ĀRYAVAIDYAN

A QUARTERLY JOURNAL ON AYURVEDA AND ALLIED SCIENCES

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Of all the gifts,
the most precious is health

Vaidyaratnam P.S. Varier's
Arya Vaidya Sala, Kottakkal, Kerala

Aryavaidyan, the quarterly journal of Arya Vaidya Sala, Kottakkal, is intended to encourage scientific writing and intellectual interactions among scholars, academicians, practitioners and students of ayurveda and allied

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VAIDYARATNAM P.S.VARIER'S
ARYA VAIDYA SALA, KOTTAKKAL

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ISSN 0970 - 4086; Vol. XXXII, No. 4; May - July 2019

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learning other disciplines and
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CASE REPORT
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Effect of Tiktaka ghṛta snehapāna and nasya in Allergic rhinitis- a case report

Praveen Balakrishnan, Sudhakar D. and Pratap Makhija

ABSTRACT: Allergic diseases are very common in India and affect nearly a quarter of its population. Allergic rhinitis (AR) is one among them. Second generation oral anti-histamines, intranasal corticosteroids and allergen immune-therapy, if required, are the treatment guidelines of contemporary medicine. Āyurveda provides an effective treatment for allergic rhinitis cases. This is a case report of treatment of chronic allergic rhinitis of a young lady, who was administered snehapāna (oral intake of medicated lipids), virecana (medicine induced purgation) and nasya (instillation of nasal drops). Pre-post treatment results were recorded subjectively using a standardized VAS (Visual Analogue Scale) and objectively using investigations like differential count and platelet count. Post treatment results showed substantial improvement both subjectively and objectively. This report shows that cases of AR may be successfully managed with āyurveda interventions.

Key words: Allergic rhintitis, Āyurveda, Treatment, Snehapāna, Virecana, Nasya, Subjective and objective improvement

Introduction

Allergic rhinitis is one of the commonest diseases affecting 10 to 25% of population worldwide.[1] In India, about 20 to 30% of population suffer from allergic diseases.[2] It is usually long standing in nature and often gets undetected. Severe sneezing, nasal itching, rhinorrhoea and nasal block are usually the classical symptoms. The main treatment guideline of contemporary medicine is use of second generation oral anti-histamines and intranasal corticosteroids. If above treatments are found ineffective or if they are not tolerated, allergen immunotherapy, which is an effective immune modulating therapy is initiated. Āyurveda provides effective treatment in allergic rhinitis. This is a case report of allergic rhinitis that has been successfully managed by āyurveda treatments like snehapāna, virecana and nasya. Pre and post treatment status was assessed subjectively using a standardized VAS and objectively using laboratory investigations like differential count and platelet count.

Case report

A young lady aged about 17 years had visited our OPD with complaints of excessive bouts of sneezing (>30 in number) daily in the morning hours and every time she had a head bath or had contact with house dust, since 08 to 09 months. The condition started initially with few bouts of sneezing (<10 in number) occasionally, four years back. Patient's mother used to self medicate her with pheniramine maleate tablets which she used to take for similar problem. The patient used to get symptomatic relief. This was repeated whenever episodes erupted. Later, after two years, number of bouts of sneeze started increasing gradually. She started getting nearly 15 to 20 sneezes daily at morning hours. Apart from this, bouts started erupting even on exposure to house dust and head bath, thus increasing her sneezing to more than 50 per day. She was then given some homeopathic medicine after consultation for about 08 months. According to the patient, the homeopathic medication had reduced her daily bouts of sneezing to near about 10, but bouts used to appear after

exposure to house dust and having head bath. Since, she did not have a complete relief from repeated sneezing, she discontinued her medicines since 08 to 09 months, which had brought back her situation to afore said state. Now, she had approached here for āyurveda treatments.

Examination of the patient

On examination of nose, there was no nasal vestibulitis, furuncle, nasal polyp and nasal foreign body and DNS (Deviated nasal septum). Nasal mucosa was found to be wet and pale. Cluster headache was also ruled out.

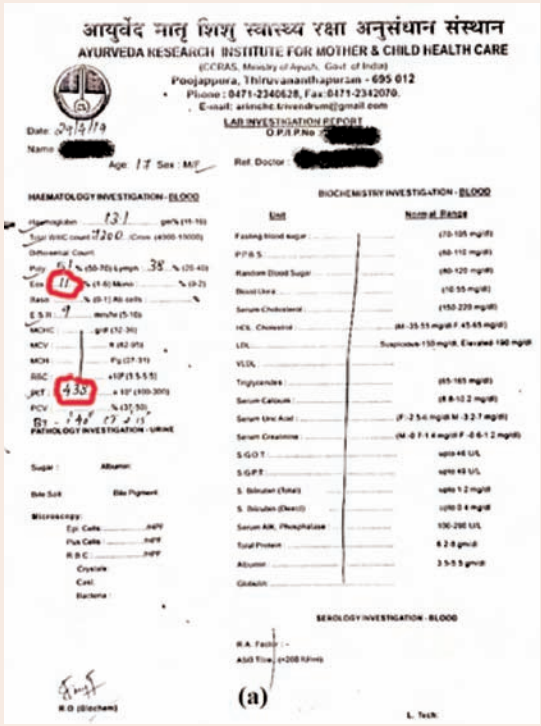
Assessment before treatment

Investigations: Before starting treatment differential count and platelet count was performed. Figure 1.

Assessment of severity of AR

The severity of AR was assessed using a 7 point visual analogue scale developed and published by Joint Task Force on Practice Parameters, which includes assessment of five points; nasal symptoms, non nasal symptoms, global symptoms, quality of life and impact of current and past medication on rhinitis. The VAS was marked by the patient herself after properly educating her on how to mark it.

Figure 1
Showing the pre-treatment laboratory investigations of the patient



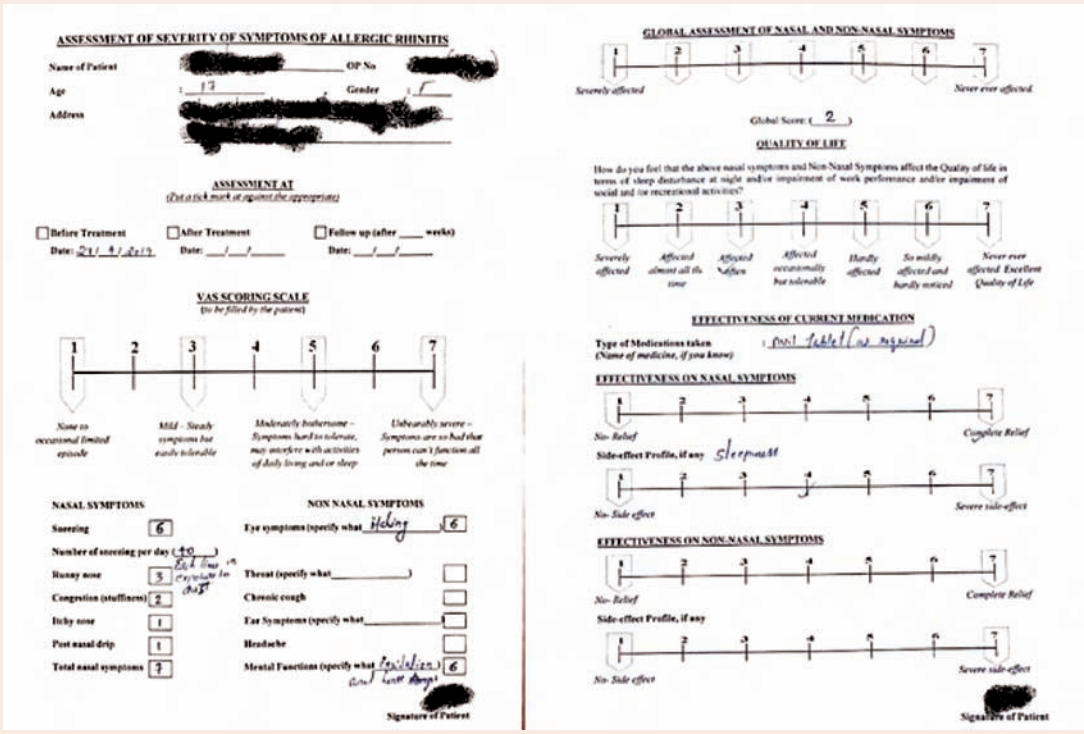
Pre treatment AR severity: The pre-treatment severity of AR on VAS, as marked by the patient, is shown in Figure 2.

Ayurvedic assessment: The various examination findings on an āyurveda point of view is described in Table 1.

Table 1
Showing the description of various aspects of examination on an ayurveda point of view of the case

Sl.No.	Parīkṣya bhāva	Description
01.	Avasthā	Nirāmaja dūṣīviṣa
02.	Doṣa	Prāṇavāyukopa in association with pitta and rakta. No udāvarta (tiryak gati of vāta) was clinically observed.
03.	Dhātu	Rasa-rakta
04.	Āvaraṇa	Kapha āvaraṇa- present
05.	Udbhavasthāna	Mūlasthāna- Āmāśaya prakopa sthāna- Prāṇavaha srotas
06.	Deśam	Sādhāraṇa
07.	Balam	Madhyama bala
08.	Kālam	Grīṣma
09.	Agni	Sama avasthā
10.	Prakṛti	Vāta-pitta pradhāna
11.	Vayaḥ	Youvana
12.	Satva	Madhyama satva
13.	Sātmya	Sarvarasa sātmya

Figure 2
Showing the VAS before treatment



Treatment: The patient was admitted and treated for 24 days. Treatment given to the patient from day 01 to day 24 is described in Table 2.

