

Āryavaidyan

ISSN 0970 - 4086

लाभानां श्रेय आरोग्यम्

*Of all the gifts,
the most precious is health*



Vol. XXIV, No. 1
August - October, 2010



A QUARTERLY JOURNAL OF
THE ARYA VAIDYA SALA - KOTTAKKAL

āryavaidyan

A Quarterly Journal of
the Arya Vaidya Sala, Kottakkal.

Vol. XXIV., No. 1

Regn. No. 55127/87

August - October, 2010

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EVALUATION OF ANTIBACTERIAL ACTIVITY OF ROOTS OF *MAERUA OBLONGIFOLIA*

Usha M*, Bindu B*, Girish Chandran R* and Murali Krishna M**

Abstract: Different extracts of the roots of *Maerua oblongifolia* was tested for antibacterial activity. The plant exhibited a broad spectrum of antibacterial activity against selected pathogenic bacteria such as *Staphylococcus aureus*, *E coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumonia*, *Bacillus subtilis*, *Proteous vulgaris*, and *Bacillus pumilus*.

Introduction

It has been well known since ancient times that plants and species have antibacterial activity. Development of bacterial resistance to the available antibiotics and increasing popularity of traditional medicine led the researchers to investigate the antibacterial compound in plants. Traditionally, mūrva is used for fever, skin infections, diabetes, and stomach disorders. As the plant *Maerua oblongifolia* is one of the botanical sources of mūrva, it is believed that different extract of roots of the plant possess antibacterial activity.¹ *Maerua oblongifolia* large, woody climber, is distributed in dry gangetic areas of Punjab, Madhya Pradesh and Rajasthan and Tropical east Africa.²

The genus *Maerua* has been used in the treatment of intestinal diseases, mental illness, diarrhoea, epilepsy and vomiting and *Maerua oblongifolia* was reported to have stomachic,

hypothrombenemics and hyperfibrinogenemic effects.³ A phytochemical study revealed that the root contains sugar, starch, fixed oils, inulin. Lupine triterpenoids and betulin were isolated from aerial parts and characterized in *Maerua oblongifolia*.⁴ No systemic approach has been made to study antibacterial activity of this plant. The present paper is an attempt to study the antibacterial activity of *Maerua oblongifolia*.

Materials and methods

The roots of *Maerua oblongifolia* were collected in flowering condition from Kalakkad forest surroundings of Tirunelveli district of Tamil Nadu and deposited at the herbarium of PG department of Pharmacognosy, M.S. Ramaiah College of Pharmacy, Bangalore along with a voucher sample of crude drug in the crude drug museum.

The roots were collected, washed and dried at room temperature. After complete drying, it was

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TABLE 1
Anti-microbial activity of different extracts of the root of *Maerua oblongifolia*

Extracts	Conc (ig/ml)	Pathogens						
		SA	EC	PA	KP	BS	PV	BP
Benzene	100	5	-	-	-	3	-	2
Chloroform	100	5	3	-	6	-	-	9
Acetone	100	9	7	8	5	5	-	-
Ethanol	100	15	18	19	11	17	12	15
Aqueous	100	17	17	16	16	13	10	11
Ciprofloxacin	10	22	21	23	24	24	21	21

SA - *Staphylococcus aureus*; EC - *Escherichia coli*; PA - *Pseudomonas aeruginosa*; KP - *Klebsiella pneumonia*; BS - *Bacillus subtilis*; PV - *Proteous vulgaris*; BP - *Bacillus pumilus*

powdered and passed through a 60# mesh sieve and stored in air tight container. The dried and powdered drug was used to prepare various extracts.

About 50g of the air-dried powdered plant material was extracted successively with petroleum ether (60-80°), followed by benzene, chloroform, acetone alcohol (70%) in soxhlet apparatus. Each time before extracting with next solvent, the marc was dried below 50°C. Finally, the marc was macerated with chloroform water for 24 hours to obtain an aqueous extract. The extracts were filtered, the solvent was evaporated and accurate weight of the extracts was taken.

Antimicrobial test: - The antimicrobial test was performed by following agar disc diffusion method.⁵ Working bacterial inoculum suspensions were obtained from 18th hour stock culture on nutrient broth at 37°C. A 5ml volume of the bacterial suspension was evenly mixed with sterile nutrient agar medium and poured into the sterile plates. After allowing the media to solidify at room temperature, wells of 6mm

diameter was bored in the agar with sterile cork bores. The plates were incubated at 37°C for 24 hours. The results were obtained by measuring the zone diameter.

Result and discussion

A preliminary screening and comparison of different extracts of *Maerua oblongifolia* root was tested against *Staphylococcus aureus*, *E coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumonia*, *Bacillus subtilis*, *Proteous vulgaris* and *Bacillus pumilus*. It was observed that among all the extracts, Ethanol extract showed prominent antibacterial activity against *E.coli* and *Pseudomonas aeruginosa*. The phytochemical investigation of the root extract revealed the presence of triterpenoids and alkaloids may responsible for the antibacterial activity (Table 1)

The plant has been extensively used to heal various types of diseases including infections nature. The data from the literature as well as the result of the present study reveal the potential effect of the plant for therapeutic treatment.

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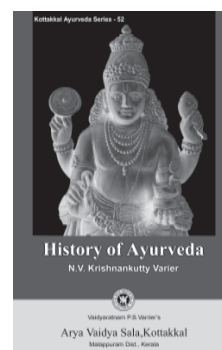
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RUDRĀKṢA - MYTHOLOGICAL AND SCIENTIFIC DESCRIPTIONS

Sunita Godara, Anita Sharma and Vinod Kumar Gothecha*

Abstract: Rudrākṣa (*Eleocarpus ganitrus* = *E. sphaericus*) is used in the management of blood pressure, allergies, neurological diseases, asthma, diabetes, cancer and many other raktavaḥasrotadhikāra (blood circulatory disorders) and mānasikarogas (mental disorders). Its beads have resistance, capacitance and dielectric properties; leaves are used in rheumatism and as antidote for poison.

Introduction

The term rudrākṣa (rudra i.e. Śiva + akṣa i.e. eye) literally stands for the eyes of Lord Śiva or implying thereby that pleasant to the eyes of Lord Śiva. The beneficial powers of rudrākṣa are its electrical and magnetic, i.e. resistance, capacitance or dielectric, properties. Its leaves are used in rheumatism and as antidote for poison and beads act as a stabilising anchor. Rudrākṣa has the ability to change its polarity.

Rudrākṣa beads have several amazing powers due to their electromagnetic character. This electromagnetic character empowers the bead to cure the human body medically as well as spiritually. Āyurveda prescribes wearing of rudrākṣa beads to relieve stress, anxiety, depression, lack of concentration and palpitations. It is also known for its anti-ageing effects, electromagnetic and inductive properties. It is used for the treatment of cancer and other diseases such as blood pressure, allergies, neurological diseases, asthma,

diabetes and many other raktavaḥa srotadhikāra (blood circulatory disorders) and mānasikarogas (mental disorders). The beads are either worn externally or boiled in milk and then the milk is used as a curative. Different type of rudrākṣa powder is also taken with water to alleviate the pain.

Mythological origin

The word rudrākṣa has its etymological beginnings in the Sanskrit words 'rudra' and 'akṣa' meaning Lord Śiva and teardrops respectively. According to Śivapurāṇa, Lord Śiva once went into deep meditation for the well being of all living creatures. When he woke up, he opened his eyes and tear drops fell on the earth. These tear drops took the form of seeds that later on became the rudrākṣa tree. Lord Śiva is always portrayed wearing rosaries of rudrākṣa beads on his head, arms and hands. With this came the religious, spiritual, physical and materialistic significance of rudrākṣa. It is believed that the seed of rudrākṣa contains the

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secrets of entire evolution of the cosmos within it. The sages have been wearing rudrākṣa for centuries to cultivate mental, physical and health prowess to attain fearlessness on their spiritual path to enlightenment. According to Śivapurāṇa, the one who wears rudrākṣa around his hands, arms and head cannot be killed by a living being and that he would fearlessly roam the world in the form of Rudra and be respected and honored by all.

Botanical description

Rudrākṣa (*Elaeocarpus ganitrus* = *E. sphaericus*) belongs to the family Tiliaceae (the Lime/Linden family). It is a large, evergreen broad-leaved tree found in tropical and subtropical areas at the altitudes ranging from seacoast to 2,000 meters above the sea level (Fig. 1). The rudrākṣa tree is now localized only in Eastern Nepal due to suitable climatic conditions.

The tree is a perennial one i.e. grows throughout the year and is about 50-200 feet high. The main trunk of the tree is cylindrical with a grayish white and rough textured bark. In nature, leafy crown of the tree takes a pyramidal shape. The



Fig. I
Rudrākṣa (*Elaeocarpus sphaericus*)

leaves are shining green on the upper side with a dull leathery dorsal side. The flowers are white with fringed petals and appear in April-May. The fruits appear in June and ripen by August-October. They are globular in shape with a fleshy exterior. Inside of the bead is hard and tubercled.

Pharmacodynamic properties: - It has guru (heavy), snigdha guṇa (unctuous nature), madhura rasa (sweet in taste), madhura vipāka (sweet in post-digestive taste) and śīta vīrya (cooling potency) and vāta-pitta-śāmaka actions.

Chemical composition:- Rudrākṣa is covered by a blue outer shell on ripening hence it is also called blueberry bead. The percentage compositions of the gaseous elements present in a rudrākṣa was determined by C-H-N Analyzer and by Gas chromatography. Rudrākṣa beads contain 50.031% carbon, 0.95% nitrogen, 17.897% hydrogen and 30.53% oxygen.

Rudrākṣa therapy: - External therapeutic uses of rudrākṣa can be performed by darśana (by looking like tratak in yoga) and sparśana (by wearing, and pressing the beads).

Medicinal properties: - Some medicinal properties of rudrākṣa are described as follows:

- Rudrākṣa bead is a natural tranquilizer and it is said that wearing it around the heart, control the heartbeat and keeps blood pressure under control.
- Dip two beads of pañcamukhi rudrākṣa (five-faced variety) in a glass of water in the night and leave over-night; drinking the water in the morning in empty stomach controls the blood pressure.
- It imposes positive effect on stress, anxiety, depression, palpitations and lack of concentration; and cools down the body temperature and brings calm to mind.

- Wearing 'garbhagauri' rudrākṣa is said to help women who have problems in conceiving and are prone to abortion. It is useful for women suffering from hysteria and coma.
- It helps to cure prolonged cough; intake of a paste of ten-faced rudrākṣa with milk (thrice a day) relieves prolonged cough.
- It can be used as a cure for skin diseases, sores, ringworm, pimples, boils and burns.
- Wearing three-faced rudrākṣa is good for children who suffer from frequent fever.
- Intake of a powder of rudrākṣa and black pepper (in equal quantity) with water cures smallpox.
- Milk boiled with four-faced rudrākṣa is a good medicine for mental diseases. It also increases the memory power.
- It possess anti-ageing property.
- Rudrākṣa is also administered in powdered form in a dosage of 3-5 gm or mixed with other āyurvedic herbs. The internal administration improves their effectiveness and shortens the treatment period.

The scientific basis of rudrākṣa action

Electrical properties: - The human body can be considered as a complex bio-electronic circuit consisting of the nervous systems and organs. A number of electrical impulses are generated by the human body due to different reflex actions taking place, continuous pumping for blood circulation, neurons and nervous system. The ability to send out subtle electrical impulses and inductive vibrations and act as a dielectric as in a capacitor to store electrical energy is termed as bio-electricity. All the work of our sense organs depends on the subtle flow of bio-electric current. Thus all the actions our body performs are effectively controlled. The bio-electric current is produced due to the difference

in the energy levels of different body parts. This smooth flow of bio-electric current causes the properly controlled functioning of the body parts.

Bio-electric circuit: - There is a third element in the body and brain called the bio-electronic circuit interface, that of the mind. Any activity that can produce stress or maladjustment can throw the streamlined activity, the electronic circuit of the body and mind out of gear. All living beings are prone to stress in the fight for survival.

In modern age, stress and stress related ailments like insomnia, alcoholism, depression, maladjustments, heart diseases, skin diseases, etc. are increasing tremendously. 95% of these ailments are psychosomatic or stress related. When there is stress or maladjustment, corresponding stress signals are sent to the central nervous systems and there increased activity or abnormal of neurons and neuro transmitters. The magnitude of change will depend on the cause and specific case. When such a thing occurs continuously, streamlined flow of electrical signals throughout the mind-body interface is disrupted and it makes uncomfortable feeling; the blood circulation becomes non-ideal and various illnesses are felt. Rudrākṣa beads act as a stabilizing anchor. Its electrical property can be broadly categorized as follows:

Resistance:- There is continuous and subtle flow of bio-electrical signal throughout the body due to potential difference between parts of the body. Rudrākṣa beads of particular mukhis or facets have a definitive factor of resistance. It is measured in Ohms. When these beads resist the flow of bio-electrical impulses, a specific ampere of current flow is generated depending

on the factor of resistance. This acts in tandem with heartbeat, streamlining it and sending out specific impulses to brain. These impulses stimulate certain positive brain chemicals making us feel better, more confident, poised and more energetic. It has been observed that specific mukhis or facets of rudrākṣa beads send out specific signals acting on a particular brain chemical and thereby by effecting specific positive changes in personality.

Capacitance or dielectric properties: - Rudrākṣa beads act as dielectric i.e. as a storage of electrical energy. This property of rudrākṣa makes it capable in stabilizing and anchoring the bio-electric current. The values are measured in units of Farad. This property is very helpful in controlling hyperactivity, palpitations, streamlining heartbeat, etc. Due to stress when there is increased physical activity heart beats faster and the overall activity of hormones and nervous system increases. This causes increased energy levels or increase in potential difference and as a result of this, the magnitude of the bio-electric current increases. Rudrākṣa beads acting as dielectric store, and this excess bio-electric energy, thereby streamlining the overall activity to normalcy.

Inductance: - Rudrākṣa beads have permanent magnetic properties. They have been observed to send out inductive vibrations with frequencies measured in units of Henry (Volt Seconds/ Ampere). This perhaps is the reason why people have felt better even when the beads do not touch them physically.

Magnetic properties: - Rudrākṣa beads have both paramagnetic and diamagnetic with the most important property of dynamic polarity. We are aware of the beneficial healing properties

of magnets. Magnetic healing is becoming very popular. Rudrākṣa beads retain most of the properties of magnets; and it is unparalleled in one aspect that it has the ability to change its polarity or the property of dynamic polarity. The basic way of healing is based on the fact that when the passage of arteries and veins, which carry blood to and from heart to all the parts of the body, is blocked or reduced due to variety of reasons, various illnesses creep. Blood carries oxygen and energy to various parts of the body and cleanses it off waste materials. Any disruption of the smooth flow of blood circulation is bound to cause illnesses.

Pain and uneasiness is experienced due to improper blood circulation. Every cell in the blood as well as the arteries and veins are charged either positively or negatively. Magnets have the poles positive (+) and negative (-). When magnets are passed on various parts of the body the opposite poles of the magnets and that of cells get attracted and there is an expansion of the passage. The arteries and veins open up to facilitate streamlined blood circulation. When there is a streamlining of blood circulation most of the illnesses get automatically healed and we feel better and rejuvenated. But with magnets the polarity is fixed. When magnets are brought near a particular part of the body it opens up only those sections of veins and arteries where there is a matching of polarities hence complete healing and streamlining of blood circulation cannot be ensured. We experience healing and feel better but we can still go much further with dynamic polarity of rudrākṣa beads.

Dynamic polarity: - Rudrākṣa has the ability to change its polarity. This in turn is by virtue of its property - diamagnetism. Diamagnetism is

termed as the ability of any material to acquire temporary magnetic property in presence of an external magnetic field. The polarity of the charge induced is opposite to that of the external field inducing the charge. Blood circulation and heart beat automatically induces a magnetic field around the body and particularly the heart region. Bio-electricity automatically gives rise to bio-magnetism depending on the polarity of the induced magnetic field. Rudrākṣa bead acquires a polarity that is opposite of the inducing field. As a result of this the opening up of the passages of arteries and veins are far better than that of magnets. Much better healing and rejuvenation is experienced. Various literatures mention the powerful anti-ageing properties of rudrākṣa beads. This is mainly because of its dynamic polarity. In some sense rudrākṣa beads can be termed to have some additional life or intelligence as against magnets.

Types of rudrākṣa

Rudrākṣa beads are usually differentiated on the basis of number of faces or mukhis that appear on the bead. The bead has tuberculated clefts and furrows that define its type. It varies in size from small (found in plains) to very big (found in trees growing in Himalayas). A smooth rudrākṣa is also found but it is very rare and very costly. According to the ancient scriptures, mukhis are numbered from 1 to 38. According to mythology, Lord Śiva's three eyes represent the Sun, Moon and Fire and the rudrākṣa beads born out of the tears of his solar eye are brown in color and are of 12 types (Fig II). Those born of his lunar eye are fair and of 16 types. His fiery eye's tears gave birth to black rudrākṣa which are of 10 types. Different types of rudrākṣa and their indications are detailed in Table 1.

