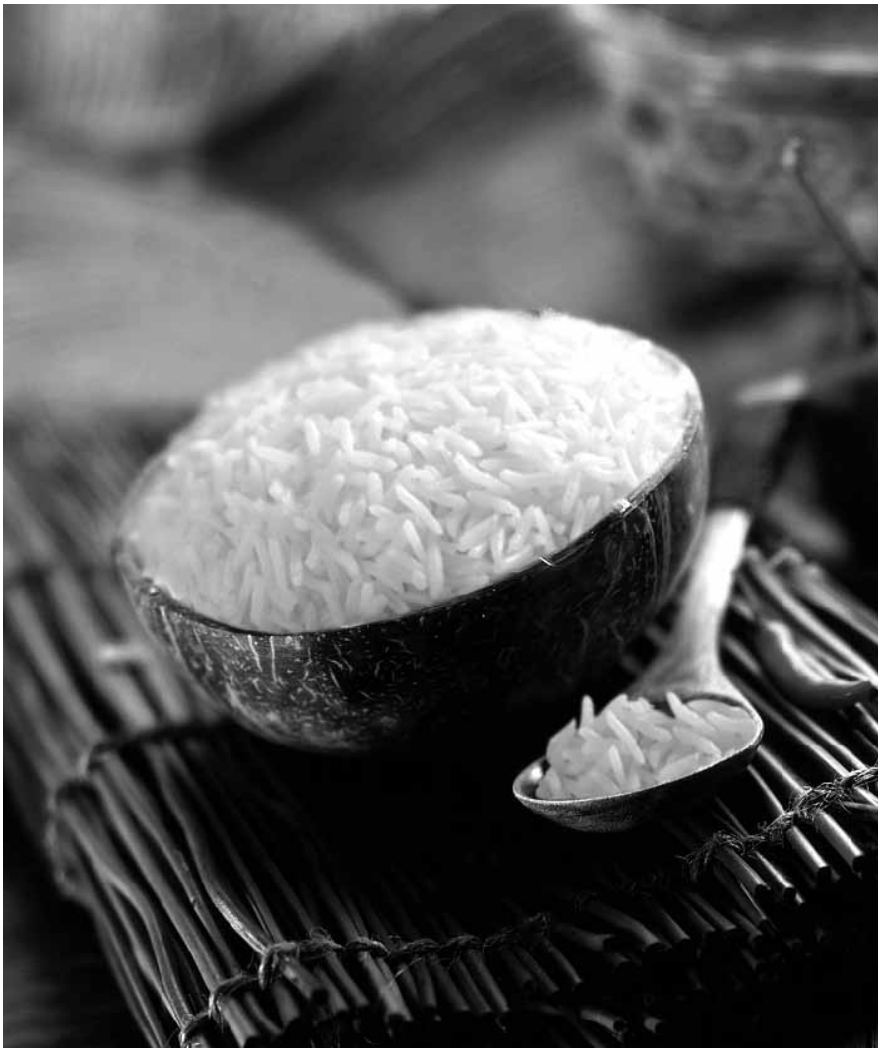
Rice *(odanam /annam)*

■ Plain rice *(kevalaannam)*: It is sweet and very light. (Preparation – ibid above)