Table 2
Showing the treatment modalities adopted for the patient

Days	Procedure	Internal medicine	Dosage
Day 1 to Day 4	Rūkṣaṇa	Cirivilvādi kaṣāya Avipattikara cūrṇa Ārogyavardhinī vaṭi Abhayāriṣṭam Cirivilvādi kaṣāya cūrṇa pānīya	30ml twice daily 5 gm twice daily 1 no twice daily 40 ml twice daily To drink throughout the day when thirsty
Day 5 to Day 13	Snehapāna	Tiktaka ghṛta. A total of 610 ml of Tiktaka ghṛta was made to consume in 08 days in increasing dosage starting with 20 ml and ending with 200 ml.	Starting with Day 1: 30 ml Day 2: 50 ml Day 3: 60 ml Day 4: 80 ml Day 5: 120 ml Day 6: 150 ml Day 7: 200ml
Day 14 to Day 16	Bāhya snehana and svedana	Abhyaṅga with Nālpāmarādi taila and ūṣma svedana	
Day 17	Rūkṣa virecana	Avipatti cūrṇa with Triphalā kaṣāya	40 gms 30 ml
Day 18 to Day 24	Nasya	Tiktaka ghṛta	24 drops into each nostril

Results

Immediate Post treatment (IPT) result

Platelet count had reduced from 4,38,000 to 3,09,000, Eosinophil percentage was reduced from 11% to 9% (Figure 3) and all the symptoms, based on VAS scale, have drastically come down (Figure 4).

Follow up after 1 week

After treatments, patient was advised to continue Tiktaka ghṛta 05 gm twice daily after food, Abhayāriṣṭam 10 ml twice daily after food and Pratimarśa nasya with Tiktaka ghṛta 4 drops twice daily. She was reviewed after 1 week. Her VAS has almost maintained as like IPT state. Figure 5.

Figure 3
Showing the post-treatment laboratory investigation of the patient

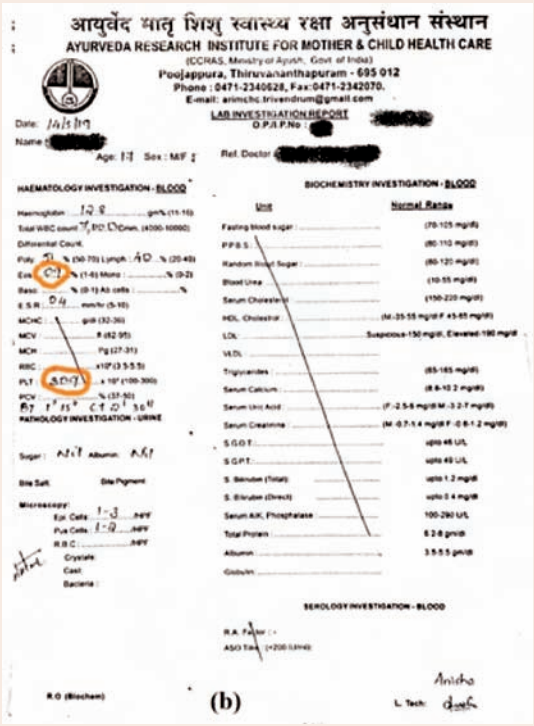


Figure 4
Showing the VAS immediately after treatment

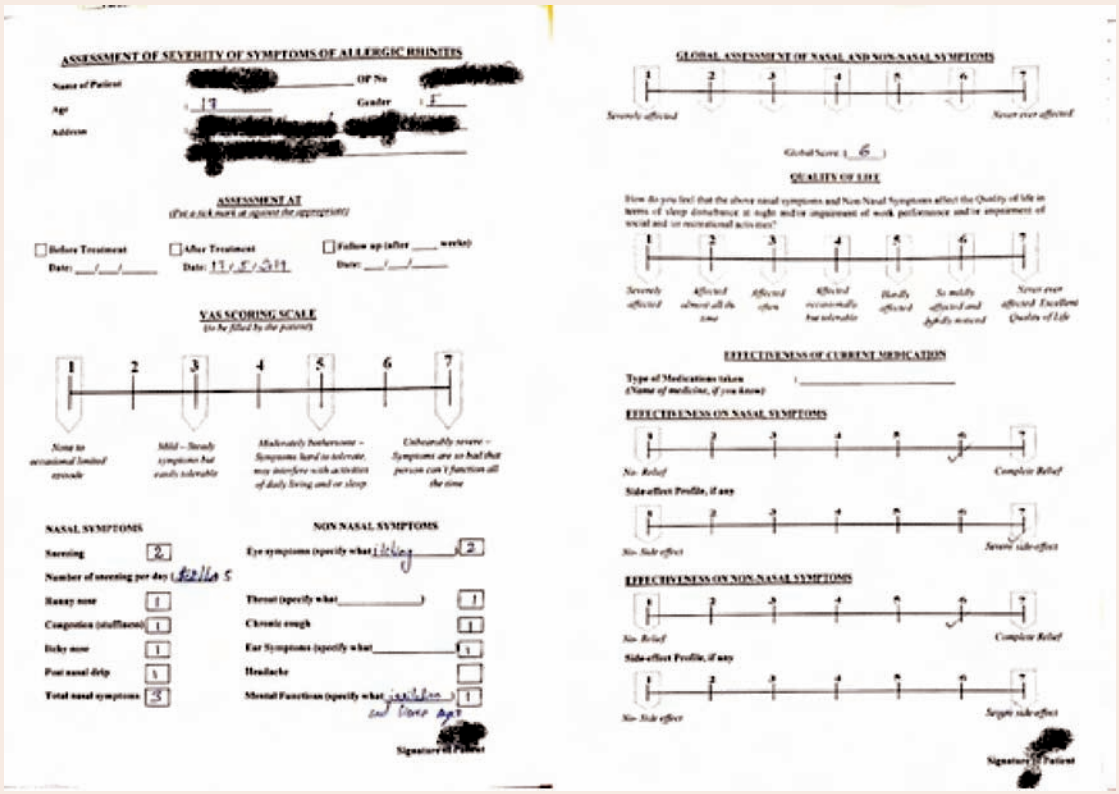
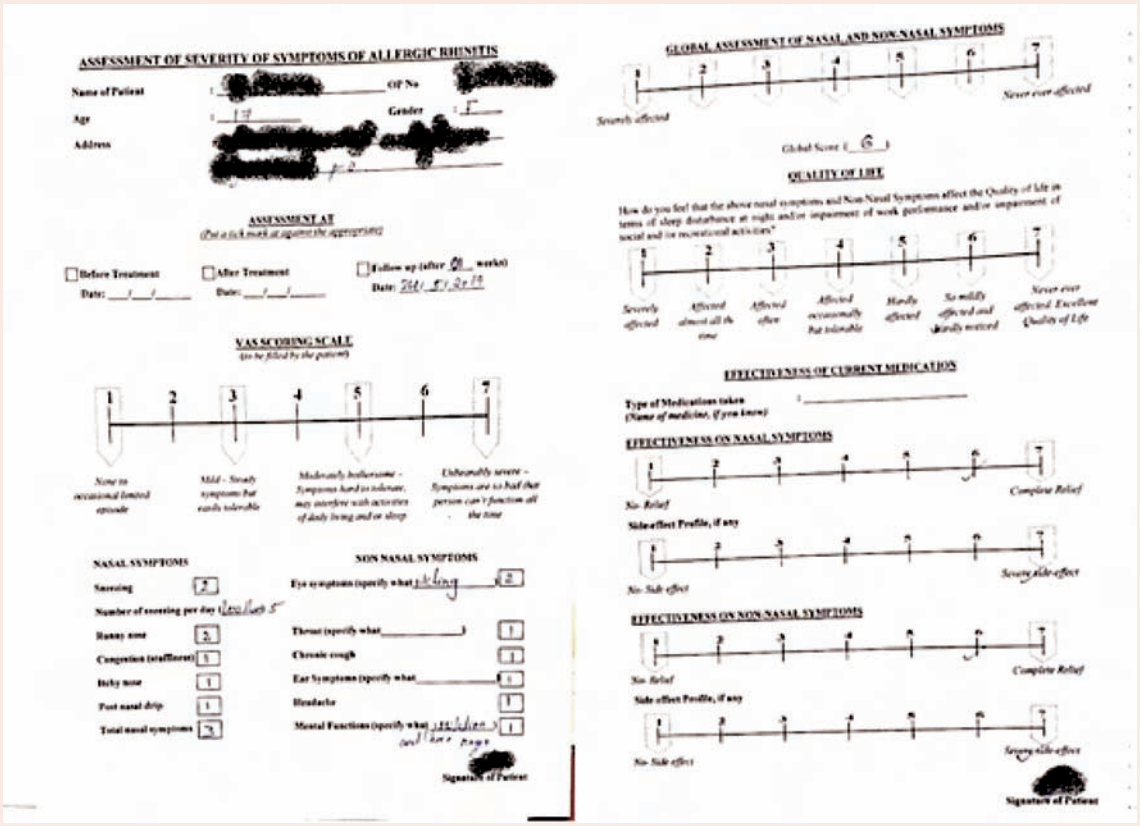