Rudrākṣa invocation:- It is believed that rudrākṣa

beads should not be worn without sanctifying them. They should be blessed and empowered by chanting the specified mantras (hymns), performing the specific rites and rituals. The śuddhikaraṇa pūja (sanctification ceremony) has to be performed prior to wearing any rudrākṣa bead. Then the specified mantra for each mukhi rudrākṣa is chanted on that bead. The blessings procedure goes like this: Blessings may be done in an auspicious day and time by the wearer, his guru or a priest. After bath, with a pure mind and body arrange the items i.e. pañcagavya (cow's dung, urine, milk, ghee and curd) for blessings. In absence of pañcagavya, pañcāmṛta (a mix of unboiled milk, honey, sugar, ghee and curd) can be used. Chant 3 times 'Om Nama: Śivāya'. The bead should be worn on a Monday morning after touching with Śivaliṅga.

Rudrākṣa and stars:- Rudrākṣa can be worn singly or as a combination of different mukhis. According to the astrologers, at the time of birth, the positioning of stars (nakṣatras)

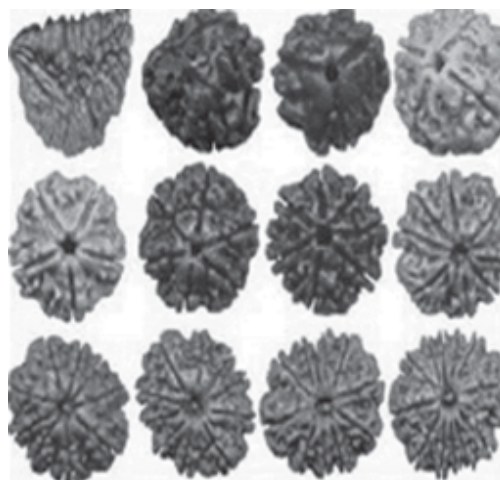


Fig. II
Different types of rudrākṣa

TABLE 1
Different type of rudrākṣa and thier indications

Type of rudrākṣa	Indications
01-mukhi	Chronic asthma, heart problems, mental anxiety, TB, paralysis, stroke, eye problem, bone pain and head ache.
02-mukhi	Impotency, renal failure, stress, anxiety, lack of concentration, depression, negative thinking, eye problems, mental chaos, hysteria and intestinal disorder.
03-mukhi	Depression, schizophrenia, weakness multifarious, directive of the menstrual cycle/ menstrual stress, fixation or guilt induced complexes, blood pressure, mood swings, fever or weakness, jaundice and mental disability.
04-mukhi	Blood circulation, cough and brain linked illness, asthma, hesitate, memory lapse and respiratory strip problems.
05-mukhi	Blood pressure, heart problems, stress, mental disability, fatness, anger management, diabetics, piles, neurotic and maladjustment problems.
06-mukhi	Epilepsy and gynecological problems.
07-mukhi	Asthma, pharyngitis, impotency, foot related diseases, respiratory and confusion.
08-mukhi	Stomach ache, stress, skin diseases and anxiety.
09-mukhi	Work as mysterious medicine for treating strange diseases
10-mukhi	Hormonal inequality in the body, mental insecurity and whooping cough.
11-mukhi	Body pain, backache, chronic alcoholism and liver diseases.
12-mukhi	Bone diseases, rickets, osteoporosis, mental disability and anxiety.
13-mukhi	Muscular dystrophies
14-mukhi	Brain related and many other types of diseases.
15-mukhi	Skin diseases, recurring miscarriage and still birth. It is measured as a blessing for women who are incapable to imagine and in such case both the partner should wear it for fruitfulness.
16-mukhi	Leprosy, tuberculosis, cor-pulmonale and lung diseases
17-mukhi	Memory lapse and body functional disorders
18-mukhi	Mental harmonization and loss of power
19-mukhi	Blood disorder and spinal disorder
20-mukhi	Eyesight problem and snake bites
21-mukhi	It eliminates all form of diseases
Trijuti/tribhagi	Internal and external body disorders
Gaurīśaṅkar	Sexual and behavioral disorders
Garbha gauri	Gynaecological disorders

determines the rudrākṣa mukhi to be worn. However, one can also wear any rudrākṣa mukhi based on his desires/needs to be fulfilled.

Rudrākṣa as accessories: - Rudrākṣa is increasingly being used as a fashion accessory and as an alternative method of treatment. The medicinal properties of rudrākṣa have also been proved and so the trend of wearing it is on the rise. The various rudrākṣa accessories are: rudrākṣa mālā (garland), rudrākṣa bracelets and rudrākṣa pendants.

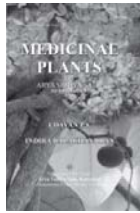
Conclusion

Rudrākṣa has been believed to be effective in controlling the affects of stars and planets in favour of the person wearing it. Its significant medicinal benefits and spiritual value have also been proved.

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MEDICINAL PLANTS OF ARYA VAIDYA SALA HERB GARDEN

Udayan P.S. and Indira Balachandran

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This comprehensive handbook provides detailed information on the 1025 medicinal plant species names in different languages, places where they grow naturally, parts used in medicines and important uses for the benefit of professionals, students, herb collectors, farmers, etc. The handbook lists the plants alphabetically by their Latin names; information on groups of plants such as naksatra vana (plants representing 27 stars), dasamula (ten roots), dasapushpa (ten flowers) triphala (three myrobalans), trikatu (three acids), etc. is also included in the book. Indices of common names, glossary of medicinal terms and list of reference are also provided.

EFFICACY OF KAPIKACCHUBĪJA CŪRNA IN BRONCHIAL ASTHMA - A CLINICAL STUDY

Deepti Patil*, Om Prakash Rout** and S.K. Hiremath**

Abstract: Kapikacchu or ātmagupta, botanically identified as *Mucuna pruriens*, belongs to the family Fabaceae. Ācārya Caraka has indicated kapikacchu for the treatment of kāsa, vātavyādhi, kṣataksṣīṇa and in rasāyana and vājikaraṇa. The study was conducted in 30 patients. It is found that Kapikacchubīja cūrṇa is very effective in tamakaśvāsa (bronchial asthma).

Introduction

Bronchial asthma is the most common chronic/recurrent respiratory condition. Asthma results from complex interactions among inflammatory cells, mediators, the cells and tissues resident in airways. Pathophysiology and symptomatology of asthma vary from patient to patient and even in the same patient from time to time. Kapikacchu (*Mucuna pruriens*) belongs to the family Fabaceae^{1,2}. The main constituent of its seed is L-Dopa, which has scientifically proven of promoting the release of growth hormone⁴. Carakasamhita describes kapikacchu for the treatment of kāsa, vātavyādhi, kṣataksṣīṇa and in rasāyana and vājikaraṇa.

Materials and methods

The study was carried out during October 2001 to Jan 2003. Total 30 patients, between the age group of 15 to 45 years, were selected.

Inclusion criteria: - Patients who were clinically diagnosed as tamakaśvāsa and in avega avastha of tamakaśvāsa.

Exclusion criteria: - Patient with associated symptoms of cardiac asthma, chronic bronchitis with acute exacerbation, tropical pulmonary eosinophilia, and acute bronchitis and status asthmatics.

Grouping: - 30 patients were equally divided into two groups - A&B. Patients in group A were treated with kapikacchu and group B (control) with starch with ghr̥ta and madhu.

Assessment criteria: - Clinical sign and symptoms of tamakaśvāsa such as śvāsakṛchra, kāsa and ghurghurata (noisy breathing), were the subjective criteria of diagnosis. WBC, ESR, E%, AEC, and peak expiratory flow rate were carried out as objective criteria for the assessment of the condition.

Administration of drug: - Kapikacchu cūrṇa (3g) with ghr̥ta and madhu as anupāna was administered (BD) in patients of Group A. Group B was treated with Starch (3g) with ghr̥ta and madhu as anupāna.

Duration of treatment: 45 days

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Follow-up:- Patients were advised to visit the hospital at regular interval of 15 days or in case of any difficulty. History of dyspnoea as well as improvement, general condition and well-being were also noted.

Assessment phase: - The results of the treatment were assessed on the basis of following criteria:

1. Reduction in the frequency of asthmatic attack/fortnight
2. Improvement in the symptoms
3. Improvement in peak expiratory rate
4. Improvement in blood picture

The results were reassessed and the cases were grouped as: i) improved (more than 65% of amelioration of signs and symptoms) ii) improved satisfactorily (amelioration of signs and symptoms not less than 50%) and iii) no respond (no significant relief in sign and symptoms).

Observation

It was observed that males were more affected than females. The incidence of disease was found maximum between 30-40 years. The disease was found to be more in urban area as compare to rural area. Maximum number of patients was found to be non vegetarians suffering from tamaka śvāsa. The seasonal factor has been observed in the present studies plays an important role in production of disease. The higher incidence was observed during winter and in rainy season because of seasonal factors like dust, smoke, humidity, and change in atmospheric temperature and it is also more susceptible in patients belonged to vātika prakṛti as compared to others. (Table 1)

Results and discussion

The mean score of dyspnoea before and after the treatment is shown in Table 2.

TABLE 1
Distribution of patients according to age, sex, etc.

Description	Group		Total	%
	A	B		
1. Age and sex (in yrs)				
- 15-20 (M3, F2)			5	16.66
- 21-25 (M2, F1)			3	10
- 26-30 (M2, F2)			4	13.33
- 31-35 (M5, F2)			7	23.33
- 36-40 (M5, F3)			8	26.66
- 41-45 (M2, F1)			3	10
2. Education status				
- Illiterate	2	2	4	13.33
- Below 10 th class	2	3	5	16.66
- Above 10 th class	7	6	13	43.33
- Post graduate	4	4	8	26.66
3. Habitat				
- Rural	4	6	10	33.33
- Urban	11	9	20	66.66
4. Dietary habits				
- Vegetarian	4	7	11	36.66
- Non vegetarian	11	8	19	63.33
5. Socioeconomic status				
- Higher	4	2	6	20
- Middle	7	8	15	50
- Poor	4	5	9	30
6. Occupation				
- Students	1	2	3	10
- Service man	2	2	4	13.33
- Business man	2	2	4	13.33
- House hold	5	4	9	30
- Farmer	2	3	5	16.66
- Factory workers	2	3	5	16.66
7. Use of anti-asthmatic drugs				
- Salbutamol	10	9	19	63.33
- Theophyllin	3	4	7	23.33
- Cortisone	2	2	4	13.33
8. Family history				
- Positive	2	1	3	10
- Negative	13	14	27	90
9. Allergies				
- Positive	10	8	18	60
- Negative	5	7	12	40
10. Prakṛti				
- Vāta	11	10	21	70
- Kapha	2	2	4	13.33
- Vāta-kapha	2	3	5	16.66

TABLE 2
Effect of therapy before and after the treatment

Dyspnoea	Mean score
Before treatment	2.7 ± 0.948
After 15 days treatment	2.00 ± 1.33
After 30 days treatment	1.8 ± 1.39
After 45 days treatment	1.7 ± 1.05

In tamakaśvāsa, śvāsakṛchra and kāsa are due to kaphāvarodha in prāṇavaha srotas. The drug being tiktarasa, act as kaphahara. Due to its vāta-reliving properties, the congestion of the air ways is freed letting the prāṇavāta to move in its normal tone. Excessive secretion of kapha is due to the inflammation and infection also. The properties of the drug counter act these symptoms due to anti-toxic properties; once the drug overcomes major symptoms (śvāsakṛchra) the associated symptoms like ghurghurata, anidra, pārśvaśūla, are also relieved.

Conclusion

The effect of Kapikacchubīja cūrṇa on

eosinophil percentage and absolute eosinophil count was observed. It reduces the eosinophil count and also absolute eosinophil count which is significant on 45 days of treatment it has been clinically observed that Kapikacchu bīja cūrṇa gives relief in tamakaśvāsa on the basis of subjective and objective criteria.

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ROLE OF PIZHICIL IN SUKHAPRASAVA (EUTOCIA) - A CLINICAL EXPERIENCE

Chandan Mal Jain and J. Snehalatha*

Abstract: Pregnancy, parturition and puerperium are the three main stages in the pregnancy. Among them parturition is the stage that needs highest attention. Any deviation from the normalcy in this process leads to structural and functional defect to both mother and child, and even lead to death. The efficacy of this particular therapy is observed clinically in 11 full term pregnant ladies who have approached us with their interest to minimize the intensity of labour pain; and out of eleven, three were VBAC (Vaginal birth after caesarean). Clinically it was observed that pizhicil has definitive effect on prasūtimāruta - as the intensity of labour pains is comparatively less in severity.

Introduction

Āyurveda, emphasizes qualitative and quantitative aspects of life in relation to health. Quality of life for both mother and newborn rightfully should become our utmost concern in building a healthy society. And it is obvious that an untimely birth and birth-associated maladies are the problems that should have the highest priorities in medicine. The concept of the right of every child to be physically, mentally and emotionally 'well-born' is fundamental to human dignity. This particular clinical experience has got utmost importance in this outlook.

Sukhaprasava

Suśruta says that 'a fruit gets detached from its stalk after its maturity and falls down, similarly, garbha as it gets appropriate time, detaches from

its nādivibandha'. At the onset of labour the head of foetus gets turned and forward due to action of prasūtimāruta (apānavāyu controlling the process of expulsion of foetus) and then is expelled through vaginal passage. Kaśyapa has mentioned that the woman having normally situated foetus, dilatation of apāramukha (Cervix uteri) and presence of avi (normal uterine contractions during labour), along with grāhīśūla (catching like pain arising due to contraction of abdominal wall etc - secondary force of labour) is very much ready to deliver the foetus. In spite of existence of severe grāhīśūla a woman does not get early delivery without the presence of avis. If the avis are delayed, the foetus will not be delivered. The vitiation of apānavāyu in the maternal body disturbs the uterine contractions

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i.e., reduces the strength of contractions to contract the uterus during the process of labour. This inefficient uterine activity leads to delay in labour process. Vitiating of apānavāyu along with vyānavāta leads to painful delivery or delay in the process of delivery or causes obstructed labour.

Materials and methods

With an aim to assess the role of pizhiccil, based on the principles of āyurvedic therapeutics on the course of labour to minimize the prasava viḷamba (difficulty or delay in labour), eleven full term pregnant (i.e., first or second week of 9th month) with general pregnancy complaints kaṭṣūla, malabaddhata, udaraśūla, pain in legs due to varicosity etc., having no complications like PET, CPD and others and on consent of concerned obstetricians, were undertaken for the treatment. Pregnant were subjected to pizhiccil therapy with Dhānvantaram tailam (Ref: Aṣṭāṅgahṛdayam) for 45 minutes daily in the evening for 7 days.

Pizhiccil (sarvāṅgadhāra):- It is a procedure of squeezing large quantities of medicated oil (in bearable warmth) all over the body with one hand and massaging with the other hand. When administered many times in succession is found to alleviate pains and is very invigorating. It has also been proved to be highly effective on its own for treating diseases caused due to vitiation of the vāta, especially hemiplegia, paralysis, muscle spasms and other degenerative diseases affecting the muscles. This massage protects from illnesses and builds up immunity for a healthy life. It is very useful for rheumatic diseases, sexual weakness, blood pressure, nerve weakness and helps to arrest the ageing process.

Observation and results

Details of the pregnant (at the time of 1st day of therapy) were recorded based on the reports given by concerned physicians (Table 1).

During & after therapy:- The results and effects of the therapy were mainly of subjective type i.e. informed by the pregnant and obstetricians.

1. Day of delivery:- All the pregnant delivered after the completion of 7 days therapy within a week.
2. Duration of delivery:- In all the cases process of labour completed in 4 - 6 hours
3. Intensity of labour pains:- Intensity and severity of pains felt by the pregnant was minimized and particularly it was very clear in the cases of second gravida who have undergone the normal previous delivery.
4. Presentation:- Among 11 deliveries 8 with cephalic presentation and remaining 3 with breech presentation. In one case before the therapy the position of the foetus was

TABLE 1
Details of the pregnant
(at the time of 1st day therapy)

Sl. No	Age	GA*	Gravida	Remarks
01.	24	1 st wk	G 1	-
02.	24	1 st wk	G 1	-
03.	23	2 nd wk	G 1	-
04.	29	2 nd wk	Ep*	-
05.	30	2 nd wk	Ep*	
06.	31	1 st wk	Ep*	
07.	26	1 st wk	G 2	PND*
08.	27	1 st wk	G 2	PND*
09.	26	2 nd wk	G 2	With h/o LSCS
10.	26	1 st wk	G 2	With h/o LSCS
11.	28	1 st wk	G 2	With h/o LSCS

* GA - Gestational age (full term 9th month); Ep - Elderly primi; PND - Previous normal delivery

breech presentation but she delivered in cephalic presentation.

5. Weight of babies:- Average weight of all the babies is 2.9 kg
6. After delivery effects:- No fatigue of pregnancy and laxity of muscles. They did not report any complaint. Milk ejection was also normal.

Discussion

The main object of this therapy was to assess how far the pizhichil is useful to facilitate sukha prasava or to combat prasava vilamba (delay in labour). Based on the said subjective results recorded, the duration of labour was 4 - 6 hours, severity of pains was minimized and this therapy had also shown much effect on the general pregnancy induced conditions complained by pregnant before the therapy like low back and pelvic pain, pain due to varicosity, pelvic floor dysfunctions, joint laxity etc. Of all the observations, the therapy shows that it is much helpful in elderly primis and in second gravida with history of previous section.

Precaution

The following precautions are necessary during the therapy:

1. Regular monitoring of the BP and pulse before and after the therapy on the droni in lying posture.
2. The stream should have uniform pressure and it should not be too high or too low
3. Hygienic conditions should be maintained in the therapy room and the utensils used.
4. During the course of therapy the pregnant should not be exposed to open weather
5. Temperature of the oil used for the therapy is highly specific compared to other patients.