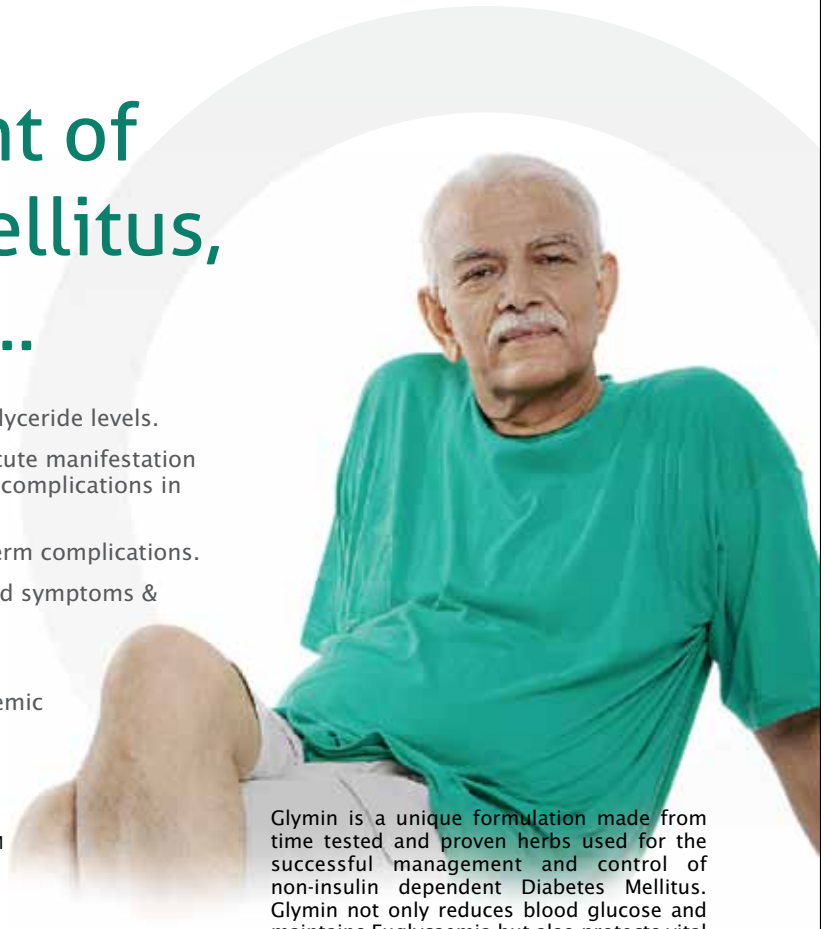
■ Stock rice *(rasodanam)*: Rice is cooked in clear soup of meat. It is good for diseases of nervous system *(vaata-roga)* and is strengthening. It cures fever.

■ Green gram rice *(mudgodanam, Ghollabhaktam)*: Rice and dhal of green gram are cooked together. This is not strained. It is cold in potency, sweet, stomachic, good to heart, carminative and digestive. It cures colic due to indigestion (aama-soola), mal-absorption syndrome (grahanee) and piles.

See page 39



Safest Management of Diabetes Mellitus, Natural too...



Reduces blood glucose and lowers triglyceride levels.

Maintains Euglycaemia and prevents acute manifestation & long term micro and macro vascular complications in NIDDM patients.

Protects vital organs and averts long-term complications.

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Indication:
Non-insulin dependent diabetes mellitus

Dosage:
1 to 2 tablets thrice daily or as directed by the physician

Presentation:
10 x 10 tablets in blister in a carton box

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Salacia oblonga (Peetika) 300mg. | Syzygium cumini (Jambu) 200mg | Pterocarpus marsupium (Asana) 200mg | Gymnema sylvestre (Meshasringi) 100mg | Tinospora cordifolia (Guduchi) 100mg | Emblica officinalis (Amla) 100mg | Curcuma longa (Haridra) 100mg | Silajit 30mg

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Increases HDL

Ultimate choice in hypercholesterolaemia



COMPOSITION:
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Salacia oblonga (Ponkorandi)	50 mg
Commiphora mukul (Gugul)	50 mg
Terminalia arjuna (Arjuna)	50 mg
Tribulus terrestris (Gokshura)	12 mg
Pandanus tectorius (Ketaki)	12 mg
Plumbago indica (Chitraka)	12 mg
Musa paradisiaca (Kadali)	12 mg
Madhuca indica (Elippa)	12 mg
Celastrus paniculata (Jyothishmati)	12 mg
Illicium verum (Thakkolam)	12 mg
Strobilanthes Sp (Sahachara)	12 mg
Salmalia malabarica (Sarjarasa)	12 mg
Silajit (Processed)	10 mg
Annabhedi (Processed)	10 mg

PRESENTATION:
Box of 10 blisters of 10 tablets

INDICATION:
Hypercholestrolaemia

DOSAGE:
2 tablets thrice daily as monotherapy.
2 tablets twice daily as an adjuvant to other hypolipidaemic drugsor as directed by the physician.

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