Figure 5
Showing the VAS 1 week after treatment



Discussion

Discussion on vyādhi nāmakaraṇa and patho-physiology

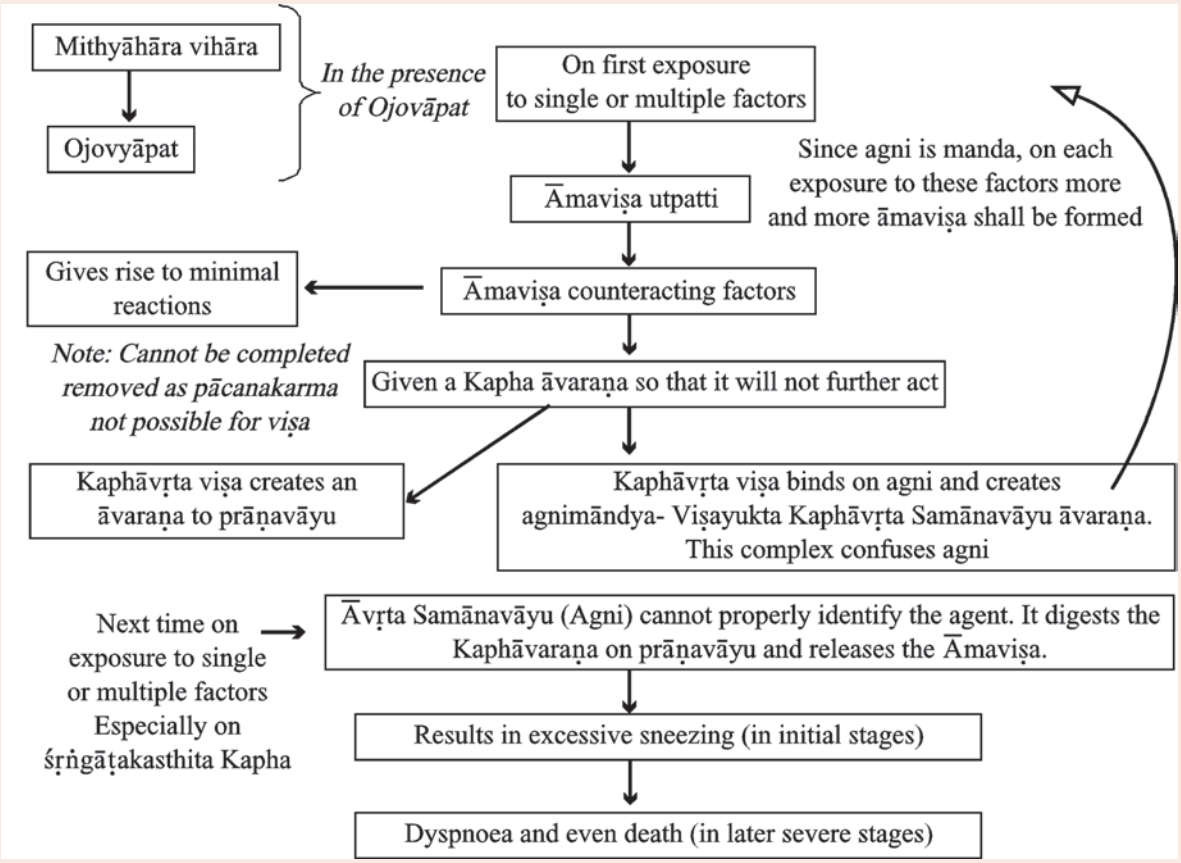
Since the disease is long standing in nature (varṣa gaṇānubandhi) with excessive bouts of sneezing (atyartha kṣavathu) which occurs repeatedly on exposure to causative factors like wind, cold water (here mainly house dust and head bath) or even incompatible foods it can be termed as dūṣī-viṣajanya bhṛśa kṣava.[3,3a] Sneezing is the function of prāṇavāyu and hence, in this disease, it is prāṇavāyu that gets vitiated.

Nose is the site of śṛṅgāṭaka marma is a sirā marma and sadyoprāṇahara.[4] The word sadyoprāṇahara consists of two words, 'sadyo' which indicates immediate responsiveness and 'prāṇahara' which indicates its ability to bring death. Mild vātakopa in śṛṅgāṭaka without any injury, prāṇavahā duṣṭi lakṣaṇa occurs in the form of sneezing. The same when severe and when have resulted in injury of śṛṅgāṭaka leads to acute dyspnoea (allergic asthma) and may even lead to death (sadyoprāṇahara). The basic patho-physiology of this disease is described as a flow chart in Figure 6.

Discussion on treatment principle

For any chronic nāsāgata roga, the general treatment principles followed are ghṛtapāna (administration of medicated ghee), svedana (fomentation therapy), śodhana preferably in the form of vamana (or even virecana according to doṣa association), śiro abhyaṅga, nasya (preferably virecana nasya) and uṣṇa pāna, bhojana and other vātahara treatments.[5] Since it is dūṣīviṣajanya, viṣa śamana medicines have to be given.[3b] Hence, the basic principle of management is ghṛtapāna, śodhana, nasya and pathya ācaraṇa with drugs having viṣanāśana, vātānulomana and kapha nissāraka properties.

Figure 6
Showing the patho-physiology of the disease



Discussion on Choice of medicine

Since the disease is dūṣīviṣajanya, first aim was to remove the kaphāvaraṇa and viṣa śamana. Among the ṣaḍrasa, tiktarasa is the only rasa which can pacify viṣa and kapha. Hence, Tiktaka ghṛta was the main drug of choice. Since the condition was presented with nearly about 40 to 50 sneezes per day the condition was assessed to be of bahudoṣa for which snehapāna should be done in śodhana mode. Total amount of 610 ml of ghee was given in seven days in an increasing divided dosage form (Table 2) based on the agnibala and attainment of samyak snigdha lakṣaṇa.

Ghṛta should be administered only when kapha has decreased and digestive capacity is good with vāta-pitta predominance.[6] Again, diseases having kapha association or predominance, which are of bahu doṣa, which are having āśraya at marma should undergo rūkṣaṇa therapy initially.[6a] Hence, for first 3 days Ciruvilvādi kaṣāya was given. It is a rūkṣa and uṣṇa vīrya medicine that acts on increasing agni and reducing kapha.[7] Ciruvilvādi yoga was given as pānīya kalpana (medicated water) too for drinking for a catalytic effect. Along with it, Ārogyavardhinī vaṭi and Abhayāriṣṭam was also given. Ārogyavardhinī vaṭi is vāta kapha śamana, sroto śodhana/ lekhana, kḷedahara and viṣahara.[7a] Abhayāriṣṭam is kapha-vāta śamana, dīpana, pācana and srotośodhana. It can increase the absorptive capacity of intestines. Hence, was given to get enhanced absorption of Tiktaka ghṛta.[7b]

After samayak snigdha lakṣaṇa, svedana should be done to bring doṣa to koṣṭha.[3c] For this abhyaṅga with Nālpāmarādi taila was done. Nālpāmarādi taila is pitta-kapha śamana and rakta prasādana in nature.[7c]

Virecana is best treatment modality in pitta-gara (viṣa)-kapha diseases.[3d] For removing kaphāvaraṇa and viṣa, Avipatti cūrṇa was taken as drug of choice. It is tikta-madhura-kaṭu rasa pradhāna, rūkṣa and śīta, uṣṇa vīrya, pacifies pitta-kapha and clears the srotas.[7d] Based on practical experience in attaining satisfactory purgation, dose of 40 gms of Avipatti cūrṇa was fixed.

Nasya was the next protocol. Either taila or ghṛta can be used. Hence, ghṛta (Tiktaka ghṛta) was used considering the pitta-rakta-kapha-viṣa śamana action. In bhṛśaka kṣava, either an oil or ghee based medicine can be administered based on the doṣa predominence.[3e] After snehapāna and virecana, itching in nose was considerably reduced, indicating decrease in kapha. As mentioned earlier, in conditions of kapha decrease and vāta-pitta predominance, ghee is administered. Hence, Tiktaka ghṛta itself was the drug of choice for nasya. The minimal dosage form for nasya is 6 bindus. 1 bindu is approximately equal to 10 drops from a dropper, i.e. 0.5 ml[8], i.e. 60 drops is the minimal dosage. Considering ghee to be thick in consistency, than water or decoction, around 50 drops was planned. Thus, 24 drops was instilled in each nostril (total of 48 drops).

Discussion on effect of treatment on assessment parameters

Research evidence suggests the relation of increase platelet count in allergic inflammation.[9] See Figure1 and 3. In this case PLT reduced from 4,38,000 to 3,09,000 after treatment indicating decrease of allergic inflammation. Eosinophil percentage had reduced from 11 to 9%. There was a tremendous reduction in number of sneezing, nasal itch and other associated complaints as shown in the VAS assessment (Figure 2, 4 and 5).

Conclusion

On the patient perspective, number of sneezing had drastically reduced even after exposure to house dust which improved her quality of life. On an investigation perspective, allergic inflammation was normalised and a decrease in eosinophil count was observed. On āyurveda perspective, it can be concluded and demonstrated that science based āyurveda treatments gives promising results in allergic rhinitis both subjectively and objectively.

Declaration

Informed consent has been obtained from the patient/ guardian. There is no conflict of interest.

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LITERARY STUDY

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A critical overview on the samprāpti of Parikartikā (Fissure-in-ano)

Govindan Jyotsna, Purushothaman P. P. and Jithesh M. K.

ABSTRACT: Fissure-in-ano with its characteristic tearing type of pain is the most common cause for severe anal pain. It presents as a tear in anal skin at the margin. The general believed cause for improper healing of such a wound is due to the muscle spasm which hinders the proper blood supply to the area leading to local ischemia. Though a correct correlation is not possible in āyurveda, it is generally considered to be parikartikā. The term parikartikā is seen spread throughout the classical texts with no proper guidance to its formation, persistence and management. Considering the aspect of wound formation as vraṇa and secondarily this leading to vyānāvṛta apāna, a proper samprāpti can be evolved. Keeping these in mind, the management on the basis of samprāpti vighaṭanam can be developed. Once the cause for formation and the cause for persistence is addressed, the proper healing and reduced chances for recurrence can be ensured.

Key words: Parikartikā, Fissure-in-ano, Anal basal pressure, Local ischemia, Vraṇa, Vyānāvṛta apāna

Introduction

Fissure-in-ano is the most common condition of severe pain in the anal canal. It occurs when a longitudinal tear occurs over the skin of anal opening. Usual site is the posterior midline of anal margin. It is located below the dentate line and always confined to the anoderm.[1]

It is of two types based on origin namely:

1. Primary/ simple/ true fissure-in-ano: the tear does not cross the dentate line. Primary fissures are typically benign and are likely to be related to local trauma such as hard stools, prolonged diarrhoea, vaginal delivery, repetitive injury or penetration.