6. After the therapy ask the pregnant to have bath with medicated luke warm water and to have light and hot food.
7. Application of Rāsnādhi curna taḷam with Kṣīrabala 101 also is important.
8. When the patient is lying down on droni give her plenty of support with the help of cushions under her neck, back and any other position she needs to feel comfort
9. During massage light strokes and pressure are to be applied
10. Sometimes there is a possibility of the delivery on the droni (table on which therapy is performing) itself. So very much careful is necessary while doing therapy and it should be under strict supervision of a lady doctor.

Probable mode of action

This therapy mainly regulates vāta all over the body and the main site nabhi and its lower parts, which is the area of fundus of uterus, pacemaker for initiation of uterine contractions. The cutaneous neuro receptive apparatus may be influenced by the therapy where by its reflex action is stimulating the autonomic nerves via the hypogastric plexus which is believed to be the responsible for the initiation and emptying of uterus and labour pains too. And the impulses generated by pizhicil from the cutaneous neuro receptors particularly present in breast glands, cervix, vagina, uterus and abdominal muscles or the emotions during the therapy stimulated the increase in secretion of Oxytocin (OT) - which accelerates the labour process, controlled the postpartum bleeding, relieved the breast engorgement in lactating mother to promote easy lactation.

Conclusion

- Pizhiccil mainly regulated uterine contractions, and it has shown the effect on 3 stages of labour by augmenting vāta, particularly vyānavāta and apānavāta
- Pizhiccil has shown effect on softening and relaxation of the perennial muscles which helps the labour to be normal
- While doing the therapy, particularly mild massage over the abdomen and breast is important because it regularizes the contractions of the muscles during the delivery; and massage over the breast, relives the stanyavāhasroto-avarodha and proper development of srotosās and nipple.
- The gentle massage all over the body before and after the therapy relives the stiffness in the body
- Due to this therapy, birth injuries and birth asphyxia can be avoided; it is also beneficial in preventing the after delivery troubles.
- There were no complications observed or subjected during or after the therapy
- By viewing all the above consideration it can be concluded that pizhiccil not only initiated the labour but also accelerated the process of delivery and it helps to restore health of mother and baby and symmetry of the body after delivery.
- The overall impression about the pizhiccil is that it is very efficacious to establish sukha prasava or to ensure the normal painless delivery.



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A biography of Vaidyaratham P.S. Varier reconstructs the history of this extraordinary man and the institutions he established and nurtured. It shows how an ordinary student, spurred on by curiosity and determination to explore avenues of knowledge, succeeded in improving, modernizing and popularizing ayurveda at a time when allopathic medicines were making inroads into the Indian market.

KĀSĪSABHASMA - AN ANALYTICAL STUDY

Nisha Sharma*, Sudhaldev Mohapatra*, V.P.Singh**, C.B.Jha*

Abstract: Basic nature of initial compound of minerals gets changed through śodhana and māraṇa processes. Therapeutically it is necessary to know the chemical nature of these compounds prior to their use, and what are the major and minor elements with their concentration present in it is also necessary to evaluate. Kāsīsabhasma was prepared by adopting śodhana and māraṇa processes. The raw material, intermediary product and bhasma were analyzed by various sophisticated tools like X-ray diffraction and atomic absorption spectrophotometer study.

Introduction

With the development of processing techniques, minerals are commonly used in āyurvedic therapeutics especially for preparation of different bhasmas and sindūras. Safety and efficacy of these products on various biological parameters are essential otherwise it will not be accepted. For this purpose, analytical and experimental study were planned and Kāsīsabhasma was undertaken for the study.

Materials and method

Śodhana: - Kāsīsa was triturated in a khalvayantra, to prepare fine powder. Fresh bhṛṅgarāja svarasa (expressed juice of *Eclipta prostrata*) was added to it and triturated till it gets dried. Same procedure was repeated for three times using fresh bhṛṅgarāja svarasa. Purified kāsīsa was dried completely and māraṇa process was done.

Māraṇa: - Purified kāsīsa added with nimbu svarasa (juice of *Citrus lemon*) was triturated in a khalvayantra till it becomes semisolid form i.e. cākrikas (small disks). The cākrikas were dried and arranged in a śarāva (earthen casserole) and was closed by another śarāva, sealed the joint with cloth and clay and dried. This sealed śarāva was subjected to puṭa system of heating in Electric Muffle Furnace. The temperature was raised up to 650°C and maintained it for ½ an hour. After svāṅgaśītata (self cooling), cākrikas were collected, powdered and tested for bhasma-parīkṣa as mentioned in classical texts. Brownish-red coloured Kāsīsabhasma was obtained.

Analytical study: - a) X-ray diffraction study (qualitative) and b) atomic absorption (quantitative) were done on three different samples (each 1g) of kāsīsa i.e. i) raw kāsīsa ii) śodhita kāsīsa and iii) kāsīsabhasma.

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X-ray diffraction study was conducted according to the principle of power diffraction. According to which, a given substance produces a characteristic of diffraction pattern either in pure state or as one constituent of a mixture of substances. And that diffraction pattern is understood by Bragg's law of Power Diffraction. According to Bragg's law of Power Diffraction: $n\lambda = 2d \sin \theta$; n - Frequency; λ - Wave length of the reflected X-Ray radiation, d - Spacing between the reflecting planes, θ - Angle of reflection. The X - ray diffraction of different samples of kāsīsa is shown in Table 1.

Atomic absorption spectrophotometer study is based on the information that the metals in ground state absorb light at specific wavelengths. Metal ions in a solution are converted to atomic state by means of flame from the specific lamp used for particular metal. Light of the appropriate wavelength is supplied and the amount of light absorbed can be measured against a standard curve. The solution of the sample is ignited in a flame having high temperature. During combustion, atoms of the element in the sample are reduced to free. A light beam having specific wave length, from a lamp, whose cathode is made of the element being determined, is passed through the flame. The amount of reduction of the light intensity due

TABLE 1
X - ray diffraction of different samples of kāsīsa

Sample	Identified peaks present in diffraction study
Raw kāsīsa	FeO (OH), FeSO ₄ , FeSO ₄ (H ₂ O), Fe (OH) ₃ , Fe ₂ O ₃ and FeS ₂ .
Śodhita kāsīsa	FeO (OH), FeSO ₄ , FeSO ₄ (H ₂ O) Fe(OH) ₃ , Fe ₂ O ₃
Kāsīsabhasma	Fe ₂ O ₃

to absorption by the sample is detected by photon multiplier. The amount of reduction of light intensity = the amount of light absorbed by sample, which is directly proportional to the amount of the element in the sample. The atomic absorption spectrophotometer study on different samples of kāsīsa is shown in Table 2.

TABLE 2
Atomic absorption spectrophotometer study on different samples of kāsīsa

Sample	Fe	Zn	Ni	Pb
Raw kāsīsa	15.2	0.002	0.000	0.000
Shodhita kāsīsa	16.8	0.028	0.018	0.001
Kāsīsabhasma	45.4	0.014	0.007	0.000

Conclusion

- Kāsīsa is a material of hygroscopic in nature. Three days' duration is required for one bhāvana.
- If bhāvana is done properly Kāsīsabhasma may be prepared in one puṭa with the desired characters mentioned in the classics.
- After śodhana, FeS₂ compound found to be absent in X-Ray Study which was initially present in the raw material.
- In purified kāsīsa, 0.001% Pb & 0.018 Ni was found that may be due to the effect of bhāvana drugs; however in bhasma, no Pb is found and Ni was 0.001 % which is negligible.
- The compound of final Kāsīsabhasma is Fe₂O₃ (Iron oxide).
- The percentage of iron was found increased gradually from raw material to final product.

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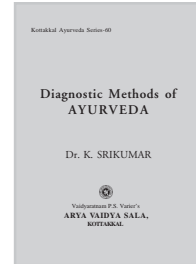
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Diagnostic methods of AYURVEDA

K. SREEKUMAR



In ancient times physicians framed diagnostic methods using the tools available at that time. Most of them were subjective. Today one requires objective parameters to understand the diseases and its pathology. This work attempts to co-relate ayurvedic diagnostic methods with the modern parlance. This has been done without prejudice to the basic principles. The whole work is divided into five major sections based on dōṣa, agni, rōgaparīkṣa, rōgīparīkṣa and other contributing factors for disease. This text contains the essay adjudged first in the All India Essay competition for *Vaidyaratnam P.S. Varier Prize*, 2004.

Price: Rs. 80/-

MANAGEMENT OF MADHUMEHA WITH KATAKĀDI YOGA - A CLINICAL STUDY

D. Baruah, M.S. Bad panda, B.K Das, B.K. Bharali and S.N Murti*.

Abstract: The word prameha is derived from the root meha secane meaning watering. In reference to the disease of human being, it may have a meaning of urination and prefix meaning excessive both of quantity and frequency. Lack of proper awareness, change of life style, sedentary habits, lack of physical activities, excessive intake of imbalance diet etc. are causative factors of madhumeha (diabetes mellitus). This paper highlights the effect of Katakādi yoga in the management of diabetes mellitus.

Introduction

There are 20 types of prameha - ten varieties due to kapha doṣa, six varieties due to pitta and four due to vāta doṣa. One of the four varieties caused by the derangement of vāta is called madhumeha. Madhumeha is comparatively more prone to urban societies than rural one. The morbid secretion of urine in general is called prameha accordingly nature of urination changes, and depending upon which the three bodily humours are deranged.

There has been a number of research works carried out by different medical systems to combat with this disease. Āyurveda also indicates various formulations to manage diabetes mellitus. However the incidence is increasing day by day; patients are seen in various levels from primary health care center to research institutions. Keeping all these aspects, to evaluate a suitable medicament the study was conducted at the PG level in GAM, Puri, Orissa.

Materials and methods

40 patients of the madhumeha (Non insulin dependent diabetes mellitus) were selected for this double blind study conducted in OPD level at GAM, Puri, Orissa and were divided into three groups: i) Group A - trial group (n=20), ii) Group B - control group (n=10) and iii) Group C - placebo group (n=10).

Inclusion criteria: - The clinical signs and symptoms like poly urea, polyphagia, polydipsia, blood sugar and urine sugar along with bio-chemical conformation of blood routine examination was adopted during the selection of cases. Both sexes between 35 to 60 years were included.

Exclusion criteria: - Madhumeha or diabetes mellitus with heart diseases, renal pathology, involvements of neuroorigin as well as carbuncles, pregnancy, Koch's phenomenon, etc. were discarded.

Assessment criteria: - The assessment was made

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on the basis of clinical improvement in the cardinal signs and symptoms and laboratory findings and was categorized under the following groups: i) maximum relief - above 75%, ii) moderate relief - 50% to 75%, iii) minimum relief - 25% to 50% and iv) no relief - less than 25% relief.

Treatment

Trial drug: - Katakādi yoga (a combination of āmlaki, harītaki, vibhītaki, kataka, palāśa and khadira each in equal quantity) in powder form.

Dose and duration: - 5g thrice daily for 30 days.

Application: - Patients of group A (n=20) were treated with Katakādi yoga 5g thrice daily; Group B (n=10) patients with Daonil and Group C by placebo.

Observation

65% of the total cases were male and maximum cases were reported from the urban societies. The incidence was found maximum under the age group of 51- 60 years. Sedentary habits expose the maximum (62%) cases. Distribution of patients according to age, sex, inhabitation, occupation, etc. is shown in Table 1.

The effect of treatment was assessed in respect of relief of the sign and symptoms and estimates of FBS and PPBS and other relevant laboratory investigation. Incidence of polyuria found in all the patients and polyphagia in 34 (85%). Incidence of sign and symptoms and laboratory findings are shown in Table 2. The degree of severity of different sign and symptoms before treatment is shown in Table 3.

Result

Clinical assessment: - In group 'A' (trial group), maximum relief noted in 7 cases, moderate in 5 cases and minimum relief in 8 cases (Table 4).

TABLE 1
Incidence of age, sex, inhabitation,
occupation and prakṛti

Parameter	Male		Female	
	No.	%	No.	%
1. Age group				
- 30-40	3	7.5	2	5
- 41-50	10	25	6	15
- 51-60	13	32.5	6	15
2. Inhabitation				
- Urban	16	40	10	25
- Rural	11	27.5	3	7
Total	27	67.5	13	2.5
3. Occupation				
- Sedentary habit	18	45	7	7.5
- Physically active	8	20	7	7.5
Total	26	65	14	35
4. Prakṛti				
- Vāta	9	22.5	5	2.5
- Pitta	5	12.5	2	5
- Kapha	12	30	7	7.5
Total	26	65	14	35

TABLE 2
Incidence of sign, symptoms and
laboratory findings

Sign & symptoms	No of patient (%)
1. Polyuria	40 (100%)
2. Polyphagia	34 (85%)
3. Polydipsia	29 (72.5%)
4. Micturia	24 (60%)
5. General weakness	21 (52.5%)
6. Turbid urination	19 (47.5%)
7. Pain and burning sensation	14 (45%)
8. Fasting blood sugar (above normal)	40 (100%)
9. Post-prandial blood sugar (above normal)	40 (100%)
10. Urine sugar	40 (100%)

TABLE 3
Degree of severity of different sign and symptoms before treatment

Sign & symptoms	Group A (Trial)					Group B (Control)					Group C (Placebo)				
	G ₀	G ₁	G ₂	G ₃	n	G ₀	G ₁	G ₂	G ₃	n	G ₀	G ₁	G ₂	G ₃	n
1. Polyuria	0	2	8	10	20	0	3	4	3	10	0	0	6	4	10
2. Polyphagia	0	2	9	7	18	0	0	4	3	7	0	1	5	3	9
3. Polydipsia	0	6	6	3	15	0	2	3	2	7	0	2	4	1	7
4. Micturia	0	7	4	4	15	0	1	2	0	3	0	1	5	0	6
5. Turbid urination	0	8	0	0	8	0	5	0	0	5	0	5	0	0	5
6. General weakness	0	3	2	5	10	0	5	0	0	5	0	0	2	4	6
7. Pain & burning sensation (Palm & Soles)	0	8	0	0	8	0	3	0	0	3	0	3	0	0	3

n = Total number of patients G = Degree of severity

TABLE 5
Comparative statistical analysis of three groups before and after the treatment

Sign & symptoms	Mean + SD		dt	't' value	p value
	BT	AT			
I. Group A (Trial)					
- Polyuria	2.4 ± 0.66	0.55 ± 0.49	19	10.98	<0.01 (S)
- Polyphagia	2.05 ± 0.92	0.5 ± 0.5	19	8.35	<0.001 (HS)
- Polydipsia	1.4 + 1.06	0.3 ± 0.45	19	5.65	<0.001 (HS)
- Pain & burning sensation	0.4 ± 0.48	0.2 ± 0.4	19	2.2	<0.005 (S)
- F.B.S.	194.55 ± 35.86	129.2 ± 24.52	19	12.57	<0.001 (HS)
- PPBS	251.45 ± 38.86	170.8 ± 24.52	19	12.57	<0.001 (HS)
- Urine Sugar	1.3 ± 0.5	0.25 ± 0.29	19	8.22	<0.001 (HS)
II. Group B (Control)					
- Polyuria	1.8 ± 0.74	0.3 ± 0.45	9	2.98	<0.01 (S)
- Polyphagia	1.6 ± 1.11	0	9	4.32	<0.001 (HS)
- Polydipsia	1.4 + 1.11	0.1±0.3	9	3.54	<0.001 (HS)
- Pain & burning sensation	0.3 ± 0.45	0	9	1.97	<0.005 (S)
- F.B.S.	14.1 ± 48	113.2 ± 13.03	9	16.24	<0.001 (HS)
- PPBS	238 ± 27.85	152.2 ± 7.44	9	9.91	<0.001 (HS)
- Urine sugar	0.5 ± 0.37	0.05 ± 0.15	9	6.02	<0.001 (HS)
III. Group C (Placebo)					
- Polyuria	2.4 ± 0.48	2 ± 0.89	9	1.50	>0.05 (NS)
- Polyphagia	2 ± 0.89	1.6 ± 0.66	9	1.89	>0.05
- Polydipsia	1.5 ± 1.11	1.3 ± 0.9	9	1.5	> 0.05
- Pain & burning sensation	0.3 ± 0.45	0.3 ± 0.45	9	-	- (NE)
- F.B.S.	178.8 ± 19.79	146.5 ± 52.25	9	4.0	<0.001 (S)
- PPBS	245 ± 37.48	217 ± 32.79	9	5.79	<0.001 (HS)
- Urine sugar	1.35 ± 0.45	1.05 ± 0.56	9	3.65	<0.01 (S)

HS - Highly significant; S - Significant; NS - Insignificant; NE - Drug was not effective

TABLE 4
Comparative clinical assessment of result

Group	Relief			
	Max	Mod	Min	No
Group A (trial)	7 (35%)	5 (25%)	8 (40%)	- -
Group B (control)	7 (70%)	3 (30%)	- -	- -
Group C (placebo)	1 (10%)	1 (10%)	7 (70%)	1 (10%)

Max - Maximum relief; Mod - Moderate relief; Min - Minimum relief; No - No relief

Statistical assessment:- Taking into consideration of the severity of different signs and symptoms, the following grade points were used:

Severity	Grade	Point
+++	G ₃	3
++	G ₂	2
+	G ₁	1
-	G ₀	0

The mean value (\pm), Standard Deviation (S.D.) of different sign and symptoms was compared before and after the treatment. Paired 't' test was used to get statistical significance and the effectiveness of the trial drug was assessed through the 'p' value. (Table 5)

Conclusion

The trial drug Katakādi yoga has been found to have marked hypoglycemic effect with concurrent relief of different symptoms.