2. Secondary/ specific: Secondary fissures are found in patients with previous anal surgical procedures, inflammatory bowel disease (Eg. Crohn's disease), granulomatous diseases (Eg. Tuberculosis, sarcoidosis), infections (e.g. HIV/AIDS, syphilis) or malignancy.[2]

Pathophysiology of the primary fissure-in-ano:

A resting pressure elevated to almost twice normal has been documented in patients with anal fissure.[3] This is the basic step which leads to chronicity in fissure-in-ano.

Previously it was considered due to increased resting pressure as a consequence to the searing, tearing types of pain in the anal canal during a bowel movement. After the movement of stools, the pain continues as a dull ache or tightness lasting several hours. However in recent studies, it has been reported that pressure in the anal canal does not fall after the relief of pain by the application of a local anaesthetic to the fissure area, suggesting that the spasm may not be secondary to pain.[4]

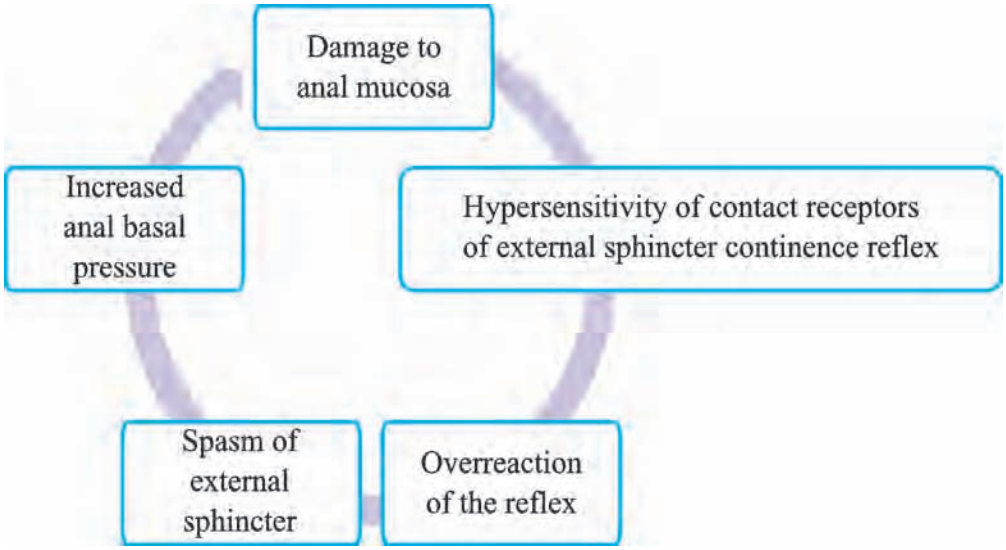
Further, previously the spasm was attributed to the internal sphincter contraction and as such, the gold standard procedure is still believed to be lateral internal sphincterotomy (LIS) wherein there is partial division of the internal anal sphincter away from the fissure site.[5] However, in studies where the basal anal pressure was recorded after the lateral sphincterotomy surgery, the basal anal pressure was found to be reduced immediately after surgery in the presence of submucosal anaesthetic but later increased once the effect of submucosal anaesthesia had worn

off. Thus, this increase however could not be due to the internal anal sphincter which would not be in capacity to maintain the spasm.

A more recent studies point to the fact that damage to the anal mucosa leads to hypersensitivity of the contact receptors of the anal-external sphincter continence reflex, resulting in over-reaction of the reflex. Overreaction causes spasm of the external anal sphincter. This in turn leads to increased anal basal pressure, diminished anodermal blood flow and ischemia. Ischemia, finally prevents the anal fissure from healing.[6] Figure 1 and 2.

Figure 1

Pathophysiology steps to formation of primary Fissure-in-ano



Āyurveda outlook on fissure-in-ano: Is fissure-in-ano and parikartikā one and the same?

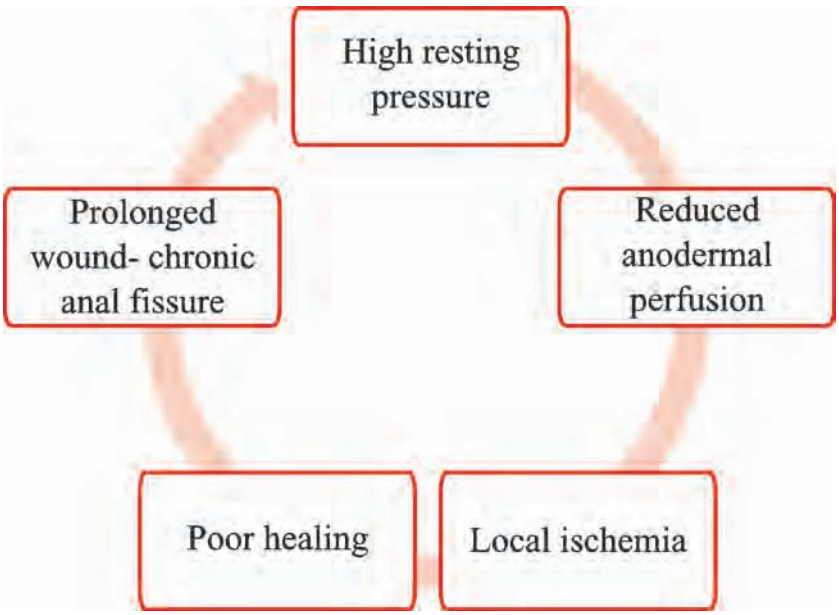
In āyurveda parlance, though a proper correlation is unavailable, the condition of parikartikā is frequently taken to be fissure-in-ano. Parikartikā term can be seen spread throughout the āyurveda texts. The term parikartikā is derived from the root word 'parikṛt' which denotes, to cut around.[7] Parikartikā term is seen in many disease conditions such as in udāvarta[8], pūrvarūpa of arśas[7a], jīrṇajvara[8a], atisāra[8b] and vātika grahaṇi[8c]. Similarly, it is also mentioned as a complication in śodhanakarma like virecana[7b] and vasti[7c].

If we look closely at the situations where parikartikā is mentioned, it is seen in conditions where severe pain occurs in guda.[7d] The causes can be broadly classified as firstly, an alteration in normal physiology of bowel evacuation and secondly, iatrogenic causes. Alteration to normal physiology of bowel evacuation occurs as śuṣka śakṛt as in varcasāvṛta vāta[8d] or as in loosened stools in atisāra[7e] leading to severe pain with bleeding or due to complications of giving tīkṣṇa virecana or vasti medications in mṛdukoṣṭha patients[8e]. Iatrogenic causes include external trauma to the guda, such as in vastinetra doṣa[8f]. In either case, parikartikā is caused with severe pain.

If we compare this cutting nature of pain, it is found to be similar to fissure-in-ano. Thus these two groups of causes lead to the first step of damage to the anal mucosa. Unlike skin, anoderm has no hairs, sweat

Figure 2

Steps in delayed healing and prolongation of fissure-in-ano



glands, or sebaceous glands and contains a larger number of sensory nerves that sense light touch and pain and abundance of nerves makes fissure-in-ano highly painful. Once an injury has occurred, the rest of the cycle is same for either groups.

Explaining a common samprāpti of parikartikā:

Keeping these points in mind and the fact that bowel function alterations both as hardened stools as well as loose stools could be a part of the injury, the samprāpti of parikartikā is being attempted to be built on the basis of vyānāvṛtaapāna[8g]. Here, parikartikā is mentioned as a symptom. Further, the site of this wound also coincides with the combined presence of these two vāta.

Vyānavāta function include gati-prasāraṇa-ākuñcana-utkṣepa-avakṣepa-nimeṣa-unmeṣa and so on[9]. Here, gati has been explained by Indu as sarva kriyā[9a]. Thus the muscular entity of propulsion of faeces into the anal canal can be related to the action of the vyāna vāta. So an increase in vyāna vāta will be responsible for an increased muscular action or for a spasmodic action.

Similarly, the functions of apānavāta is mentioned as viṇmūtrādi niṣkrāmaṇakriyā[9]. Thus the expulsion of faeces can be related to the function of apānavāta. Thus, the impairment of normal expulsion of faeces (action of apānavāta) occurs as a result of increased spasm of anal musculature (due to increased action of vyānavāta).

The consequences of vyānāvṛta apāna is mentioned as impaired apāna function leading to reverse the action of apāna, inducing vamana-ādhmāna-udāvartta- gulma in higher sites and parikartikā in its own site.[8g]

The altered bowel factors or the iatrogenic causes leading to a trauma to the anal musculature, produces a wound. Such an initial abhighāta to the gudatvak leading to sadyovraṇa is the āgantu hetu. An āgantu hetu first causes vitiation of vāta and rakta.[10] The site of lesion in this context is anal skin or tvak. Tvak

(sparśanendriyaḥ) is the sthāna of vāta.[9b] This is explained in the commentary as the term sparśanam means tvak.[9c] In the context of carmakīlam, vyāna vāta is described as the causative vāta which along with kapha leads to the formation of the same.[10a] Thus it can be seen that the vāta typically localised in skin is vyānavāta.

Keeping all the above in mind, we can assume that abhighāta to the gudatvak leads to vyānavāta vitiation along with raktaduṣṭi. Such a vitiated vyānavāta could lead to hindrance to the functions of the apāna vāta, as both come together at the same site.

Significance of vyānāvṛta apāna in parikartikā:

We have the two entities, namely vraṇa which is the initial cause for fissure and vyānāvṛta apāna which is the cause for persistence of the fissure. These two entities need to be looked in while treating a case of fissure-in-ano. A mere vraṇa śodhana and ropaṇa where only the tvak kṣata is dealt with will not be sufficient. The consequent vātaduṣṭi leading to vyānāvṛta apānavāta needs to be tackled, as the āvaraṇa will prevent the normal functioning of apāna vāta. Such an obstruction to the normal physiological function of stool evacuation will further affect the āvaraṇa and the increased vāta will adversely affects the vraṇa. Thus, in addition to vraṇa śodhana and ropaṇa, measures to tackle vyānāvṛta apāna namely, snehayukta anulomana also is to be planned.[8g] Once the reason for persistence is addressed, the vraṇa can be healed more easily. Thus, a better healing and lesser chances of recurrences can be achieved.

Discussion

For any disease management, it is important to understand the basic samprāpti of formation. Once the samprāpti is demarcated, the samprāpti-vighaṭanam can be planned for a better treatment approach to attain complete cure and prevent the recurrence. While there is mentioning of parikartikā in āyurveda texts, there is no detailed description of the same. If the burning pain causing condition is taken as a vraṇa around the gudatvak, the causes for its persistence cannot be explained. Thus, for putting light into the possible steps of persistence of the disease condition, a samprāpti of vyānāvṛta apāna is built. On the basis of this samprāpti, we can see that parikartikā is not merely a wound but it is the cause for vāta vitiation and further, the āvaraṇa is the cause for persistence of the painful condition. So the ideal cikitsā should include samprāptivighaṭanam which in this case would be snehayukta anulomana measures along with the vraṇaśodhana and ropaṇa. So the initial cause as well as the cause for persistence is addressed, making a more precise treatment outlook.

Conclusion

The incidence of fissure-in-ano which is on the rise today due to the lifestyle changes calls for a more thorough understanding of the pathology for a better management. Identification of the fact that the condition is a combination of two entities which are responsible for the formation and the persistence of the fissure respectively can help in faster healing and prevent recurrences of the condition. Thus, the most apt method of dealing with fissure-in-ano or parikartikā will include proper vraṇaśodhana and ropaṇa while dealing with the entity of vyānāvṛta apāna.

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ANALYTICAL STUDY

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Preliminary phytochemical analysis of Daśapuṣpa (a combination of ten drugs)

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ABSTRACT: In Kerala, daśapuṣpa are considered as sacred and very much related to the tradition and social culture. Each of them has separate medicinal properties but as a group they are potent medicine and possess a devine outlook. It comprises the following ten drugs: viṣṇukrānti, vārāhi, bhadrā, sahadevi, dūrvā, bhṛṅgarāja, indravallī, śaśaśruti, viparīta lajjālu and lakṣmaṇā. As each member of daśapuṣpa are easily available and traditionally used from time immemorial for treatment of diseases, it should be introduced outside Kerala and such exposure will help in protecting our heritage also. The purpose of this work is to give scientific recognition to daśapuṣpa as a combination. This study is an analytical one in which the preliminary phytochemical analysis of daśapuṣpa as a combination has performed. It is performed by determination of physicochemical parameters (total ash, water insoluble ash, acid insoluble ash, moisture content, volatile oil content, sugar content total and reducing sugar, fibre content, etc.), qualitative analysis (detection of tannins, phenols, flavanoids, alkaloids and steroids) and Thin layer chromatography (TLC). This study will be helpful for further investigation of its standardization, pharmacological activity, toxicity and clinical trials. It may also help to comprehend the role of daśapuṣpa in different fields and to develop potent, cost effective new herbal formulations in āyurveda for the treatment of various diseases.

Key words: Daśapuṣpa, Phytochemical

Introduction

Daśapuṣpa are considered as sacred and very much related to the tradition and social culture of Kerala. This group is considered auspicious in addition to their medicinal properties. Each of them has separate medicinal properties but as a group they are potent medicine and possess a devine outlook. From time immemorial this group is familiar even to the layman of Kerala. Keralites, Hindu women use to wear daśapuṣpa garland on the head on Tiruvātira day. It is also used with 'Aṣṭamāṅgalyam' during marriage function according to Kerala tradition and added two more herbs (total twelve) called 'Pātirā pū'. Daśapuṣpa are used for 'śīpoti vekkal' ritual in Karkkiṭakam, 'pātirāpūcūḍal' ritual on Tiruvātira in Dhanu, important cerimonies like marriage and for 'pitṛ karma'.[4]

In front of household shrine, the ten sacred herbs (daśapuṣpa) were displayed in a gleaming brass plate in the month of Karkkiṭakam (a Malayalam month) in olden days. It was also prescribed by the Rājavaidya to the ladies to wear these plants on their head, probably due to the medicinal value imparted by them. Daśapuṣpa are being eaten in the form of 'Karkkiṭaka kañji' in the month of Karkkiṭakam to get better health in the upcoming monsoon season. This group of ten plants has intimate relationship with the tradition, rituals and medication of Kerala.[4]

The attributes credited to the member of the group (the group as a whole) are that they curb or arrest the incentive for sinful features bestow good health and prosperity (śubham). They are effective in destroying all bad or harmful effects due to the ill or evil influences of bālagraha (such as pūtanā).They cure wounds and ulcers as well as fevers caused by the derangement of the three doṣas; vāta, pitta and kapha.[1] In Viṣavaidyajyotsnikā[2] and Sahasrayogam[5b] there are sufficient number of preperations in which either all the plants of this group or most of the members of this group is used.

Following ten herbs [1 and 2] are coming under the group daśapuṣpa which is given below. Table 1 and Figure 1 (a to j).

In Nāṭṭuvaidyam (Folk medicine), it is mentioned that each member of daśapuṣpa is representative of ādidevatā and gives specified siddhi.[3] Table 2 .

Table 1
Name of plants coming under the group Daśapuṣpa

Sl.No.	Name	Malayalam name	Botanical name	Family
01.	Viṣṇukrānti[8]	Kṛṣṇakrānti	*Evolvulus alsinoides* (L.) L.	Convolvulaceae
02.	Vārāhī	Nilappana	*Curculigo orchioides* Gaertn.	Amaryllidaceae
03.	Bhadrā	Cerūḷa	*Aerva lanata* (L.) Juss. ex Schultes	Amaranthaceae
04.	Sahadevi	Pūvāmkurunnila	*Vernonia cineria* (L.) Less.	Astraceae
05.	Dūrvā	Karuka	*Cynodon dactylon* (L.) Pers.	Poaceae
06.	Bhṛṅgarāja	Kayyonni	*Eclipta alba* (L.) Hassk.	Astraceae
07.	Indravalli	Uziñña	*Cardiospermum halicacabum* L.	Sapindaceae
08.	Śaśaśruti	Muyalccevi	*Emelia sonchifolia* (L.) DC. ex DC.	Astraceae
09.	Viparīta lajjālu	Mukkūṭṭi	*Biophytum sensitivum* (L.) DC.	Oxalidaceae
10.	Lakṣmaṇā	Tirutāḷi	*Ipomoea sepiaria* Koenig ex Roxb.	Convolvulaceae

Table 2
Co-relation of Daśapuṣpa members with different ādidevatā and its specified siddhi

Members	Ādidevatā	Iṣṭa siddhi
Dūrvā	Āditya	Ādivyādhiśamanam
Viṣṇukrānti	Śrī Kṛṣṇa/ Mahāviṣṇu	Vaiṣṇavapādalabdhi
Lakṣmaṇā	Śrī Bhagavati/ Lakṣmī	Aiśvaryābhivardhanam
Sahadevi	Brahma	Dāridraduḥkhaśamana
Sparśa	Pārvatī	Bhartrisaukhyam, Śata-putrasaubhāgyalābham
Bhṛṅgarāja	Śiva	Pañcapātakanāśanam
Musalī	Bhūmī Devi	Vivekam
Bhadrā	Yama	Āyurbalam
Śaśaśruti	Kāmadevatā	Saundarya, Manaśśānti
Indravalli	Indra/Iṣṭajan	Sarvābhīṣṭasiddhidam

a. Viṣṇukrānti

b. Vārāhī

c. Bhadrā

d. Sahadevi

e. Dūrvā

f. Bhṛṅgarāja

g. Indravalli

h. Śaśaśruti

Figure 1 (a to j)
Plants included under Daśapuṣpa

i. Viparīta lajjālu

j. Lakṣmaṇā

Need and significance

A very few traditional system have fair level of documentation in place. Efficacy of traditional medicine is one of the most debated issues. Kerala is famous for its medicinal plant wealth and tradition of indigenous system of therapy, especially āyurveda. The references about daśapuṣpa are available only in Malayalam texts, as it is exclusively confined to Kerala. These plants are therapeutically very active for various ailments. They are traditionally used from time immemorial in viṣacikitsā.[2] In many formulations like Pullānyādi tailam[5], Pāṇalpātiryādi ghṛtam,[5a] etc. all the members of this group has been used together. It indicates that together it enhances the potency of medicine. The purpose of this work is to give scientific recognition to daśapuṣpa as a combination.

Materials and Methods

Collection of samples

All fresh samples were collected from V.P.S.V. Ayurveda College campus except *Curculigo orchioides* and *Ipomoea sepiaria*. *C. orchioides* was collected from Thrissur and Aluva and *I. sepiaria* from Indianoor. All plant specimens were identified and authenticated by Department of Dravyaguna Vijnana, VPSV Ayurveda College, Kottakkal. All the plant materials were seperately subjected to shade drying for about 4- 5 weeks. The dried plant materials were further crushed to powder by mechanical grinder and the powder was separately stored in tight containers for further analysis.

Study design: Analytical study

Settings

a. Pharmacognostical and Phytochemical Lab., VPSV Ayurveda College, Kottakkal.

b. Toxicology Lab., Department of Agadatantra, VPSV Ayurveda College, Kottakkal.

Plan of the study: Present study comprised of two main components;

a. Literary review: A detailed review of the available literatures on daśapuṣpa was performed.

b. Analytical study: A preliminary phytochemical analysis of daśapuṣpa was performed.