The ultimate aim in the management of diabetes seems to be normalization of metabolic control. With the advancement of science and technology, the knowledge of diabetology has reached

far away. The present research model is a token of re-establishing the claims of indigenous medicine on diabetes.

Acknowledgement

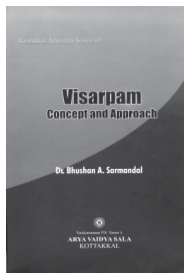
The authors are thankful to the Director, the Deputy Director (Tech), C.C.R.A.S for encouragement and guidance; and also thanks to staff of the RRI (Ayu) Guwahati, for their co-operation.

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VISARPAM Concept and Approach

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The skin is the outermost covering of body tissue which protects internal organs from the environment. It reflects internal changes and reacts to changes in the environment. Usually it adapts easily, and returns to a normal site. Sometimes it fails to do so and skin disorders appear. Skincare is required to preserve / restore bodily beauty, hide certain flaws and make a presentable appearance. Affliction of this disease confines one to a place or rather restricts one's movements because of the embarrassing situation or circumstance they are in. Visarpa is one such disease that calls for immediate attention.

SCIENTIFIC APPROACH OF YAVĀGU AS PATHYAKALPANA

Ankit Gupta*, Mundeep Jaiswal*, Mamta Shankar** and PK Prajapati*

Abstract: The prime aspect of āyurvedic science is preventive and curative. Based on this, āyurvedic texts like Carakasamhita, Suśrutasamhita and Aṣṭāṅgahr̥daya broadly classify the whole material into two categories viz. āhara (food items) and auśadha (drugs). The second part, which is known as pathyakalpana, is very important while dealing with the patients and disease. Yavāgu is one of the common types of pathyakalpana. Its basic ingredient is rice which is easily digestible and full of nutrition. This paper discusses yavāgu as pathyakalpana.

Introduction

Knowledge of nutrition helps man to know the types and quantities of different foods to be taken in the diet to maintain good health. According to ancient Indian concepts, health based just on the diet is ārogya - a state of no disease with which the physician is primarily concerned.¹

In āyurvedic classics, the whole preparations are broadly classified in two categories: i) medicinal formulations having different dosage forms like svarasa (expressed juice), kvātha (decoction) and snehakalpana (oily preparations) and ii) dietetic preparations like yavāgu (using rice), yūṣa (from pulses) and māmsa rasa (prepared from flesh). These can be used by a healthy person as well as by a patient. The dietetic preparations are again classified into two groups: i) kṛtānnakalpana,² which is prescribed for healthy beings and ii) pathyakalpana, which is prescribed for patients. Both the

groups contain same basic preparations like yavāgu, maṇḍa, peya, vilepi and māmsa rasa. However, in case of pathyakalpana, the liquid media taken for the preparation are generally the decoction of medicinal herbs as required.

Pathya can be defined as recipes which should relish the mind and after ingestion, should not produce any untoward effect.³ Pathyakalpana has described in almost all āyurvedic texts. A number of dietetic preparations are mentioned in āyurvedic classics;⁴ some of them are: i) yavāgu/maṇḍa (the main ingredient is rice), ii) yūṣa (the main ingredient is pulse), iii) māmsarasa (main ingredient is flesh of various animals as indicated), iv) rāga-ksāḍava (the main ingredients are sugar, rock salt and juice of pome) and v) takrakalpana (curd and water in different ratio). Out of these, the dietetic preparations made up of rice are the most common. Carakasamhita has described twenty eight types of yavāgu altering the decoction of drugs

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specified for individual disease.

Preparation

Yavāgu can be prepared with the following ingredients:⁵ i) rice [emphasis is given to *ṣaṣṭhika/rakta śāli* (*Oryza sativa*) (red coloured rice)], ii) water (depending upon use, it can be plain water for healthy person whereas kvātha prepared from prescribed drugs for diseased), iii) adjuvant like pippali (*Piper longum*), marica (*Piper nigrum*), rock salt and cow's ghee can be used according to taste. The ratio of rice and water for preparing various pathyakalpana⁵ are described in Table 1. The ratio of rice and water may vary according to the preparation and the final recipe² (Table 2).

Yavāgu is prepared by taking six times of water or decoction and one part of rice. Then it is boiled on mild fire till the rice is cooked and a little amount of water is left in the final recipe. The additives can be added according to taste before serving.

Quality & dose

Kāśyāpasamhita has described the standard

TABLE 1
Ratio of rice and water in various pathyakalpana

Food article	Rice : water
1. Yavāgu	1 : 6
2. Vilepi	1 : 4
3. Maṇḍa	1 : 14
4. Anna	1 : 5
5. Kṛsara	1 : 6

TABLE 2
Ratio of rice and water in different finished recipes

Recipe	Amount of rice	Amount of water
1. Maṇḍa	Nil	Only water
2. Peya	Almost ½ part	Almost ½ part
3. Yavāgu	Mostly rice	A little
4. Vilepi	Only rice	Nil

quality of yavāgu.⁷ A quality yavāgu should possess normal semisolid texture and should not be excessive concentrated or dilute. It should be prescribed in warm and fresh condition and not after cooling. The rice grains should be remained intact after the preparation as it can be separated from each other. And the ultimate quality is its pleasant and palatable appearance.

The dose is prescribed as per the digestive capability of the individual⁸ i.e. ¼th of daily routine diet.

Pharmacological properties

Commonly, yavāgu possesses grāhi (digestive and absorbable), balya (strengthen the body), tarpaṇi (nutritious) and vātanāśini (pacify the vitiated vāta) properties.⁹ It also adopts the pharmacological properties of the drug decoction used for specific disease.

Indications: - Yavāgu may be prescribed as antipyretic, antidysentric, anticolitic, antihelminthic and antitoxic.⁵

Discussion

Rice is used in wide range of food and it has many nutritional properties. Rice is generally cooked with water and taken mostly with cooked pulses, vegetables, fish or meat. In India since ancient period several types of dishes are prepared from rice like yavāgu, maṇḍa, vilepi, etc. and flavored with spices like pippali, marica, etc. The major carbohydrate constituent of rice is starch which is 72-75 % (Table 3). The amylase content of the starch varies according to grain types. The long grained and superior types are containing up to 17.5 % amylase.¹⁰ This aspect also may have considered by our ācāryas when indicating that mahā taṇḍula and dīrghaśūka (long grains) are having good digestive property.¹¹

TABLE 3
Ratio of rice and water in different finished recipes

Compositions	Husked	Raw	
		HP*	Milled
Moisture (%)	9.7	9.6	9.7
Protein (%)	7.7	7.3	6.9
Fat (%)	1.8	1.2	0.54
Carbohydrate (%)	78.1	80.1	82.06
Crude fiber (%)	1.1	0.7	0.2
Mineral matter (%)	1.6	1.1	0.6
Calcium (mg/100 g)	15.6	13.0	10
Phosphorus (mg/100 g)	386	182	87
Iron (mg/100 g)	4.0	28	2.2
Thiamine (mg/100 g)	360	210	105
Nicotinic acid (mg/100 g)	8.5	2.5	1.0

Source: Wealth of India, Vol. VII, CSIR, New Delhi
*Home pounded

Starch molecules, which are the source of calories in diets, prepared from rice, when heated in an aqueous or moist environment, swell and rupture and thus permits greater enzymatic digestion by the activity of enzymes like amylases. Resistant starch acts like soluble fiber in the gastrointestinal tract, thus providing the health benefits of fiber. Resistant starch has a low glycemic index because of the slow release of glucose. Increasing resistant starch content in the diet has the potential to provide several significant health benefits and add value to rice.¹² Application of heat during cooking increases the digestibility of carbohydrates. Keeping this fact in consideration the ancient āyurvedic seers has indicated that the patient who is administered for āyurvedic emetic or purgation therapy in the morning should keep fast in the noon, and that in the evening yavāgu/peya should be prescribed and continued the

same for two meal times of the next day also. By doing this, the enzymes in the body responsible for digestion and metabolism, which are generally subdued because of purificatory measures, in a purified person grows strong and stable and becomes capable of digesting all types of food.¹³ Studies show that parboiled rice or rice powder gruel (Molla, Ahmed and Greenough, 1985), rice water (Wong, 1981; Rivera *et al*, 1983) and extrusion-cooked rice (Tribelhorn *et al*, 1986) have been effectively used for the treatment of non-infectious diarrhoea since starch has a lower osmolality than glucose. Even the high concentration of 80g rice per litre in an oral rehydration solution is drinkable by patients and is highly effective, providing four times more energy than does standard glucose oral rehydration solution (20%) (Molla, Ahmed and Greenough, 1985). Boiling in excess water, results in leaching out of water-soluble nutrients including starch and their loss when the cooking liquid is discarded. For example, 0.8 percent of the starch was removed on two washings of three milled rices, but 14.3 percent of the starch by weight was in the rice gruel after cooking for about 20 minutes in 10 weights of water (Perez *et al.*, 1987). Protein removal was 0.4 percent during washing and 0.5 percent during cooking.¹⁴ The protein content of rice is lower than that of wheat. The proteins of the husked and polished rice have a lower biological value but a higher digestibility than those of rice bran and polished rice.¹⁵ The nutritive value of rice protein is high in order, being superior to that of wheat and other cereal products. Coloured type of rice (like rakta śāli) contains more iron value than white rice.¹⁶ This may be the reason behind the use of rakta śāli variety of rice in the āyurveda. These

are also described as having greater nutritive value than that of other variety of rice.¹⁷

Conclusion

As yavāgu is having the main ingredient as rice, which is rich in carbohydrate and easily digestive property with high nutritive value, is supposed to be the appropriate food article for patients as well as healthy persons, who have mandāgni (low digestive capacity). It also works as the media for various drugs by utilizing drug decoctions in place of water and drug powers as adjuvant.

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**EFFECT OF HERBO MINERAL FORMULATIONS
IN THE MANAGEMENT OF PARIKARTIKA (FISSURE-IN-ANO)
- A CLINICAL STUDY**

R. Govind Reddy* and G.Venkateshwarlu**

Abstract: A single blind clinical study was conducted on 30 patients of parikartika (Fissure-in-ano) to evaluate the effect of hiṅguḷaghṛta and svādiṣṭavirecanacūrṇa. The study showed that the trial drug is significantly effective in relieving the symptoms of parikartika.

Introduction

Anal fissure has the second place among rectal diseases and is most painful. It is a longitudinal ulcer in the lower part of the anal canal and males are more prone to this than females. Most of the anal fissures are caused by stretching of the anal mucosa beyond its capability either due to hard stool or in diarrhea. Due to constant fecal contamination in diarrhea and strenuous evacuation in constipation it refuses to heal. The sentinel tag formed by the chronicity of the ulcer also prevents the fissure from healing. Pain with or without little bleeding during defecation are indication of fissure.

In āyurvedic literature parikartika has been mentioned as one of the complication of therapeutic purgation (virecanavyāpat) and also in āvṛtavāta as well as vātajātisāra contexts, etc. So it is basically a symptom rather a disease, which is very painful. All the causes responsible

for virecanavyāpat, avṛtavāta and vātaja atisāra are the causes of parikartika.

The acute fissure is a superficial splitting of the ectoderm characterized by severe pain, sometimes associated with bleeding per rectum during or after defecation and may heal with conservative management. Once the fissure is recurrent in nature or chronic, surgical intervention is essential for a permanent cure. Infection of the sentinel pile that develops at the lower end of the fissure at the anal verge may lead to the formation of a superficial fistula. Application of local anesthetics, anal dilatation, fissurectomy and sphincterotomy are generally in practice. Laxatives are prescribed to ensure that the motion is soft.

However, these treatment procedures have some complications like post operative anal stenosis, sphincter incontinence, etc. Keeping in view such problems and to provide a cost effective,

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simple, ambulatory and effective medical management, the present study was done to evaluate the clinical efficacy of hiṅguḷa ghr̥ta and svādiṣṭāvirecanacūr̥ṇa in the management of parikartika.

Materials and method

The study was carried out at the ano-rectal clinic, Dept. of Salyatantra, M.A. Podar Ayurveda Hospital, Mumbai. Total 30 patients were taken for the clinical trial for a period of 15 days and follow up was made at an interval of 15 days up to three months.

Selection: - As per the clinical proforma, i) 15-60 years of age group, ii) either sex and iii) clinically diagnosed case of anal fissures.

Exclusion: - Fissures associated with malignancy

Trial drugs

- Hiṅguḷa ghr̥ta: For local application (3-4 times/day with clean finger especially before and after passage of stools.)
- Svādiṣṭāvirecanacūr̥ṇa: 3 gm at bed time with lukewarm water orally as a laxative.

Diet:- Advised to avoid spicy and non vegetarian diet and take plenty of water, butter milk regularly and milk at bed time.

Duration of the treatment:- 15 days

Assessment criteria:- The cardinal features of anal fissures like pain, anal spasm, bleeding, ulceration and constipation - each clinical symptoms were categorized into mild, moderate and severe grade and a scale from 1, 2, 3 was given respectively (mild = score 1, moderate = score 2 and severe = score 3) and the results were assessed individually (Table 1). The percentage of relief was calculated by the formula: $\frac{BT \text{ score} - AT \text{ score}}{BT \text{ score}} \times 100$

Observation and results

It was observed that males were more affected than females. The incidence ranging from 31-45 years of age were more followed by 15-30. Patients up to 1 year duration were more compared to other categories. Maximum patients were of sedentary habits and the disease was found to be more susceptible in patients having

TABLE 1
Assessment criteria of relief/withdrawl

Relief/withdrawl	Description
1. Complete relief	Above 75% complete disappearance of known symptoms and absence of complications and recurrence.
2. Marked relief	Above 50% to 75% disappearance of known symptoms and absence of complications and recurrence.
3. Moderate relief	About 50% relief in presenting symptoms and some recurrence of fissure.
4. Mild relief	25% and above relief in presenting symptoms with negligible change in the ulceration or fissure.
5. No relief	No relief in presenting symptoms and no change in the ulceration of the fissure.
6. Withdrawal	i). Discontinuation of treatment during the trial, ii) development of any complications, iii) aggravation of the disease symptoms and iv) any side effect of the trial drugs.

non-vegetarian diet with irregular (constipation) bowel habits. History, body constitution (śarīra prakṛti), position of anal fissure, etc. are shown in Table 2.

In regards to progress of the treatment response of each clinical symptom is concerned, 71% patients showed healing in ulceration, 67% patients were relieved from constipation 65% cases showed relief in pain and 42% patients got relief in bleeding (Table 3). The overall treatment response among the cases studied is detailed in Table 4.

Discussion and conclusion

The etiology of anal fissure (parikartika) is still a matter of conjecture; however it is assumed that strenuous evacuation in constipation causes longitudinal ulceration in the lower part of the anal canal which refuses to heal. If the acute fissure does not heal readily, certain secondary changes develop. One of the most striking features is swelling in the lower end of the fissure forming sentinel tag is due to a low grade infection and lymphatic edema and often the tag has a very inflamed, tense and edematous appearance. Later it may undergo fibrosis at the level of the anal valve. This condition is referred to as a hypertrophied anal papilla. In addition, longstanding cases may develop fibrous indurations in the lateral edges of the fissure. In chronic stage the non healing ulcer becomes fibroses resulting in a rather spastic, tightly contracted internal sphincter. At any stage frank suppuration may occur and extend in to surrounding tissues forming an inter-sphincteric abscess or a peri anal abscess leads to a low inter-sphincteric fistula.

The application of medicated ghrta contains hiṅguḷa (cinnabar) and ghee relieves the

TABLE 2
Distribution of patients according to age, sex, etc.

Parameters	Patients	
	No.	%
1 Sex		
- Male	21	70
- Female	09	30
2 Age-group (in year)		
- 15-30	08	27
- 31-45	17	57
- 46-60	05	16
- 61 and above	00	0
3 Chronicity		
- Up to 1 year	14	
- 1 to 2 years	10	33
- 2-3 years	04	13
- Above 3 years	02	07
4 Śarīraprakṛti		
- Vātaja	11	37
- Pittaja	17	57
- Kaphaja	02	07
5 Occupation		
- Active	09	30
- Sedentary	21	70
6 Dietary habits		
- Vegetarian	10	33
- Non-vegetarian	20	67
7 Bowel habits		
- Regular	08	27
- Constipation	22	63
8 History of treatment		
- Fresh	07	23
- Medical	21	70
- Operation	02	07
9 Position of anal fissure		
- 6'O Clock	14	47
- 12'O Clock	08	27
- 3'O Clock	05	17
- 8'O Clock	02	06
- 9'O Clock	01	03
10. Associated complications		
- Sentinel tag	09	30
- Abscess	00	0
- Fistula	03	10
- Nil	18	60

TABLE 3
Incidence and treatment response according to individual clinical symptom with grade

Clinical symptoms	Mild (No. of cases)		Moderate (No. of cases)		Severe (No. of cases)		Percentage of relief
	BT	AT	BT	AT	BT	AT	
1. Pain	10	01	15	06	05	02	65%
2. Spasm	16	06	08	04	06	02	60%
3. Bleeding	22	12	08	05	00	00	42%
4. Ulceration	21	08	07	02	02	0	71%
5. Constipation	08	00	10	03	12	05	67%

Mild score = 1; Moderate score = 2; Severe score = 3

TABLE 4
Overall treatment response according to clinical symptomatology

Clinical symptoms	Complete relief	Marked relief	Moderate relief	Mild relief	No relief	Total patients
1. Pain	09 (30%)	11 (36%)	05 (17%)	03 (10%)	02 (07%)	30
2. Spasm	07 (23%)	12 (40%)	08 (27%)	03 (10%)	00 (0%)	30
3. Bleeding	01 (3%)	09 (30%)	10 (33%)	07 (24%)	03 (10%)	30
4. Ulceration	10 (33%)	11 (36%)	07 (24%)	02 (7%)	00 (0%)	30
5. Constipation	15 (50%)	09 (30%)	04 (13%)	02 (7%)	00 (0%)	30

spasticity tight contraction of the internal sphincter and acts as anti inflammatory (śodhahara), wound healing (vṛaṇa śodhana) and anti infective (krimighna), which helps in relieving pain, spasm ulceration and local infection in due course of time. Inflammation and lymphatic edema are also reduced by the therapeutic and soothing effect of ghr̥ta. Moreover due to its unctuous nature it acts as a lubricant in the anal canal thus helps in smooth passage of the stool, which prevents further damage to the ectoderm. In most cases of anal fissure, the prime cause is constipation and hard stool. Svadiṣṭavirecanacūrṇa, which mainly contains svarṇapatrī or sonamukhī (*Cassia angustifolia*), exhibits laxative action and

enhances bowel movements and helps in smooth evacuation thus also relieves the pain and spasm during defecation.