Result and Discussion

Literary review: Three members of this group (*V. cineria, E. alba* and *E. sonchifolia*) belong to the same family Astraceae; two members (*E. alsinoides, I. sepiaria*) belong to Convolvulaceae family; and the remaining five members belong to five different families viz. *C. orchioides to* Amaryllidaceae, *A. lanata* to Amaranthaceae, *C. dactylon* to Poaceae, *C. halicacabum* to Sapindaceae and *B. sensitivum to* Oxalidaceae.[1,2]

Ācārya Caraka has mentioned dūrvā in prajñāsthāpana and varṇya mahākaṣāya.[6] In Dhanvantarinighaṇṭu, viṣṇukrānti, dūrvā and bhṛṅgarāja are described and all these drugs are placed in the 4th varga (Karavīrādi varga)[7]. In Rājanighaṇṭu viṣṇukrānti, vārāhī, dūrvā, viparīta lajjālu (alambuṣa) and lakṣmaṇā are described; among them, viṣṇukrānti and alambuṣa are placed in 5th varga (Parpaṭādi varga)[8]; vārāhī and lakṣmaṇā in 7th varga (Mūlakādi varga)[8a] and dūrvā is placed in 8th varga (Śālmalyādi varga)[8b]. In Madanapālanighaṇṭu, viṣṇukrānti, vārāhī, dūrvā, bhṛṅgarāja and lakṣmaṇā are described in the 1st varga (Abhayādi varga)[9]. In Soḍhalanighaṇṭu viṣṇukrānti, vārāhī, sahadevi, dūrvā, bhṛṅgarāja and lakṣmaṇā are mentioned. Among them viṣṇukrānti, dūrvā and bhṛṅgarāja are

placed in 4th varga (Karavīrādi varga)[10] and vārāhī, sahadevi and lakṣmaṇā are placed in 7th varga (Lakṣmaṇādi varga)[10a] of Soḍhalanighaṇṭu. In Kaiyyadevanighaṇṭu six members of daśapuṣpa viṣṇukrānti, vārāhī, dūrvā, bhṛṅgarāja, alambuṣa and lakṣmaṇā are described in 1st varga (Oṣadhi varga)[11]. Bhāvamiśra has mentioned vārāhī, dūrvā, bhṛṅgarāja, alambuṣa and lakṣmaṇā in Bhāvaprakāśa and all these drugs are placed in 3rd varga (Guḍūcyādi varga)[12]. Bhadrā, indravallī and śaśaśruti are not described in any of the above nighaṇṭu.

Comparative study of Ayurvedic properties of each member of daśapuṣpa is given in Table 3.

Table-3

Comparative study of āyurvedic properties of Daśapuṣpa members

Name	Rasa	Guṇa	Vīrya	Vipāka	Karma
Viṣṇukrānti	Kaṣāya, tikta, kaṭu	Laghu	Śīta[8]	Kaṭu[11]	Kapha-vāta śāmaka [11,8]
Vārāhi	Madhura, tikta[11]; madhura[8a]	Guru[11], picchila[8a]	Uṣṇa[11]; śīta[13]	Madhura[13]	Vātaśāmaka[11]; pittaśāmaka[8a]; Kaphavardhaka[8a]
Bhadrā	Tikta, kaṣāya[14]	Laghu, tikṣṇa[14]	Śīta[1a] or uṣṇa[14]	Kaṭu[13a]	Kaphahara[14], pittahara[1a]
Sahadevi	Tikta[13b]	Laghu, rūkṣa[13b]	Uṣṇa[13b]	Kaṭu[13b]	Kapha-vāta śāmaka[13b]
Dūrvā	Kaṣāya[12], madhura, tikta[8b,12]	Laghu[13c]	Śīta[8b,12]	Madhura[13c]	Kapha-pitta hara[11,12]
Bhṛṅgarāja	Kaṭu, tikta[9]	Laghu[13d], rūkṣa, tīkṣṇa[12]	Uṣṇa[9,12]	Kaṭu[13d]	Kapha-vātahara[12,11], kaphavātakṛt[9]
Indravallī	tikta, kaṭu[15]	Laghu, rūkṣa, tīkṣṇa[15]	Śīta[15]	Kaṭu[15]	Vātahara[1b]
Śaśaśruti	Kaṣāya[16]	Laghu	Uṣṇa[16]	Madhura[16]	Vātahara[16,1c]
Lajjālu	Kaṣāya[8], madhura[11]	Laghu[11]	Uṣṇa[8]	Kaṭu	Kapha-pitta hara[11,12]
Lakṣmaṇā	Madhura, lavaṇa[11], alavana, madhura[17]	Guru, rūkṣa, sara[11,16a]	Śīta[11]	Madhura	Vata- pittahara and kaphavardhaka[11], tridoṣaśāmaka[8a,9,17], pittahara and vātaśleṣmaḷa[18]

Various formulations mentioned in Sahasrayogam[5b] containing members of daśapuṣpa are given in Table 4.

Here it can be seen that all the ten herbs are used together in Pullānyādi tailam, Pāṇalpātiryādi ghṛtam and Caturakkaḷḷyādi tailam. In many other formulations more than one herb of this group are used together. It indicates that together it enhances the potency of the medicine.

Observations found by experiments

All the experiments and analysis were conducted using standard methods. For determining the value of fibre content, water soluble extracts, hot alcohol soluble extracts and cold alcohol soluble extracts 5gm of drug (by mixing the powder of 0.5 gm of each ten drugs) were taken for each procedure. For successive solvent extraction, 10 gm of drug (by mixing the powder of 1 gm of each drug) was taken.

The results obtained from the experiments are given in the Table 5, 6, 7 and 8.

Qualitative analysis of extracts

The result of qualitative analysis of extracts is given in the Table 9.

TLC analysis of extract

For TLC study all (successive) extracts were spotted in one solvent system [hexane: ethyl acetate (2 : 8)]. The plate was allowed to develop and the spots were visualized in ordinary light (Figure 2) after spraying ethanolic sulphuric acid. The number of spots obtained and their Rf values are given in Table 10.

Table 4
Presence of Daśapuṣpa members in different formulations of Sahasrayogam[5b]

Yogam	e.al.	c.o.	a.l.	v.c.	c.d.	e.a.	c.h.	e.s.	b.s.	i.s.
Patramveṇubhavādi kaṣāyam	+			+						
Ālmoṭṭādi kaṣāyam			+	+						
Āviltolādi kaṣāyam	+									
Viṣṇukrāntyādi kaṣāyam	+			+						
Āraṇyatuḷasīmūlādi kaṣāyam	+									
Niśākatakādi kaṣāyam			+							
Laśunādi kaṣāyam							+			
Uḷḷiveṭṭaṭukādi kaṣāyam							+			
Tekarājādi tailam						+				
Kaccūrādi tailam			+			+	+			
Pullānyādi tailam	+	+	+	+	+	+	+	+	+	+
Jīmūtabhṛṅgādi tailam						+				
Nīlibhṛṅgādi tailam						+	+			
Nīlīnirguṇḍyādi tailam						+				
Triphalādi tailam						+	+			
Vilvampāccoṭṭyādi tailam					+	+				
Ārukālādi tailam					+	+	+			
Kayyonyādi tailam						+				
Bhṛṅgāmalakādi tailam						+				
Dūrvādi tailam					+					
Aṣṭapallava tailam						+				
Pūvāmkurunnilādi eraṇḍa tailam	+			+		+	+			
Śvāsāri tailam						+				
Kaññikkūrkkādi tailam							+			
Ikṣudūrvādi ghṛtam					+					
Vārāhyādi ghṛtam		+								
Vārāhyādi ghṛtam(bṛhat)		+			+					
Vastyāmayāntaka ghṛtam		+	+							
Parpaṇādi ghṛtam							+			
Varuṇādi ghṛtam							+			
Daśasvarasa ghṛtam							+			
Sārasvata ghṛtam										+
Gopātmajādi ghṛtam					+					
Jātyādi ghṛtam			+		+					
Mahāmayūra ghṛtam					+					
Pāṇalpātiryādi ghṛtam	+	+	+	+	+	+	+	+	+	+
Tekarāja cūrṇam						+				
Viśvailādi cūrṇam		+								
Amṛtapipplyādi cūrṇam		+								
Kūṣmāṇḍarveru cūrṇam		+								
Pathyāpunarnavādi cūrṇam						+				
Kayyonyādi cūrṇam						+				
Vārāhyādi cūrṇam		+								

Bhṛṅgarājāsavam						+				
Madanakāmeśvari lehyam		+								
Cukkumtippalyādi guḷika							+			
Kastūryādi guḷika						+				
Kiṭṭādi guḷika						+				
Śūlakuṭhāram guḷika						+				
Gulmakulāntakam guḷika						+				
Marma guḷika		+								
Śl̄īpadāntaka guḷika						+				
Mānasamitra vaṭakam			+		+					+
Uziñña lepam							+			
Caturakaḷḷyādi tailam	+	+	+	+	+	+	+	+	+	+

e.al.- *Evolvulus alsinoides*; c.o.- *Curculigo orchioides;* a.l.- *Aerva lanata*; v.c.- *Vernonia cineria*; c.d.- *Cynodon dactylon*; e.a.- *Eclipta alba*; c.h.- *Cardiospermum halicacabum*; e.s- *Emelia sonchifolia*; b.s.- *Biophytum sensitivum*,i.s.-*Ipomoea sepiaria,* + = Present

Table 5
Physicochemical analysis of Daśapuṣpa

Sl. No.	Experiments	Percentage
01.	Moisture content	17%
02.	Volatile oil content	1%
03.	Total ash	8.995%
04.	Water insoluble ash	4.095%
05.	Acid insoluble ash	0.38%
06.	Fibre content	37.956%
07.	Sugarcontent	
	A. Total sugar	10.65%
	B. Reducing sugar	13.7%

Table 6
Percentage of water soluble extractives of Daśapuṣpa

Sl.No.	Name of extract	Colour of extract	% of extract
01.	Hot water extracts	Dark brown	12.366 %

Table 7
Percentage of alcohol soluble extractives of Daśapuṣpa

Sl. No.	Name of extract	Colour of extract	% of extract
01.	Cold alcohol extracts	Brown	4.604%
02.	Hot alcohol extracts	Brown	7.176%

Table 8
Successive solvent extraction of Daśapuṣpa

Sl.No.	Extract	Colour of extract	Percentage(w/w)
01.	Petroleum ether	Whitish brown	3.446%
02.	Cyclohexane	Light green	1.418%
03.	Acetone	Dark green	3.661 %
04.	Alcohol	Dark brown	3.755%

Table 10
TLC analysis of successive solvent extracts of Daśapuṣpa

Solvent system	Extract	Spot detection	No. of spots	Rf values
hexane : ethyl acetate (2 : 8)	P.E.	Visible	2	0.83, 0.94
	C.H.	Visible	2	0.92, 0.98
	Acetone	Visible	4	0.17, 0.27, 0.92, 0.98
	Alcohol	Visible	3	0.25, 0.92, 0.98

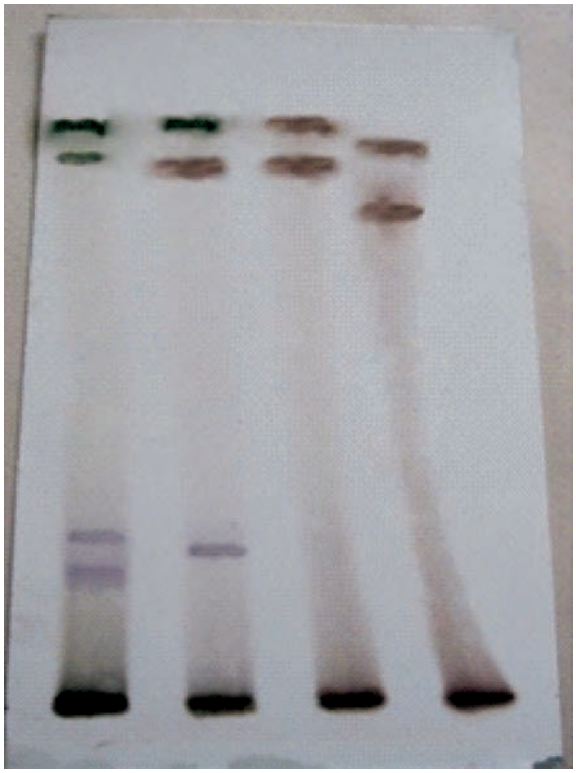
P.E.=Petroleum ether ; C.H.=Cyclohexane

Table 9
Qualitative chemical examination of Daśapuṣpa

Extract	Chemical constituents					
	Tannin	Phenol	Flavonoids	Alkaloids		Steroids
				Dragendroff's test	Mayer's test	
Petroleum ether	+	-	+	+	-	+
Cyclohexane	+	-	+	-	-	+
Acetone	+	-	-	-	-	+
Alcohol	+	+	+	-	-	+
Cold alcohol	+	+	+	+	-	+
Hot alcohol	+	+	+	+	-	+
Water	+	-	+	+	-	+

+ = Present and - = Absent

Figure 2
Thin Layer Chromatography



Conclusion and Summary

By literary review it was clear that most of the members of the group daśapuṣpa is explained by many of the āyurveda ācārya. In many of the nighaṇṭu more than one members of the group are included in same varga. It indicates that there may be synergistic effect if these herbs are used together. The phyto-chemical analysis of the study showed that daśapuṣpa together gave positive results for many of the chemical constituents like tannins, phenolic extracts, flavanoids, steroids, alkaloids etc. It means that there is possibility of anti-tumour, anti-viral, anti-microbial, hypotensive and anti-oxidant activities in daśapuṣpa as a combination.

Flavonoids were present in all extracts of daśapuṣpa as a combination except acetone soluble extracts.

Alkaloids were present in P.E., cold alcohol, hot alcohol and water soluble extract by DDR test and MR test was not positive for any extract. Steroids were present in all extracts of daśapuṣpa.

In TLC analysis of successive solvent extracts of daśapuṣpa as a combination, Petroleum ether, Cyclohexane, acetone and absolute alcohol extracts gave 2, 2, 4, and 3 spots respectively. Among these petroleum ether and cyclohexane spots were brown coloured with different R_f values. Among the spots of Acetone extract 1st and 2nd were greenish purple and 3rd and 4th spots were of green colour. Among the three spots of alcohol extracts first was greyish purple coloured, 2nd brown coloured and 3rd spot was of green colour.

This TLC analysis may be helpful for further investigation of individual chemical constituents present in those herbs.

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CASE REPORT

Āryavaidyan, Vol. XXXII, No. 4, May - July 2019, Pages 26 - 30

Wound healing potencial of Triphalā kaṣāya and Jātyādi taila in non-healing pressure ulcers with long term follow up- a case report

Sudeepa

ABSTRACT: Pressure ulcer is one of most neglected aspects of health care in India. Pressure ulcer is defined as tissue necrosis with ulceration due to prolonged pressure. Spinal cord injury is associated with the high incidence of pressure ulcer. Reduction of pressure, wound care, urinary diversion and bowel care are key treatment principles. A 29 year old male patient presented with non-healing pressure sores since 2 years. Six large non healing ulcers were located at hips, buttocks and sole of both foot. Past history revealed RTA resulting in quadriplegia due to cervical injury 4 years back. He had taken treatment since onset of ulcers but there was slow progressive increase with no tendency towards healing. Triphalā kaṣāya pariṣeka and dressing of wound with Jātyādi taila was carried out daily. Right and left heel ulcers took 60 and 72 days respectively for complete healing. By 140 days, right and left trochanteric wounds healed completely with depressed reddish white scar. Right and left ischial tuberosity sores took 176 and 190 days respectively. No recurrence until follow up of 8 months. Local use of Triphalā kaṣāya and Jātyādi taila was found to be effective and showed good healing property in non-healing pressure sores.

Key words: Pressure sore, Wound healing, Triphalā kaṣāya, Jātyādi taila

Introduction

Pressure ulcer is defined as an area of unrelieved pressure over a defined area, usually over a bony prominence, resulting in ischemia, cell death, and tissue necrosis.[1] In India, the prevalence of pressure ulcers in hospitalized patients has been reported to be 4.94% and neurological conditions account for 40.9% pressure sores.[2] Pressure ulcers are listed as the direct cause of death in 7-8% of all patients with paraplegia.[3] Spinal cord injury[1] is associated with high incidence of pressure ulcer in the range of 25-66%. These individuals also have the highest recurrence rate of 80%. Impaired mobility is the most common reason as the patients are exposed to the prolonged uninterrupted pressure that causes pressure ulcers. Pressure between the bony prominence and external surface occludes the capillaries. External pressure of >30 mm Hg, results in soft tissue necrosis and eventual ulceration.

Staging of pressure sores according to American National Pressure Ulcer Advisory Panel (NPUAP), as follows[3]:

Stage 1: Non-blanchable erythema without a breach in the epidermis.

Stage 2: Partial-thickness skin loss involving the epidermis and dermis.

Stage 3: Full-thickness skin loss extending into the subcutaneous tissue but not through underlying fascia.

Stage 4: Full-thickness skin loss through fascia with extensive tissue destruction may be involving muscle, bone, tendon or joint.

For stage I and II pressure ulcers, wound care is usually conservative. For stage III and IV lesions, surgical intervention (e.g., flap reconstruction) may be required. Highlighting the importance of nursing in pressure sores, Florence Nightingale in 1859 wrote,

"If he has a bedsore, it's generally not the fault of the disease, but of the nursing".[4] Reduction of pressure, adequate debridement of necrotic and devitalized tissue, control of infection and meticulous wound care are the key principles in successful management of pressure ulcers.

Case report

A bedridden 29 year old male, presented with six non-healing ulcers since 2 years. The ulcers had varied in severity but were deteriorating rapidly since 15 days. History revealed RTA resulting in quadriplegia. MRI scan showed compression fracture of C_5 and C_6 vertebrae. Retropulsion of C_5 vertebrae indenting the theca and cord, with cord contusion and hematoma. Neurologically patient was conscious, oriented with muscle power of proximal upper limb 3/5 with distal upper limb 0/5. Paraplegia of both lower limb with 0/5 and complete sensory loss C_5 downwards.

Ulcers had developed in areas of bony prominences namely right and left trochanteric area, both ischial tuberosity and both heel. Their sizes varied but the largest measured 5 inch* 3 inch* 1cm and smallest measured 3 inch* 2 inch* 0.5 cm. The edges were fibrosed, wound beds were filled with mild slough and pale unhealthy granulation tissue. The odor was moderate; the exudation was profuse, but it was controllable with daily dressings. These chronic non-healing wounds were diagnosed as stage III and IV pressure sores. Past treatment of his ulcers had included systemic antibiotics and local use of antiseptic solutions. No any major systemic disease or surgery reported by the patient. In spite of treatment of ulcers for last 2 years, there was slow progressive worsening with symptoms of waxing and waning of sores.

Observations and Intervention

Initially cleansing of wound was performed by using hydrogen peroxide and betadine solution. Dressing with betadine ointment and wound was covered with soft cotton pads. No reduction in foul smell, discharge and no growth of granulation tissue were noted, even after 20 days of treatment. Later on Triphalā kaṣāya pariṣeka followed by Jātyādi taila dressing was started on a daily basis in all the 6 pressure sores. Within a week of usage of āyurveda medicaments, dramatic improvement was noticed with sharp reduction in discharge, foul smell and onset of healthy pinkish granulation tissue growth. Wound became clean with healthy granulation. Within 10 days granulation tissue growth began all around the wound bed which started to fill the uneven floor. Right and left heel ulcers took 60 and 72 days respectively for complete healing. Trochanteric wound size was reduced to half by about 60 days. By 140 days, right and left trochanteric wounds healed completely with depressed reddish white scar. Right and left ischial tuberosity sores took 176 and 190 days respectively. Later on Jātyādi taila dressing was done over the scar once in 3 days. Scar turned to pale white slowly over a period of 2 months. Scar was observed at regular intervals for presence of any signs of recurrence. There were no adverse events throughout the treatment and healing was uneventful. No recurrence of ulcers was seen until 8 months of follow up in 5 pressure sores. Right heel showed recurrence after 3 months after healing with local blackish discoloration followed by onset of fever. After few days it presented with small ulcer discharging pus. Figure 1 to 14.