The combination of trial drugs acts systemically and locally on anal fissures and will help in the significant reduction of the clinical symptoms.

Acknowledgement

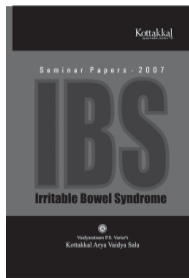
Authors are thankful to Dr. Lavekar G.S. for his encouragement and guidance for the study.

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Irritable Bowel Syndrome

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In the current mechanical life, health of an individual is directly related to his life style. The changes in the food habit and stress and strain are the main culprits in the causation of a variety of diseases. According to the ayurvedic pathology, both the above mentioned factors have a very strong impact on the health status. This book contains papers presented at the 44th Ayurveda Seminar on IBS, held at Kannur on November 2007.

EFFECT OF MĀSIKARASĀYANA ON EARLY AGEING - A CLINICAL STUDY

D. Vijaya Ganeshwar Reddy and K. Nishteswar*

Abstract: Māsikarasāyana, a compound preparation (herbo mineral drug) consisting of six drugs, is mentioned in Rasaratnasamuccaya (Rasāyana chapter). A clinical trial was undertaken to study the effect of Māsikarasāyana on 30 normal adults of both sexes in the age group of 30-50 years. The results indicate that this compound is capable of restoring age-related problems like ojo-kṣaya (decreased immunity), bala-kṣaya (weakness), keśacyuti (hair falling), varṇanāśa (loss of complexion) and tvakspḥuṭana (cracks on the skin). It can be used as a geriatric tonic, psychostimulant and non-specific immuno-modulator.

Introduction

In the present computer era most of the population is suffering from stress and strain. The life style is leading to many bodily changes and the early ageing signs like grey hair, hair-fall, skin wrinkles, diminishing intelligence and memory, loss of appetite, fatigue, etc. Rasāyana drugs indicated in the āyurvedic classics help prevent premature senility and to restore the feeling of well-being in geriatric patients. The author of Rasaratnasamuccaya has enumerated the following contributing factors for senility: i) excessive walking, ii) intake of chilled food, iii) consumption of stalled food, iv) sexual indulgence with older women and v) unpleasant conditions of mind. In the present study the rasāyana effect of Māsikarasāyana mentioned in the Rasaratnasamuccaya is evaluated.

Materials and method

Thirty volunteers in the age group of 30-50 years representing different social, economic and educational grounds were included in the study. Patients with hypertension, congestive heart problems, renal and hepatic diseases, etc. were excluded. All the volunteers included in the study were subjected to śodhana (recaṇa) as mentioned in Carakasamhita (Rasāyana chapter). The formulation of śodhanacūrṇa consists of: i) harītaki (*Terminalia chebula*), ii) āmalaki (*Emblica officinalis*), iii) vaca (*Acorus calamus*), iv) vīḍaṅga (*Embelia ribes*), v) haridra (*Curcuma longa*), vi) pippali (*Piper longum*), vii) śunṭhi (*Zingiber officinale*), viii) saindhavalavaṇa (rock salt) and ix) guḍa (jaggery).

All the volunteers were subjected to: a) clinical and anthropometric tests (i.e. Blood pressure,

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pulse rate, breath holding time, hand grip and weight tests) and b) Bio-chemical tests (i.e. CBP, ESR, CUE, RBS, Blood urea, Serum Creatinine, Serum Cholesterol, Total proteins)

Subjective assessment of ojo-kṣaya (decreased immunity), balakṣaya (weakness), keśacyuti (hair falling), varṇanāśa (loss of complexion), tvak sphuṭana (cracks on the skin), medha (intelligence), smṛti (memory), mandāgni (decreased appetite), gḷāni (fatigue), tandra (drowsiness), jñānendriya (sense organs) and karmendriya vikṛti was carried out before and after the treatment.

Preparation of the drug: - Kajjali was prepared according to the text and fine powder of gomūtra-śilājatu (bitumen) was added. Afterwards amla- vetasa (*Garcinia pedunculata*), ghr̥ta (ghee) and madhu (honey) were added and a vaṭi was prepared after proper pounding.

Dosage and duration: - 125mg twice a day for 30 days. All the cases were reviewed once in 15 days up to 2 months.

Result and discussion

Of the 30 subjects, majority belonged to middle socio-economic status (Table 1). Almost all the volunteers showed symptoms like fatigue, joint pain, muscular pain, etc. (Table 2). These symptoms indicated the involvement of gastro intestinal, cardiovascular, nervous, reprodu-

TABLE 1
Distribution of subjects according to socio-economic status

Socio- economic status	Total	Percentage
1 Lower class	6	20
2 Middle class	22	73.3
3 Upper class	2	6.66
Total	30	100

ctive, respiratory systems, connective tissues and joints.

Among all the signs and symptoms of ojo-kṣaya (decreased immunity) found improved in all the cases. The drug could be able to reduce blood pressure marginally. Significant reduction in the levels of FBS and PPBS was observed; they

TABLE 2
Distribution of subjects according to symptoms

Symptoms	Patient (%)
01. Fatigue	100
02. Joint pain	75
03. Muscular pain	80
04. Loss of appetite	80
05. Gastritis	85
06. Constipation	85
07. Tension and anxiety	90
08. Palpitation	75
09. Sexual debility	90
10. Loss of concentration and memory	80

TABLE 3
Improvement in the symptoms before and after the treatment

Symptoms	No.of subjects		% of relief
	BT	AT	
Ojo-kṣaya	6	0	100
Balahina	22	2	90.9
Balakṣaya	10	3	70
Balanāśa	1	0	100
Keśacyuti	19	3	89
Keśapalita	13	8	38
Tvak sphuṭana	16	5	68.75
Varṇanāśa	17	9	47.05
Medhonāśa	5	3	40
Buddhināśa	1	0	100
Smṛtināśa	11	6	43.45
Mandāgni	10	3	70
Tandra	8	1	87.5
Gḷāni	13	2	84.61
Jñānendriyavikṛti	5	2	60
Karmendriyavikṛti	11	1	54.5

were within the normal limits. It was observed that the breath holding time and Hb% were significantly improved. Blood urea and serum creatinine levels were also within the normal limits. Remarkable improvement in urinary complaints and sexual debility may be attributed to the rasāyana effect of the śīlājatu (bitumen).

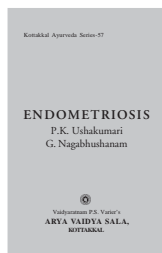
Significant improvement in balakṣaya (weakness), moderate improvement in keśacyuti (hair falling) and mild improvement in palita (gray-hair) was observed. Moderate improvement was observed in varṇanāśa (loss of complexion), mandāgni (decreased appetite), medha (intelligence) and smṛti (memory). All these effects can be attributed to ghr̥ta. Significant improvement was seen in glāni (fatigue) and tandra

(drowsiness) and moderate improvement was noticed in jñānendriya and karmendriya vikṛti (Table 3).

Conclusion

As a whole the Māsikarasāyana minimized the signs and symptoms of premature ageing and improved the vyadhikṣamatvaśakti (immunity). Many rasāyana drugs have mentioned in the classical literature for the management of early-ageing, in spite of those the Māsikarasāyana is easy for preparation and administration. The time limit specified as māsa (30 days) administration as referred to in the Rasaratnasamuccaya is very convenient for both the patients and the physician. The clinical assessment showed maximum improvement in all the signs and symptoms of premature ageing.

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ENDOMETRIOSIS

Essay adjudged first in
All India Ayurveda Essay Competition 2003

P. K. Ushakumari & G. Nagabhushan

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Endometriosis is a gynecological problem occurring in some females during the fertility period. It is characterized by the formation of endometrium like cells on the ectopic parts of the body other than in the uterus, like ovaries, parts of viscera, appendix, or even remote places like lungs and brain. As per the influence of the female hormonal stimulation, it acts as bleeding spots, just like the endometrium and manifest a variety of symptoms, and is a real agony for the patient.

PREVENTION OF AGEING (VAYASTHĀPANA) BY ADOPTING ĀYURVEDIC VALUES

P. Srinivas, K. Rukmini bai and R.K.Swamy*

Abstract: In India 3.8% of the population are older than 65 years of age. According to an estimate the likely number of elderly people in India by 2016 will be around 113 million. The twenty-first century is witnessing a gradual decline in fertility, and with increase in life expectancy, the society will need to grapple with issues of longevity. The biggest challenge with geriatric problem is that in most of the cases the condition cannot be attributed to a single cause or in certain conditions like, Senile dementia, Alzheimer's depression, the cause is unknown. In such cases the conventional medical therapy has no effective management plan. Scientific studies in āyurveda have proven the efficacy of rasāyana therapy in these conditions.

Introduction

The term geriatrics is derived from Greek word, 'geri' - old age and 'iatics' - treatment. The branch of medicine that deals with the problems of old age and treatment is known as Geriatrics. A specialist in geriatrics is known as geriatrician. Geriatricians focus on optimizing quality of life and functional ability for their patients rather than seeking definitive cures.

The leading causes of mortality among aged people comprise respiratory problems, heart diseases, cancer and stroke. Significant causes of morbidity among this group is chronic inflammatory and degenerative conditions such as Arthritis, Diabetes Osteoporosis, Alzheimer's disease, depression, psychiatric disorders, Parkinson's disease and age-related urinary problems. The biggest challenge with geriatric

problem is that in most of the cases the condition cannot be attributed to a single cause. In such cases the conventional medical therapy fails to come out with effective management plan and hence is severely compromised. Another challenge with conventional medical therapy is that it does not have health-promoting agents.

Āyurvedic medical system believes in holistic approach. One can find concrete references with special considerations to geriatric care in āyurveda. Elderly care by default is in-built in āyurvedic medical care. The term 'āyu' means 'aharahargacchati iti āyu:' - the time that keeps reducing is āyu. It means aging is a phenomena which indicates that as one is growing older, he is loosing his age or nearing death the end of life. Āyurveda gives top priority to geriatrics. In āyurveda, this is called 'vṛdhopacaraṇīyam'.

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The word geriatric has also a close link with the Sanskrit word “jīryadi” which means degenerated.

When we are called old age?

Ageing, or a natural progressive decline in body systems, starts in early adulthood. But it only becomes obvious several decades later and this is when we call ourselves old. (i.e. 60 or 65 years). Ageing, according to Samhitas, is tabulated in Table 1.

Cikitsa (treatment)

According to āyurveda, medicines are of two types. Some of them tone up the health of a healthy person and some others remove the ailments of a patient. Thus thousands of years back our ancient scholars have set a two-fold aim for āyurveda, maintaining health of a healthy individual and curing a person suffering from diseases¹. Even in the primeval classical period āyurveda was a well developed and established science of medicine and was practiced with its eight specialty branches called aṣṭāṅga i.e. medicine with eight specialties. Rasāyana (rejuvenation therapy) is one of them.

The word rasāyana (rasa+ayana) refers to nutrition and its transportation in the body. Rasa

means nutrition and ayana means various channels and here rasāyana essentially means nutrition at all levels from macro to micro-cellular level. Rasāyana therapy replenishes the vital fluids of the body; boost the ojas (vital force of life) and the immune system, thus keeping us away from diseases and would provide against ill effects of advanced age.

Rasāyana (rejuvenation therapy) brings about the normalcy of rasadhātu and there by maintain other dhātus in equilibrium for a longer period². Such state of improved nutrition prevents ageing which can be understood as vayasthāpana or jaranāśana (geriatric care). In other words, rasāyana therapy prevents ageing and provides longevity, immunity against diseases, improves mental and intellectual competence, increased vitality and luster of the body, complexion and voice, excellent potentiality of the body and the sense-organs, vāk-siddhi (successful words), respect and brilliance.

Rasāyana is not only a drug but is an approach based on an objective, which may be achieved therapeutically. According to Caraka, treatment may be sub-divided into two³: i) dravya-bhūta - with medicines and material, and ii) adravya-bhūta - without medicine or material.

TABLE 1
Aging according to different Samhitas

Samhita	Bāla	Yuva	Madhyama	Vṛddha	Ref
1. Kāsyapasamhita	Up to 1 year after birth	16-34 years	-	-	Khi
2. Carakasamhita	Up to 16 years	-	>16-60 years	>60-100 years	Vi
3. Suśrutasamhita	Up to 16 years	-	-	-	Sū
4. Hārītasamhita	Up to 16 years	> 16-25 years	>25-70 years	>70 years	P

*Khi = Khilāsthāna, Baiṣajyakramṇīya 71-80; Vi = Vimānasthānam 8/122; Sū = Sūtrasthānam 35/29; P= Prathamasthāna 5/1-6

Classification of rasāyana

Mainly rasāyana therapy is of two types: i) acāra rasāyana i.e. without medicines and only with proper way of living and ii) dravya-bhūta i.e. with medicines and material.

According to method of administration, it is sub divided into two⁴: a) kuṭīprāveśika and b) vātātāpika. Kuṭīprāveśika is administered by keeping the individual inside a specially prepared hospital (trigarbha kuṭi) after doing pañcakarma treatments, especially śódhana (purificatory procedures). Vātātāpika can be done without hospitalization (which can be administered even if the individual is exposed to the wind and the sun and with his regular daily activities). In this, many preparations were prescribed for the actual rejuvenation process viz. fruits, plants, pure ghee, pure honey and cow's milk.

Rasāyana is of 3 types: i) kāmyarasāyana, ii) naimittikarasāyana and iii) medhyarasāyana. Kāmyarasāyana maintains health of a healthy individual and keeps the strength well. It is divided into two: a) prāṇakāmya - promoter of vitality and longevity of life and b) stri kāmya - promoter of complexion. Naimittikarasāyana cures a person suffering from diseases and gives strength. Medhyarasāyana promote intelligence; e.g. juice of maṇḍūkapaṇṇī (*Centella asiatica*); powder of yaṣṭīmadhu (*Glycyrrhiza glabra*) mixed with milk; juice of guḍūci (*Tinospora cordifolia*) along with its root and flowers; paste of śaṅkhapuṣpī (*Convolvulus pluricaulis*). All these recipes increase longevity, cure diseases and promotes strength, agni, varṇa and svara.

As per content of rasāyana, it is classified as: i) auśadharasāyana (drug rasāyana), ii) āhāra

rasāyana (dietary rasāyana) and iii) ācāra rasāyana (conduct rasāyana)

Persons who are truthful and free from anger, who are devoid of alcohol and sex indulgence, who do not indulge in violence (himsa) or exhaustion, who are peaceful and pleasing in their speech, who practice japa (incantation, etc.) and cleanliness, who are dhīra (stable and steady), who regularly offer prayers to the gods, cows, Brāhmaṇas, teachers, preceptors and old people, who are absolutely free from barbarous acts, who are compassionate, whose period of awakening and sleep are regular, who habitually take milk and ghee, who are acquainted with the measurement of (things appropriate to) the country and the time, who are experts in the knowledge of rationality, who are free from ego, whose conduct is good, who are not narrow minded, who have love for spiritual knowledge, who have excellent conditions of sense organs, who have reverence for seniors, āstikas (those who believe in the existence of God and validity of the knowledge of the Vedas), and those having self-control and who regularly study scriptures - persons endowed with these qualities if practice rejuvenation therapy, get all the rejuvenation effects described above.

General rasāyanas: - For specific tissues, certain herbs and foods function as rasāyanas and certain herbs and food act as rasāyana in specific channel-systems (srotas). There are rasāyana for senses and other organs; it has indicated according to body constitution also (Table 2).

Rasāyana formulations

Some classical rasāyana formulations are: Amṛtarasāyana, Brāhmarasāyana, Javahara mohra, Kāmadugdharasa, Lakṣmīvilāsarasa, Madanodayamodaka, Makaradhavaja vaṭi,

TABLE 2
General rasāyanas for specific tissues, sense and other organs, channel systems and according to prakṛti

Description	Rasayana/drugs
1. Specific tissues:	
- Plasma (rasa)	Drākṣa, śatāvarī, khajura
- Blood (rakta)	Āmalaki, dhati lauha, bhṛṅgarāja, Suvarṇamakṣikabhasma
- Muscle (māmsa)	Māṣa, aśvagandha, bala, kāraskara, Rajatabhasma
- Fat (meda)	Guggulu, śilājatu, harītakī, guḍūci, rasona
- Bone (asthi)	Śukti (mother of pearl) bhasma, Kukkuṭāṇḍatvakbhasma, vamśarocana
- Nerve (majja)	Vaca, gotukola, śankhapuṣpi, Lohabhasma, Svarṇabhasma, Makaradhvaja
- Reproductive (śukra)	Kapikacchu, vidārikanda, śatāvarī, aśvagandha, Svarṇabhasma, ghr̥ta and cow's milk.
2. Channel-systems:	
- Respiratory system	Cyavanaprāśam, Vardhamānapippali
- Water metabolic system	Ārdraka, musta, ela
- Digestive system	Marica, bhallātaka, harītakī,
- Circulatory system (lymphatic portion)	Drākṣa, śatāvarī, khajura
- Circulatory system (blood portion)	Āmalaki, Dhati lauha, bhṛṅgarāja, Suvarṇamākṣika bhasma
- Muscular system	Māṣa, aśvagandha, bala, kāraskara, Rajatabhasma
- Adipose system	Guggulu, śilājit, harītakī, guḍūci, rasona
- Skeletal system	Śukti (mother of pearl) bhasma, Kukkuṭāṇḍatvakbhasma, vamśarocana
- Nervous system	Aśvagandha, vaca, gotukola, śankhapuṣpi, Lohabhasma, Svarṇabhasma, Makaradhvaja
- Reproductive system	Aśvagandha, kapikacchu, śveta musali, śatāvarī, vidārikanda, Svarṇabhasma, ghr̥ta and cow's milk.
- Urinary system	Punarnava, gokṣura
- Excretory system	Kuṭaja, viḍaṅga, triphala
- Sweat system	Basil, kāraskara
- Menstrual system	Aśoka, lodhra, śatāvarī
- Lactation system	Śatāvarī, jīraka, milk
3. Senses and other organs:	
Eye	Triphala, liquorice, śatāvarī
Nose	Nasya with Aṇutailam
Skin	Tuvaraka, Catechu, bakūci
Brain	Gotukola, vaca
Heart	Guggulu, Elecampane, Svarṇabhasma
Neuro-muscular system	Bala, nāgbala, rasona, guggulu
4. Rasāyana according to prakṛti	
Vāta	Bala, aśvagandha
Pitta	Āmalaki, śatāvarī, guḍūci
Kapha	Bhallātaka, guggulu, marica, rasona

Manmatharasa, Muktapañcāmṛta rasāyana, Nārīkalyāṇapāka, Navajīvanarasa, Navaratna rasa, Navaratnakalpa amṛta, Pañcāmṛtarasa, Parādi rasa, Ramcuramañīrasa, Rattivallabha paka, Sukara amṛta vaṭika, Smṛtisāgararasa, Suvarṇamālinīvasanta, Suvarṇa vasanta mālati, Svapnamehāntaka, Vasantakusumakara rasa, Vṛṣa rasāyana and Vṛdha vaṅgeśvar rasa. These classical rasāyana formulations contain a large number of ingredients, including minerals, pearl, coral and gems, and also specially processed (samskṛta) mercury. Now the use of some classical rasāyana formulas is less and most of the preparations available now have herbal ingredients with a couple of mineral and animal products. The non-availability and wild life protection act has made the use of musk, amber and parts of wild-life animals, nearly impossible. Since rasāyana formulas are general and non-toxic, they are frequently prescribed with more specific formulas that address specific concerns.

Nonetheless they may also have specific affinities. Some of the best-known rasāyana remedies and their modern uses are shown in Table 3.

Conclusion

The aim of rasāyana treatment is to cure the patient from diseases and help to attain longevity. Lord Punarvasu Ātreya has explained that the rejuvenation therapy is like an ambrosia and is beneficial to the gods, the sons of Adīti. It has unimaginable and wonderful (beneficial) effects. It promotes life, maintains positive health, and preserves youth and cures morbid sleep, drowsiness, and physical as well as mental fatigue, laziness and weakness. It maintains proper balance among vāta, kapha and pitta; it produces stability, cures slothness of the muscles, stimulates the enzymes responsible for digestion and metabolism and brings about excellence in luster, complexion as well as voice.

TABLE 3
Some rasāyana formulations and their indications

Rasayana formulations	Indications
1. Candanādi powder (standard compound)	Anti toxic, anti cancer, energy
2. Gokṣurādi guggulu pills (Sarngadharasamhita)	Anti toxic, urinary tonic
3. Kaiśoraguggulu pills (Sarngadharasamhita)	Anti cancer, anti toxic
4. Kāñcanāra guggulu pills (Sarngadharasamhita)	Anti cancer
5. Śilājītrī triphalā pills (silājītrī with triphalā)	Diabetes, anti toxic,
6. Trikaṭu pills	Digestive
7. Triphalā pills	Digestive, anti toxic and laxative
8. Triphalā guggulu pills	Anti toxic, anti cancer
9. Yogarāja guggulu pills (Bhaisajyaratnabali)	Nerve tonic
10. Cyavanaprāśam	Lung tonic

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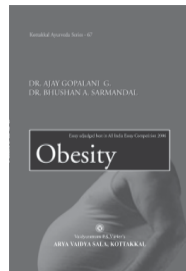
1. भेषजं द्विविधं च तत् स्वस्थस्योर्जस्करं किञ्चित्,
किञ्चिदार्तस्य रोगनुत् । (च.चि.)
2. दीर्घमायुः स्मृतिं मेधां आरोग्यं तरुणं वयः (च. चि.)
3. भेषजद्विविधमज्ञ च... (च. वि.)
4. रसायनानां द्विविधं प्रयोगमृषयो विदुः (च. चि.)

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Kottakkal Ayurveda Series: 67



OBESITY

Essay adjudged best in
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Obesity is a condition in which physiological equilibrium is disturbed due to the abnormalities in the functioning of the various body systems. This provides a platform for many ailments such as hypertension, diabetes mellitus, coronary heart disease, osteo-arthritis, infertility, impotency and psychological disorders like anxiety, depression, etc. Thus the mortality and morbidity rates are more in obese persons. This book provides a clear picture on the various aspects of obesity including its etiology, pathogenesis, clinical features and management.

ROLE OF LEECH THERAPY IN SKIN DISEASES WITH SPECIAL REFERENCE TO ECZEMA

Chandrashekhar Kaushik and H.K. Kushwaha*

Abstract: Medicinal leech and leech therapy are well known to the traditional medical system from the very ancient time. Since then medicinal leeches were assigned with problem definitions such as cramp veins, vein diseases, arthrosis or tinnitus. Skin disease is the area where leech plays a very big role. Eczema (vicarcika) is an allergic condition that affects the skin. Leech therapy and Mahā bhallātaka yoga in combined form was found most effective in the treatment of eczema.

Introduction

The first recording about the use of medicinal leech for leech therapy was from the Greek. Von Kolophon (BC), used leech therapy for the treatment of snake bites. This is an ancient remedy that has existed in the world for over five thousands years.

General blood letting consists of the abstraction of blood by incision into an artery (arteriotomy) or vein (venesection). Local blood letting is the abstraction of blood from smaller vessels by water cupping or by leeching. Blood letting was widely practiced in Western medicine. Haemopathy were believed to result from the impurity or super-abundance of blood in the system, periodic blood-letting was felt to assure the patient of good health.

How bloodletting works: - It is used to eliminate toxins that are absorbed into the blood stream

through the gastrointestinal tract. This process purifies the blood. If administered properly, it stimulates the antitoxic substance in the blood stream thus developing the immune mechanism in the blood system. Toxins present in the gastro-intestinal tract are absorbed into the blood and circulated through out the body.

Bloodletting is indicated in: i) skin diseases, ii) herpes, iii) jaundice, iv) ulcers, v) gout, vi) piles and vii) abscess.

Āyurvedic view: - Eczema (vicarcika) comes under the category of kṣudrakuṣṭha (*Skanda piḍika śyava bahusrava vicarcika*).

Clinical study

A clinical study of eczema by leech therapy was conducted in the Śalya Department of National Institute of Āyurveda, Jaipur. Eczema or dermatitis is an allergic condition that affects the skin regardless of race or age.

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TABLE 2
Comparison of Group A, B and C after the treatment

Sign & symptoms	Group A			Group B			Group C		
	Relief %	't'	p	Relief %	't'	p	Relief %	't'	p
1. Itching	63.22	26.49	<.001	68.67	34.11	<.001	87.21	26.93	<.001
2. Pain	72.23	5.58	<.001	69.23	14.79	<.001	77.05	18.68	<.001
3. Dryness	61.22	21.62	<.001	41.51	10.70	<.001	73.85	18.43	<.001
4. Discharge	71.62	22.49	<.001	68.92	19.98	<.001	88.24	26.93	<.001
5. Burning sensation	69.74	31.80	<.001	55	9.95	<.001	75	34.11	<.001
6. Discolouration	43.59	7.14	<.001	44.74	6.65	<.001	58.54	14.42	<.001

TABLE 1
Relief in each group during follow-up

Group name	Percentage of relief after		
	15 days	30 days	45 days
1. Group A	22.59%	50.14%	62.52%
2. Group B	22.63%	46.69%	57.24%
3. Group C	24.31%	65.46%	77.11%

Material and method: - 30 patients were divided into three groups, each contained 10 patients. Group 'A' was treated with bloodletting by leech, Group 'B' with Mahā ballātaka yoga and Group 'C' with leech therapy and Mahā ballātaka yoga.

Inclusion criteria:- Patients of both sexes, up to 60 years of age, with symptoms like i) itching, ii) pain, iii) dryness, iv) burning sensation and v) blackish coloration.

Exclusion criteria: - Patients above 60 years of age, those suffering from anemia or any severe illness and HIV patients.

Lab investigation: - i) Hb%, ii) CT, BT, TLC, DLC, iii) blood sugar, blood urea and iv) HIV.

Drugs :- Mahā bhallātaka yoga:- śudha haritāl (50 g), śudha ballātaka (20g) and snuḥi kṣīra (as per requirement).

Method of application: - Clean the area and allow the leech to attach large posterior end first and direct smaller head end to the desired site. Apply other leeches if necessary. Monitor the leeches until they fill with blood. Usually, the leech falls of itself.

Observation and results: - Follow-up were done every 15, 30 and 45 days and percentage of improvement was noted (Table 1). Patients of Group 'C' showed significant result in all the sign and symptoms in comparison with other groups (Table 2).

Conclusion

- Eczema was found to be prevalent in the mid age i.e. 30-60 years.
- It was found in patient of kapha prakṛti.
- Leech therapy and Mahā bhallātaka yoga in combined form is most effective in the treatment of eczema

FUNDAMENTALS OF RASAŚĀSTRA AND ITS IMPORTANCE IN THE HERBOMINERAL FORMULATIONS OF ĀYURVEDA

(Part - I)

Neetu Singh and Anand K. Chaudhary*

Abstract: For proper understanding of any subject, well knowledge of its fundamentals is necessary. The topic 'Fundamentals of Rasaśāstra' has always been an incomprehensive subject in the meaningful interactions in academia. In this context, an attempt is made to summarise some facts on the topic. These facts and figures are composed by taking care of pharmaceutics and toxicity of an in-process materia medica to produce quality, safe and effective medicine with special reference to herbomineral formulations in āyurveda. Few selected examples related to svarṇa, lauha, etc. are also quoted for better understanding of the theme.

Introduction

Āyurveda, a rational system of medicine, have gained global acceptance on virtue of its fundamental doctrine of holistic approach. It sees the fabrics of an individual equivalent to constituents of cosmos, which have been replicated in theories like tridoṣa, pañcamahābhūta, saptadhātus, etc. In āyurveda, auśadha has been kept on second prime importance in the chronology of catuṣpāda which consists of kāṣṭhauśadhis (herbal preparations) and rasauśadhis (herbo mineral preparations).

Rasaśāstra, a discipline of āyurveda, deal with authentication, pharmaceutics and therapeutics of substances of mercurial, metallic and mineral origin that are accepted as medicine after very unique and individual treatment. These medicines are bestowed with the characteris-

tics of lesser dose pattern, longer shelf life, live through taste and larger therapeutic profile.

Characteristics of substances

Most of these substances, which are of metal and mineral origin, possess all characters of respective original ores. These substances are at par to all geological and metallurgical findings of contemporary science but generally we do authentication as per the characteristics quoted in classical text books of Rasaśāstra. In the classics of Rasaśāstra, kona, bhar, snigdha, bhasur, varṇa, and many other physico-chemical characteristics are specified for individual authentication and inter se classification of same material.

All these industrial materials, which may be toxic in their different composition, are converted into remedies for therapeutic purposes on account

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of transformation in their physico-chemical and metallurgical properties. The elegant procedures of pharmaceuticals of Rasaśāstra are responsible for this well-designed change in the properties of materia-medica. All these systemic procedures along with media (solid or liquids) and machinery (design of equipments and performance calibrations) are responsible for origination of drug from these raw materials of nature.

Fundamental of Rasaśāstra

The single most important element in mastering the techniques and tactics of achieving an object is called as fundamental. These fundamentals are produced on the basis of repeated experiments performed successfully and experience gained thereof. Therefore fundamentals are those phenomenon which ensure success in natural consequences by adoption of parameter laid for the cause.

The degree of perfection of pharmaceutical processing assures the quality, safety and efficacy of the drugs manufactured. The accomplishments in production of these herbo mineral formulations are dependent on accuracy of the procedure involved in the preparation of the drugs. Understanding the modus operandi of a procedure can be achieved by well thought out fundamentals of the same.

The fundamentals of pharmaceutical processing of Rasaśāstra may be categorised under 7 headings i.e. i) definition of technical terms, ii) pharmaceutical processes, iii) dosage form, iv) validation and shelf-life, v) safety profile, vi) therapeutic profile and vii) regulatory obligation (Table 1). These facts and figures may be appropriately termed as fundamentals of Rasaśātra under the post graduate curricula of the subject after further more critical evaluation.

TABLE 1
Categorisation of fundamentals of pharmaceutical processing of Rasaśāstra in under different headings

1. Definition of technical terms	c. Sandardization
2. Pharmaceutical processes	d. Stability/shelf-life
a. Authentication of raw-material	5. Safety profile
b. Concept of yantra	a. Toxicity study
c. Concept of śodhana	b. Adverse effects
d. Concept of māraṇa	c. Pharmaco-vigilance
e. Concept of jāraṇa	6. Therapeutic profile
f. Concept of satvapatana	a. Indication
3. Dosage form	b. Contraindication
a. Kharāliya rasāyana	c. Dose
b. Bhasma	d. Duration
c. Parpaṭi	e. Antidote
d. Kupī pakva rasa	7. Regulatory obligation
e. Poṭṭali	a. Drugs and Cosmetics Act (D&C) 1940
f. Druti	b. D&C Rule 1945
4. Validation and shelf-life	c. Schedule E of D&C Rule 1945
a. Quality control	d. Permissible limits of heavy metals
b. Quality assurance	

1. Definition of technical terms

To understand any subject, knowledge of its technical terminology is very necessary. The text books of Rasaśāstra were given thorough attention to this area. Some selected terminologies given in Rasaratnasamucchaya and Rasatarāṅgiṇi in the respective chapters of Paribhāṣa for key understanding of the subjects are detailed in Table 2.

2. Pharmaceutical processes

The most vital portion of fundamentals is pharmaceutical processes involved in the route of conversion of the raw materials in the form of remedies called as Rasauśadhis. The different steps involved in this process are as follows:

a) Authentication of raw material: - The descriptions available in the classics of Rasaśāstra regarding identification of raw material are self explanatory and self sufficient to serve the purposes (Table 3). However, for better analysis of

the raw material, geological and mineralogical characteristics of substances can also be considered for improved genuineness.

Geological and mineralogical characteristics: - Inclusion of geological characteristics of materia medica of Rasaśāstra is very necessary as there is direct impact of geological circumstances which are responsible for percentage constituents of different elements apart from the main element and also on other physico-chemical properties of mineral/metals which ultimately affects therapeutic properties of the substances. The protocols published by Central Council of Research in Ayurveda and Siddha for standardization of raw material, in-process intermediary substances and final products have included many metallurgical characteristics (Table 3).

b) Concept of yantra: - From the very inception of the philosophy of Rasaśāstra, there have been

TABLE 2
Some terminologies given in Rasaratnasamucchaya and Rasatarāṅgiṇi in Paribhāṣa chapters

Terminologies	Definition
01. Samskara	Inculcation of better properties on virtue of different procedures
02. Kajjali	Black fine powder prepared after grinding of parāda and gandhaka
03. Rasapaṅka	Wet amalgamation of parāda and other material
04. Piṣṭi	Wet substance after grinding of different material with specific liquid
05. Nirvāpa	Heating and dipping
06. Avāpa	Melting and sprinkling of powder in molten material
07. Niruttha	A completion test of bhasma
08. Apunarbhāva	A completion test of bhasma
09. Bijalakṣaṇa	An alchemical character
10. Sattvalakṣaṇa	Perfect sign of core metal
11. Śuddhāvarta	Emergence of white flame at the time of extraction of core metal
12. Bijāvarta	Emergence of different coloured flame according to the metal at the time of melting.
13. Abhiṣeka	Melting and sprinkling of water on it
14. Bhāvana	Levigation
15. Amṛtikaraṇa	A process of potential upgradation of bhasma

TABLE 3
Characteristics of materia medica in Rasasāstra

Materia medica	Acceptable characters as per classics of Rasasāstra	Relevant geological characteristics	Relevant mineralogical characteristics	Remarks
Svarṇa (gold)	Balaruṇa aruṇam, ghuṣṭrin cūrṇa samana varṇam, snigdham.	Occurs in the form of elemental/native gold (Au), element with other metallic elements (gold amalgam, Au with Hg, Ag), as tellurides Sylvanite, Calaverite, Petzite, Nagyagite.	Native gold known to contain as much as 99.8% gold, but as a rule ranges from 85-95%. Atomic structure: FCC, Sp. gravity: 19.3, M.P:1060°C	RRS 5/06 RT 15/11
Lauha (iron)	Ujjvalam, dhātrī kāśīśa lepitam giriśṛṅgāṅkitam.	Next to almost abundant metal consisting 4.6% of earth's crust. Main ores are Fe ₃ O ₄ (72.4% Fe), Fe ₂ O ₃ (70% Fe), Carbonate and Siderite (48.3% Fe). Less important ore are Sulphides, Pyrite, FeS ₂ .	Haematite (Fe ₂ O ₃) Crystal occur as rhombohedral, colour of steel grey to iron black, opaque except in very thin plates, hardness: 5.5-6.5, Sp. gravity: 4.9-5.3. Lusture: fibrous varieties are silky and amorphous varieties dull and earthy.	RRS 5/72 RT 20/08
Abhraka (mica)	Snigdham, pṛthudaḷam, varṇasamyuktam, bharatodhikam, sukhnirmocchya patram.	It is a mineral in the group called mica. Usually found in igneous and metamorphic rocks.	Color: Dark brown, blackish brown, Density: 2.8-3.4, Habit: Lamellar.	RRS 2/11 RT 10/11
Haratāl (orpiment)	Suvarṇa varṇam, vimalam, guru, manojjvalam, Tanupatracittam, snigdham	Biotite occurs in the oxidized portions of arsenic veins. It also occurs as a deposit from some hot springs, and as sublimate from volcanoes.	Crystal system: Monoclinic; Colour: Lemon yellow; Lusture: Pearly to brilliant on cleavage faces; elsewhere resinous or dull; Hardness: 1.5-2.0; Specific gravity: 3.4-3.5.	RRS 3/66 RT 11/05
Śankha (conch shell)	Vṛtta, snigdha, sukṣma mukha, nirmala indusundara, dīrgha kaya, guru	Not applicable as it is of animal origin	Not applicable as it is of animal origin	RT 12/02

specific arrangements invented to perform every procedure with perfection; these arrangements are termed as yantra. They are designed for controlling temperature, cooling system, etc. Proper emphasis/specifications on constituents for body material of various yantras can also be seen in Rasaśāstra texts; e.g. ḍamaruyantra, patanayantra, patalayantra, balūkayantra, etc.

c) Concept of śodhana:- “Uddiṣṭai auśadhai śārdham kriyate peṣaṇādikam, Malavicchittaye yat tu śodhanam tadihocyate” (RT 2/52). Accurate and first pharmaceutical procedure for medicinal use of these materials of mineral origin is śodhana. In this process many crucial issues such as reduction in particle size of material, removal of undesired characters, potentiation of existing good qualities in substance, etc. are served. There are more than fifteen śodhana methods described in classics of Rasaśāstra. These processes, including yantra (instruments), are different in pharmaceutical approach, engineering and technology.

The definite operative procedures of these processes of śodhana are well established in the classics. Here, that selection of herbs and its applicable form in the specific process is accentuated; and any random and irrational change will lead to harmful action in most of the cases. Few examples of śodhana method are shown in Table 4. These are one of the most important factors, which may be considered as fundamentals of Rasaśāstra.

d. Concept of māraṇa:- This is the key procedure for converting metallic/minerallic materials into the form of medicine. The basic process of māraṇa may be discussed under the two sub headings viz. i) puṭa and ii) other accessories.

Putā:- “Rasādidravya pākānām praman gyapanam puṭam, na iṣṭo nunadhikah pakah supakvam hitam auśadham” (RRS 10/47). It is a special

TABLE 4
Characteristics of process of sodhana in Rasasastra

Materia medica	Process involved	Media used	RP*	Chief desired characters after process	Remarks
Svarna (gold)	Nirvap Heating and dipping	Taila, takra, gomutra, amala, kulatha kvatha	7 times in each	Reduction in particle size	RRS 5/13
Lauha (iron)	Nirvap Heating and dipping	Taila, takra, gomutra, amala, kulatha kvatha	7 times in each	Reduction in particle size	RRS 5/101-103 RT 20/15-19
Abhṛaka (mica)	Nirvap Heating and dipping	Kanji/gomutra/godugdha	7 times	Reduction in particle size	RRS 2/16-17 RT 10/18-19
Hartal (orpiment)	Svedana Boiling in liquid bath	Kusmanda svarasa/ Tila kshara jala	-	Conversion of material to light yellow colour	RRS 3/70 RT 11/19-20
Sankh (conch shell)	Svedana Boiling in liquid bath	Jambir nimbu svarasa	-	Removal of impurities and conversion to more white coloured material	RT 12/06-07

*RP - Repetition of process, if any

phenomenon adopted for incineration and calcinations of raw materials with specified temperature range and duration. Between two consecutive heating exposures (puta) there is provision of bhavana (trituration/levigation) with liquid of herbal origin which is generally credited for change/potential in properties of in-process material. Type and frequency of puta desired for proper conversion of material medica is depending on its physico-chemical properties of the raw material. The quantum of heat generated in puta also depends on its dimension and type of fuel used which are properly described in our classics. Salient features of puta with example are given in Tables 5&6.

Other accessories:- The body material of sarava (utensil in which drug disc are kept for heating in puta), its shape and size, the amount of herbal liquid media for bhavana, its duration of trituration, the shape and size of cakrika (disc shaped structure), its arrangement in sarava, procurement method after puta, etc. are the sequences which need elaborative discussion.

e. Concept of jarana:- Jarana is a procedure which has been developed for those metals which are having low melting point and cannot tolerate heat of a puta in normal course. In this process, low melting point substances such as lead, tin, etc. are rubbed with herbal material with controlled exposure of heat till they are converted into a fine powder form. This powder may be further treated with norms of puta for better result in therapeutics.

f. Concept of sattvapatana:- It is believed that application of essence/core metal of a mineral will show at least ten times better therapeutic efficacy in comparison of parent mineral. Therefore, a practice has developed in Rasasastra to extract the core metal from minerals used. This practice is known as sattvapatana. In this, the procured material is further processed as per

TABLE 5
Characteristics of process of marana in Rasasastra

Materia medica	Type of puta involved	Media for bhavana	RP*	Chief desired characters after process	Remarks
Svarna (gold)	Kukkuta puta	Matulunga svarasa	10 times	Red colour of bhasma (kumkum chhayam).	RRS 5/15
Lauha (iron)	Gajaputa	Triphala kvatha	20 times	Blackish red colour of bhasma (pakva jambu phalachhayam)	RT20/37
Abhraka (mica)	Gajaputa	Eranda svarasa	3 times	Red colour of bhasma (ishtika varnabham)	RRS 2/26
Hartal (orpiment)	Kukkuta puta	Palash mula kvatha	12 times	White coloured bhasma (sarad indu nitbham)	RRS 3/78
Sankh (conch shell)	Gajaputa	-	2 times	White coloured bhasma	RT 12/17

*RP - Repetition of process, if any

the steps of marana and converted into the form of a medicine. In this process of sattvapatana, immense heating for longer duration with special masha (crucible) and koshthi (arrangement for higher temperature) are required. Abhrak (mica) and makshika (chalcopyrite) are best examples for the process of sattvapatana by which essence metal is extracted and used in therapeutics under the name of Abhrak sattva and Makshika sattva bhasma.

3. Dosage form

There are various dosage forms to facilitate the administration of different herbomineral preparations according to the status of disease as well as the patient. This may be perceived in brief from the under-mentioned descriptions:

a. Kharaliya rasayana: - In this group of preparation, all components of formulations are finally mixed homogeneously in khalava yantra (mortar and pestle) for equal distribution of all ingredients and uniform particle size. The most common among constituents supposed to be a part of Kharaliya rasayana is kajjali, a fine black powder prepared by mixing and grinding of parada and gandhaka at least for six hours. In this kajjali, all bhasma and herbal powders are mixed in their given proportion for a particular formulation. In other words kajjali is a basic substance for preparation of many dosage forms of Rasasastra.

b. Bhasma: - Bhasmas are fine powdered form of many metals and minerals processed under an unique and specified pharmaceutical manufacturing procedures comprised of individualized temperature pattern, range, duration, frequency of heating along with explicit bhavana (levigation) of herbal self expressed juices, decoction and many other liquids of different origin in accordance of classical indication for that particular metal and mineral. The final colour of bhasma is as per procedure adopted and characteristics of original metal and mineral. Completion test of all bhasma must be considered before administration of drugs. The detail knowledge of all these procedures and parameters are to be part of Fundamentals of Rasasastra.

c. Parpati: - Parpati is an extended and modified form of kajjali which is prepared either by adding new powdered bhasma, minerals and herbal powder in given proportion or without adding any new substances but with different proportion of gandhaka, after mixing properly, as the case may be, heated on low temperature range to melt base (kajjali) and to provide flaky structure by pressing this molten kajjali in an unique way. Finally these flaky substances are powdered and administered therapeutically in accordance of classical indication.

d. Kupi pakva rasa:- Kupi pakva rasa is a specially modified form of kajjali in which some

TABLE 6
Characteristics of puta for marana of materia medica in Rasasastra

Type of puta	Dimension of pits	No. of cow dung	Range of temp.	Duration of temp.
Maha puta	2 Hasta / 91cm	1500	800°C-1000°C	1 hour
Gaja puta	1 Rajahasta / 57cm	1000	800°C-1000°C	1 hour
Kukkuta puta	2 Vitasti / 46cm	150	800-1000°C	30 minutes
Varaha puta	1 Aratni / 42cm	-	800-1000°C	30 minutes
Bhanda puta	17000cc	-	400°C	8 hours

times, as per the need of formulae, metal and mineral in their original but purified form, is amalgamated with mercury at the outset of procedure and then gandhaka is added in required amount to make kajjali. This kajjali is filled in multilayered (with mud and cotton) kupi (glass bottle) and exposed for kramagni (intermittent increasing pattern of temperature) for specified duration. After observing all completion tests the heating may be stopped and further advised procedure adopted after self cooling. The therapeutic efficacies of these products are better in comparison of all other dosages forms.

e. Pottali:- This dosage form is almost out of practice at present. This may be prepared by heating the substances which have been given different shape for e.g. conical, oval, etc. in the surroundings of gandhaka at low temperature range for longer duration. The completion tests are advised for this dosage form too.

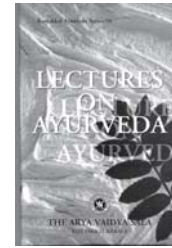
f. Druti: - This is a viscous liquid dosage form in which all metallic and mineralic formulations are supposed to remain in liquid form forever. But this kind of medicament is out of practice.

(To be concluded)

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Clinical observation

KAMPAVĀTA WITH PRAMEHA

M.V. Vijayakumar and P.K. Warriar*

An average built man aged 65 was admitted to the Charitable Hospital on 19.08.2009 for his weakness on the left side, left arm stiffness, body pain, tremor and body rigidity. He was unable to walk without support and was not able to stand erect. Two attenders managed him throughout. His bowel habit was once in a day and was hard, urine was excess in night, sleep was normal and speech was slurred.

He was a known diabetic for the past 20 years and was on Insulin, 35 units in the morning and 20 units in the evening. Detected hypertension seven years before but was controlled under medication (Aten 50 mg 1-0-1). He had undergone CAGE in 2003 for coronary arterial disease. He was on the following tablets:

- Ecospirin AV one at bed time
- Telma 40 mg 1-0-1
- Tidoment plus 1 - ½ - 1 - ½
- Ropak 5 mg 1 tds
- Syndopa CR ¼ - ¼ - ½
- Ropark 4 mg once daily
- Gluform 0 - 1 - 0

His Fasting Blood Sugar was 80 and Post Prandial Blood Sugar was 130; BP 160/100 and pulse rate was 78/minute.

His diet schedule ran thus: Tea without sugar at 6. am; idali/dośa at 8 am; meals at 1 pm; tea without sugar and bun/rusk at 4 pm; chapathy with vegetables or fish curry with fruits at 8 pm.

He consulted Arya Vaidya Sala OPD and was using medicines for 8 months. The medicines prescribed were:

1. *Gandharvahasthadi erandatailam* (10 ml) to be taken with *Dhanvantaram Kashayam* and *Kulatthalasunairandadi kashayam* (60 ml) + *Ksirabala 7* (10 drops) + *Hridayarnavarasam* (1 tab.) every morning in empty stomach at 6 a.m.
2. *Kashayam* with *Kirabala 7* and *Hridayarnavarasam* at 6 pm
3. *Amritameharichurnam* (5g) to be taken with warm water at noon and at night before food
4. *Atmaguptacurnam* (2.5g) to be taken with warm water in the morning, at noon, in the evening and at night.

*Arya Vaidya Sala, Kottakkal

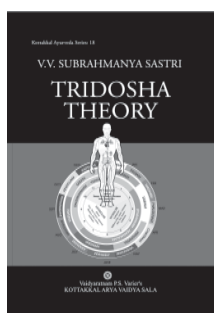
Modified diet: - Milk with bread (7.00 a.m.); one cup of rice + raw vegetables + boiled vegetables + one cup of buttermilk (12.00 noon); Tea or coffee without sugar (4.00 p.m.); porridge with vegetable curry (7.00 p.m.)

He was asked to get admitted for further treatment by the Chief Physician.

Tailadhāra and simple massage throughout with *Dhanvantaram tailam* on the head and *Sahacharadi kuzhampu* with *Dhanvantaram kuzhampu* on the body for seven days were done. Seven days of pichu and pizhicil were given with the same tailam and kuzhampu. Another seven days of pichu and űjavarakkizhi were also conducted. The medicines prescribed earlier were given throughout the treatment.

The whole treatment was completed on 09.09.2009. Body pain was completely relieved and tremor reduced by 80%. He was relieved of the left side weakness, left arm stiffness and body rigidity and was able to walk without support. He could stand erect. His speech had become clear. Regular follow-up to the Chief Physician was advised.

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TRIDOSHA THEORY

A study on the
Fundamental Principles of Ayurveda

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Price: Rs. 220/-

The theory of *tridosha* forms the foundation of ayurveda. In this text the learned author scientifically explains the physiology of human body through the principles of *vata*, *pitta* and *kapha* keeping in view some of the processes as explained by modern science without detriment to the main concept postulated in ayurveda.

The author, late Sri. V.V. Subrahmanya Sastri, is well known in the world of ayurveda. He was Professor of Ayurveda, Deputy Director and Research Officer under CCRAS. He was also a successful practitioner, an erudite scholar and an eminent pundit deeply immersed in the study of classical texts.

Dr. P.K. Warriar in his preface to the new edition

EXCERPTS FROM CIKITSĀMAÑJARI - LXIII

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Abstract: The causative factors of different types of nāsāroga (diseases of nose) and their various treatments are discussed in this issue.

DISEASES OF THE NOSE

Direct exposure to dew, strong wind, dust, excessive talk, sleep or wakefulness; use of pillow that are very high or low, consumption of excessively cold water, excessive consumption of water or plays like swimming, diving, etc. in water for long time; suppression of vomiting or crying, etc. make derangement of the doṣas predominating vāta, occupy the nose and cause rhinitis or catarrhal inflammation (pratiśyāya), which when becomes chronic (duṣṭapraśyāya) can become a cause for even pulmonary tuberculosis or degenerative diseases (kṣaya).

Catarrhal inflammation or rhinitis is classified into five, vātika, paittika, ślaiṣmika, sannipātika and raktaja. There are eighteen diseases related to nose. Duṣṭapraśyāya, bhṛśakṣava, mukhaśoṣa, nāsāśoṣa, nāsānāha, ghrāṇapāka, nāsārāva, pīnasa, dīpti, pūtināsa, pūyarakta, puṭaka, nāsārśa and nāsārbuda.

Characteristic features of rhinitis (pratiśyāya) caused by vāta are frequent sneezing, dryness of mouth, loss of voice, pain on the ear, headache, delayed formation of pus and cold - clear nasal secretions. Thirst, fever, fast development

of pus and copper coloured or yellow warm nasal secretions are present in rhinitis originating from pitta. Cough, dyspnoea, anorexia, vomiting, sweet taste in mouth and white, thick and viscid nasal secretions are seen in rhinitis originating from kapha. All the above symptoms may remain intermixed, if the causative doṣas are all the three, termed sannipātika pratiśyāya. At times, these symptoms may intensify or get relieved with no apparent reason. Rhinitis caused by vitiated blood (rakta) causes foul smell from the nostrils, numbness of the chest and itching of the ear, eye, etc. If untreated, all these forms of rhinitis get transformed to chronic rhinitis (duṣṭapraśyāya). Therefore, in duṣṭapraśyāya, there will be an aggravation of all the above respective symptoms, decreased desire for food, dyspnoea, cough, foul smell of the mouth and purulent white or reddish nasal secretions and formation of infective micro organisms are common. All forms of rhinitis, when attain chronic stage, give rise to lightness of the body, cessation of sneezing, loss of smell and taste and yellow dense or solidified secretion of phlegm.

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Smelling of spicy odour, tickling by grass, etc. causes irritation of the cartilaginous portion of the nostril and this in turn vitiates vāyu by blocking its free passage which ultimately results in excessive and frequent sneezing termed bhṛśakṣaya. Deranged vāyu dries up mucus and phlegm in the nostril resulting in difficulty in inhalation and a sensation that husk is filled in the nose - this condition is nāsāśoṣa. When kapha blocks the passage of vāyu in the nose, there is difficulty in expiration, nose gets blocked and a sensation that the nose is filled with air, this situation is termed nāsānāha.

In ghrānapāka, vitiated pitta causes inflammation and suppuration of the nasal skin and cartilage, pain and burning sensation. Deranged kapha causes clear secretion of nasal discharges and it aggravates during night. Kapha blocks the nose causing rhonchi, which is painful more severe than in pīnasa. Kapha make nose always as moist as mouth and secretion of viscous dense yellow secretion of phlegm. This condition is termed apīnasa.

Vitiated blood causes severe inflammation of the nose (as in burns), burning-sensation during inhalation and hyper irritability. This condition is termed as dīpti. Vitiated doṣas occupy the neck and uvula resulting in the secretion of foul smelling phlegm and air through mouth and nostril. This condition is pūtīnāsa. Due to accumulation of pus or injury, secretion of pus and blood, headache and burning sensation occur; this disease is pūyarakta. Pitta and kapha blocks passage of vāyu through the nose; vāyu in turn dries them up at the nasal orifice (nāsāpuṭa). This disease is called puṭaka. Nasārśa and nāsārbuda are growths within the nostril.

Difficulty during inhalation, nasal discharges, excessive sneezing, nasal voice, foul smell of the nostril and headache will be present in all the eighteen type of diseases of the nose detailed. Out of them, duṣṭapīnasa needs prolonged treatments.

The patient should always live in a house that is not exposed to direct wind. Oleation (snehana), sudation (svedana), vomiting (vamana), inhalation of medicated fumes (dhūma), filling of mouth with medicated liquids (gaṇḍūṣa), nasal medications (nasya), wearing of cotton headgear, consumption of hot potency edibles with little quantity of water, more consumption of arid land animals' meat, jaggery, milk, caṇaka (*Cicer arietinum*) and trikaṭu are indicated. Consumption of the fine powder of bālamūlaka (tender *Raphanus sativus*) or kulatha (*Macrotyloma uniflorum*) mixed with excess quantity of yava (barley) and godhūma (*Triticum aestivum*), cooked in curd and added with dāḍima (*Punica granatum*) is prescribed.

Consumption of bearably hot water medicated with daśamūla; smelling of coraka (*Kaempferia galanga*), tarkkārī (*Premna corymbosa*), vaca (*Acorus calamus*), ajājī (*Cuminum cyminum*) and upakuñcikā (*Nigella sativa*) are also effective.

Inhalation of medicated fumes of the following, mixed with vasā (animal fat) or ghee or bees wax is indicated:

Śatāhva	<i>Anethum graveolens</i>
Tvak	<i>Cinnamomum verum</i>
Balamūlam	<i>Sida alniifolia</i> (root)
Śyonāka	<i>Oroxylum indicum</i>
Eraṇḍa	<i>Ricinus communis</i>
Vilva	<i>Aegle marmelos</i>
Āragvadha	<i>Cassia fistula</i>

Taking head bath, wiping head with water, anger, lying on bed and usage of cold water are contra-indicated.

In vātapratiśyāya, consumption of ghee medicated with drugs capable of relieving vāta or with the five salts is indicated. Vidāryādi kaṣāya shall be consumed. Sudation and nasal medications indicated in ardita (Bell's palsy) can be followed. In conditions where vitiation of pitta and rakta are intense, ghee medicated with drugs detailed in sweet group (madhuragaṇa) shall be consumed. Irrigations and topical application shall be done with drugs that have cold potency. When kapha is the predominantly vitiated doṣa, fasting, applications of fine paste of white mustard (gaura sarṣapa) on the head, vomiting by using ghee medicated with alkaline substances (kṣāra), and nasal medication with the expressed juices of medicines are indicated. Fine powders of the following mixed with lukewarm water shall be used for gargling:

Paṭu	Rock salt
Vyoṣa	<i>Zingiber officinale</i> <i>Piper nigrum</i> <i>Piper longum</i>
Vella	<i>Embelia ribes</i>
Lavaṇa	Sea salt
Jiraka	<i>Cuminum cyminum</i>

Ghee medicated with drugs that are spicy in taste and strong or pungent in potency shall be used for gargling. This will relieve all nasal diseases. Diseases caused by vitiated blood (rakta) shall be treated as in vitiation of pitta. Treatments ear-marked for bleeding disorders (raktapitta) can also be done.

The treatments prescribed for phthisis and worms can be done in duṣṭapīnasa. Expressed juice of aśvavit (horse dung) or urine of the horse medicated with fine powders of the following

made to a cotton wick, when used for inhalation (dhūma) relieves diseases of the nose.

Vyoṣa	<i>Zingiber officinale</i> <i>Piper nigrum</i> <i>Piper longum</i>
Urupūga	<i>Ricinus communis</i>
Kṛmijit	<i>Embelia ribes</i>
Dāru	<i>Cedrus deodara</i>
Mādri	<i>Piper longum</i>
Gada	<i>Saussurea lappa</i>
Imgudam	<i>Sarcostigma kleinii</i>
Vārtākabijam	<i>Solanum melongena</i> - seeds
Triphala	<i>Terminalia chebula</i> <i>Emblia officinalis</i> <i>Terminalia bellirica</i>
Siddhārtha	<i>Brassica alba</i>
Pūti	<i>Paederia foetida</i>
Matsyaka	<i>Alternanthera sessilis</i>
Agnimāndha	<i>Premna corymbosa</i> - flowers
puṣpa	
Pīlu	<i>Salvadora persica</i>
Śigruphala	<i>Moringa oleifera</i> (seeds)

Drugs of pungent (tīkṣṇa) potency, used as pradhamaṇa (a type of nasal medication where fine powders of medicines are kept on the nostrils and blown into the nasal canal by another individual), relieves sneezing and puṭaka.

Sesame oil, medicated ghee or kaṣāya medicated with fine powders of the following, when used as nasal medication (nasya) relieves sneezing and puṭaka. While preparing the ghee, kaṣāya of the following is used as liquid component and fine paste prepared from the same drugs are used as solid component.

Śuṅṭhī	<i>Zingiber officinale</i>
Kuṣṭha	<i>Saussurea costus</i>
Kaṇa	<i>Piper longum</i>
Vella	<i>Embelia ribes</i>
Drākṣā	<i>Vitis vinifera</i>

In dryness of nose (nāsāśoṣa), Balātaila is used for consumption, local application, nasal medication and application on the head. Meat soup shall be consumed. Inhalation of the smoke prepared from drugs that are oily (snigdha) and sudation are indicated in nāsānāha.

In nāsāpāka, internal and external treatments indicated for vitiated pitta are to be done. Blood-letting and irrigation with the kaṣāya prepared from kṣīrivṛkṣa (the four fig trees) are also effective. All local applications have to be mixed with ghee. In nāsāpāka and dīpti, especially when there is nasal secretion, consumption of cold potency drugs and pungent (tikṣṇa) nasal medications are indicated. In pūtināsa and pīnasa, treatments indicated in kapha-pīnasa are to be followed.

Sesame oil medicated with the expressed juice of tuḷasi (*Ocimum sanctum*) as liquid component and kunduruska (*Boswellia serrata*) as solid component, when used as nasal medication arrests foul smelling nasal secretions. Sesame oil medicated with the juice of gṛñjana (*Allium cepa*) or munīvṛkṣa (*Sesbania grandiflora*) as liquid component and sindhūtha (rock salt) as solid component relieves pūtināsa.

Sesame oil, medicated with the following, used as nasal medication, relieves pūtināsa:

Śigrubīja	<i>Moringa oleifera</i> - seed
Simhībīja	<i>Solanum indicum</i> - seed
Nikumbha bīja	<i>Baliospermum montanum</i> - seed
Vyoṣa	<i>Zingiber officinale</i> <i>Piper nigrum</i> <i>Piper longum</i>
Saindhava	Rock salt
Vella	<i>Embelia ribes</i>
Surasa	<i>Ocimum sanctum</i>

Sesame oil medicated with the following, used as nasal medication relieves diseases of the nose. This oil is effective for almost all nasal diseases.

Viḷaṅga	<i>Embelia ribes</i>
Sindhū	Rock salt
Yaṣṭyāhva	<i>Glycyrrhiza glabra</i>
Devadāru	<i>Cedrus deodara</i>

In pūyarakta nasal medications and treatments prescribed for raktapitta are to be advocated. In pūyarakta, when it is in chronic stage, nāḍivraṇa cikitsa is to be applied.

Nasal polyp (nāsārśa) shall be burnt with alkali (kṣāra) or with red hot metallic instruments. In large polyps, excision with instruments and cauterisation are to be done. This should be followed with therapy using cold potency drugs to avoid excessive bleeding.

Medicated sesame oil, prepared from the following made to a paste with the milky latex of arka (*Calotropis gigantea*) and cows urine, as nasya relieves nasal polyp (nāsārśa)

Citraka	<i>Plumbago indica</i>
Grandhi	<i>Piper longum</i>
Sindhūtha	Rock salt
Surasa bīja	<i>Ocimum sanctum</i> - seed
Kaṇṭhakārī	<i>Solanum virginianum</i>
Cavika	<i>Piper brachystachyum</i>

Medicated gruel prepared from the following relieves pānasa, nasal polyp (nāsārśa) nāsāśoṣa (dryness of nostrils), nāsāsūla (pain in the nostrils), and decreased digestion.

Tāmalaki	<i>Phyllanthus amarus</i>
Abhaya	<i>Terminalia chebula</i>
Kṛṣṇa	<i>Piper longum</i>
Dāru	<i>Cedrus deodara</i>
Nāgara	<i>Zingiber officinale</i>
Cavyaka	<i>Piper brachystachyum</i>

One prastha (768g) of sesame oil medicated with one pātra (3072 ml) of nirguṇḍī (*Vitex negundo*) svarasa and goat's milk as liquid component and fine powders of the following as solid component, on nasal medication, relieves diseases of the ear and nose.

Trigandha	<i>Santalum album</i> <i>Pterocarpus santalinus</i> <i>Aquilaria malaccensis</i>
Vyoṣa	<i>Zingiber officinale</i> <i>Piper nigrum</i> <i>Piper longum</i>
Varṣābhū	<i>Boerhavia verticillata</i>
Jīrakadvaya	<i>Cuminum cyminum</i> <i>Nigella sativa</i>
Saindhava	Rock salt
Māyūrabiḷa	<i>Achyranthus aspera</i> - seed

Punnāvīramtulasiyamṛtum (cross refer verse 34-Karṇarogacikitsa) tailam may be applied on the head.

Medicated sesame oil prepared from the expressed juice of kūvaḷattila (leaf of *Aegle marmelos*), veṅgayīla (*Pterocarpus marsupium* - leaf), ciṭṭamṛtu (*Tinospora cordifolia*) and kayyonni (*Eclipta prostrata*) and milk as liquid component and fine powders of koṭṭam (*Saussurea costus*), iratṭimadhuram (*Glycyrrhiza glabra*) and candanam (*Santalum album*) as solid component relieves diseases of the nose. A variation of this medicated oil where expressed juice of ciṭṭamṛtu and milk alone is replaced as liquid component is also effective.

Triphalādi tailam added with powdered karpūra (*Dryobalanopse aromatica*) and kastūri (musk) can also be used as nasal medication. Asana-vilvādi medicated oil can be used if the vitiation of kapha is more.

Sesame oil medicated with the expressed juice of paṭola (*Trichosanthes lobata*) as liquid component and paste of paṭola and fine powders of koṭṭam and iratṭimadhuram as solid component can also be used as nasya. Milk should be added to oil just before nasya. This nasal medication relieves pratiśyāya.

Application of sesame oil medicated with the juice of ārukāl (*Eclipta prostrata*) and milk as liquid component, and the solid components of Triphalādi tailam, on the head is very effective (cross refer Triphalādi tailam) when the vitiation of pitta and rakta are more predominant in pratiśyāya.

Fine powders of the following mixed well, on application on the head, relieve nasal diseases caused by increased pitta and rakta or dryness of nostrils (nāsāśoṣa).

Yaṣṭī	<i>Glycyrrhiza glabra</i>	1 part
Niśa	<i>Curcuma longa</i>	1 part
Vedhi	<i>Ferula assa-foetida</i>	1 part
Upakuñcika	<i>Nigella sativa</i>	3 parts

Rubbing fine powders of iratṭimadhuram, koṭṭam and sahasravedhi (*Ferula assa-foetida*) on the vertex is also effective. Kastūri (musk) can be applied as above, only during evening or night, for the relief of vātpratiśyāya and nāsāśoṣa.

A kaṣāya prepared from the following relieves cough, nāsāśoṣa, śvāsa and pīnasa:

Cerupayar	<i>Vigna radiata</i>
Amṛta	<i>Tinospora cordifolia</i>
Cukku	<i>Zingiber officinale</i>
Bṛhati	<i>Solanum anguivi</i>
Ponnamara	<i>Senna occidentalis</i>
Triyāma	<i>Curcuma longa</i>

Fine powders of the following mixed with honey shall be licked for the relief of pīnasaśa:

Phalatraya	<i>Terminalia chebula</i> <i>Emblica officinalis</i> <i>Terminalia bellirica</i>
Kaṭutraya	<i>Zingiber officinale</i> <i>Piper nigrum</i> <i>Piper longum</i>
Yaṣṭi	<i>Glycyrrhiza glabra</i>

Guḷa (jaggery), ādraka (*Zingiber officinale*), kṣīra (milk), trikaṭuka (fine powders of *Zingiber officinale*, *Piper nigrum* and *Piper longum*), goat's meat and alcoholic beverages can be consumed for faster digestion. Inhalation (dhūma) of smoke from no-cake powder mixed with ghee is also effective.

Cotton wick embedded with the fine powders of the following shall be used to dry up nasal secretions in pratiśyāya:

Ela	<i>Elettaria cardamomum</i>
Tippali	<i>Piper longum</i>
Mañjal	<i>Curcuma longa</i>
Vaca	<i>Acorus calamus</i>
Karpūra	<i>Cinnamomum camphora</i>

Intake of milk medicated with the decoction of iñci (*Zingiber officinale*) relieves pīnasa immediately.

Sesame oil medicated with the leaf juice of valiya kaṭalāṭi (*Achyranthus aspera*) as liquid component and its seeds and iratṭimadhuram (*Glycyrrhiza glabra*) as solid component, used for nasya (nasal medication) relieves all types of pīnasa.

Consumption of milk medicated with kuruntoṭṭi and cukku in the evening is effective in nāsāśoṣa. Kṣīrabala can be used for nasya. Sesame oil medicated with milk as liquid component and the following as solid component can also be

used for nasya.

Kuruntoṭṭi	<i>Sida alnifolia</i>
Devatāram	<i>Cedrus deodara</i>
Candanam	<i>Santalum album</i>
Iraṭṭimadhuram	<i>Glycyrrhiza glabra</i>
Muntiriṅga	<i>Vitis vinifera</i>

Powdered kastūri (musk) and karpūra (*Cinnamomum camphora*) mixed with butter can be applied on the vertex. Butter alone also can be applied, especially in nāsāśoṣa. All the measures mentioned for nāsāśoṣa are also applicable to nāsānāha. All medicated oils for pīnasa shall also contain fine powder of karpūra and kastūri as pātrapāka. These powders are added to the receiving vessel at the time of filtration of oil. Kaṣāya prepared from daśamūla mixed with milk shall be consumed in the evening. In vitiation of kapha, the above preparation should be consumed without milk.

A kañji medicated with kariṅgāli (*Acacia catechu*) and asana (*Pterocarpus marsupium*) mixed with milk on consumption with a jaggery relieves pīnasa caused even by the three doṣas. Fumes arising from a cotton wick embedded with fine powders of kaṭalāṭi (*Achyranthus aspera*) and vellam (*Embelia ribes*) on inhalation (dhūmapāna) in the morning relieves foul smell from the nostril.

Karpūra mixed with milk can be used for nasya for relief of vātapratiśyāya. Head-bath is contraindicated in all pīnasa. Water medicated with drugs detailed in Balāhaṭhādi oil can be used for bathing if essential. Rubbing cakiriccoru (powdered husk of coconut) on the vertex is also indicated.

NOTE TO THE CONTRIBUTORS

Contributions to Āryavaidyan are requested to be made in the following format:

- The article should be authentic and not published earlier.
- Contributions in the form of a research paper, review article, clinical observation or a book review are welcome from the fields of Āyurveda and allied subjects, naturopathy, Siddha, Unani, Homoeopathy, Yoga, Modern medicine, drug research, pharmacognosy, botany, phytochemistry and pharmacology. Publication will be made on the basis of the recommendation of an expert body.
- The main title, indicative of the content, should be brief. An abstract, not exceeding two hundred words, be prefixed to the article. English equivalents may be provided to Sanskrit terms [e.g. vīrya (potency), guṇa (property), etc]. Correspondence address including e-mail, and affiliations, if any, of the author be attached to the text.
- Tables, minimized to the extent possible, with suitable reference to the context can be attached to the matter.
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 1. John Bernar Hentory, *Clinical diagnosis and management by laboratory methods*, 17th Ed., WB Saunders Company, Philadelphia, pp 172-175, 1989.
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