Discussion

The characteristics of duṣṭa vraṇa like ativivṛta, bhairava, amanojñadarśana, śveta picchila durgandhayukta pūyasrāva, kaṭhina, dīrgha-kālānubandhi were noted in the pressure sores. Ācārya Suśruta has explained comprehensive non-healing ulcer management in Dvivraṇīyam cikitsitam adhyāyam of Cikitsāsthānam in Suśrutasamhita. Kaṣāya is indicated in cases of deep seated chronic non healing wound filled with slough.[5] Triphalā kaṣāya posesses kaṣāya rasa, which exerted lekhana

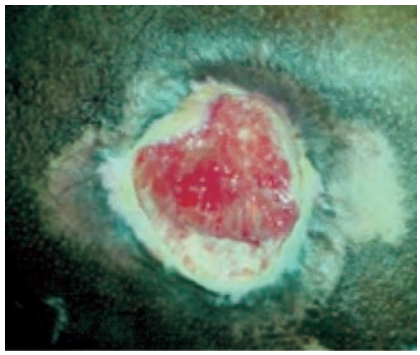

Figure 1
Right trochanteric ulcer before treatment

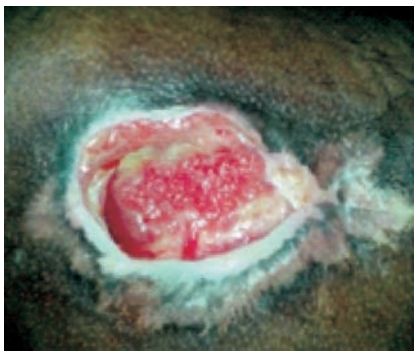

Figure 2
left trochanteric ulcer before treatment

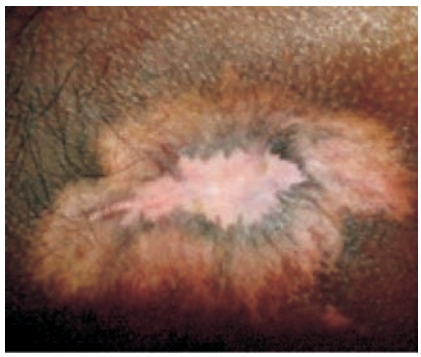

Figure 3
Healed Right trochanteric ulcer on 141st day

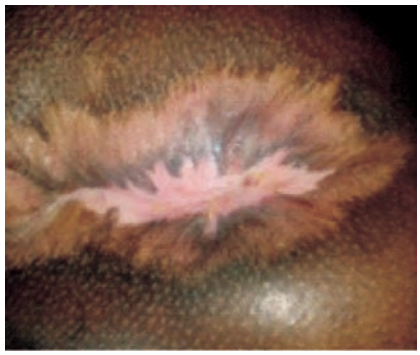

Figure 4
Healed left trochanteric ulcer on 141st day

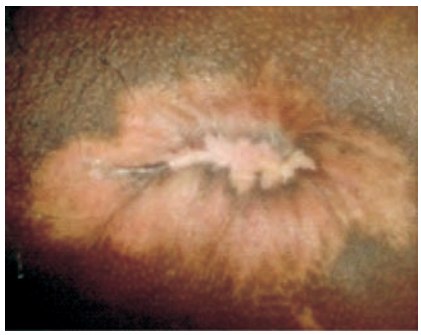

Figure 5
Healed right trochanteric ulcer on 299th day

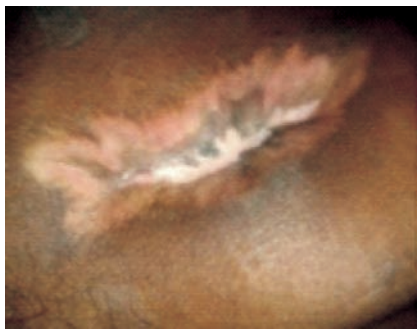

Figure 6
Healed left trochanteric sore on 299th day

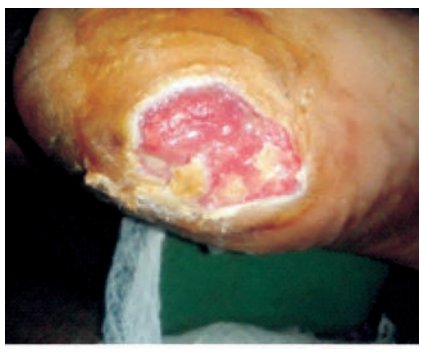

Figure 7
Right heel ulcer before treatment

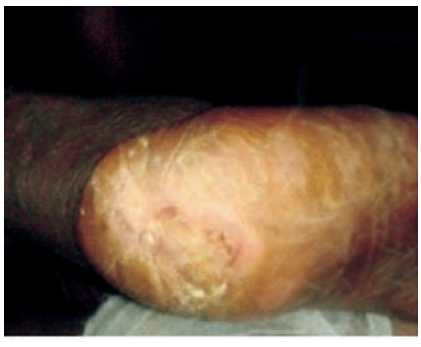

Figure 8
Healed right heel ulcer on 60th day

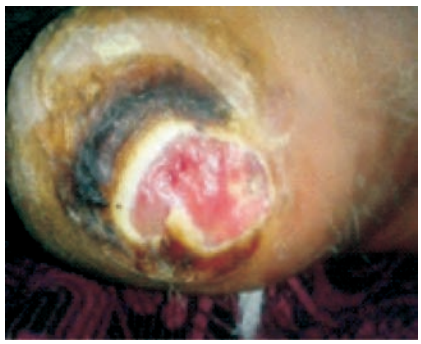

Figure 9

Left heel ulcer before treatment

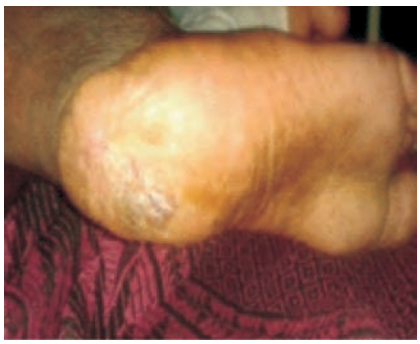

Figure 10

Healed left heel ulcer on 72nd day

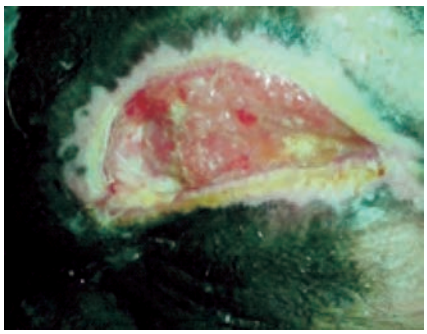

Figure 11

Left ischial ulcer before treatment

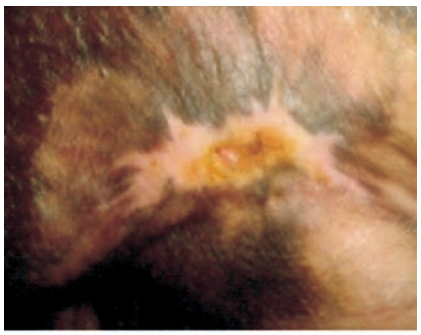

Figure 12

Healed left ischial ulcer on 176th day

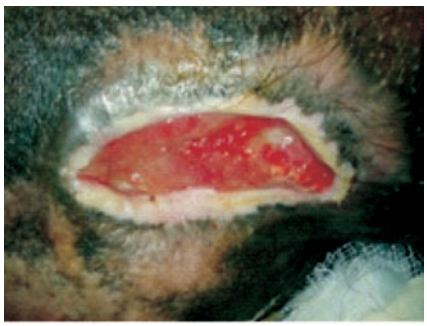

Figure 13

Right ischial ulcer before treatment

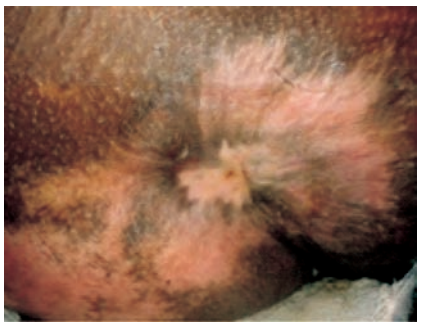

Figure 14

Healed right ischial ulcer on 190th day

action by removal of slough, unhealthy granulation and prepared the wound bed for healing. Wound discharge and bad odor was reduced, as a result of kḷedahara property.[6] Triphalā also possess tridoṣahara, vraṇaśodhana and ropaṇa action. The wound became clean and free from foul smell and slough within 8 days after the use of pariṣeka justifies the śodhana action of the drugs. There was a significant increase in granulation tissue indicating the ropaṇa effect. Triphalā kaṣāya[7]and Jātyādi taila[8,9] both formulations possess śodhana and ropaṇa action. Ingredients of Jātyādi taila possess antimicrobial property.[10] Both drugs assisted in cleansing and proven helpful in the healing of chronic pressure ulcers. Healthy strong scar tissue was noted in all the healed ulcers. No recurrence of ulcers after 8 months signifies strong scar which considerably improves quality of life in a bed ridden patient. Both the drugs are easily available pan india. Triphalā kaṣāya preparation as well as vraṇapariṣeka is a very simple procedure. Triphalā pariṣeka and Jātyādi taila dressing is cost effective and easy to implement on daily basis for long period of time as multiple chronic pressure ulcers generally require quite long time to

heal. No adverse events throughout the treatment signifies these drugs are safe.

Conclusion

Pressure ulcers remain one of the most neglected aspects of health-care provision in India. Management of pressure ulcers is a challenging and complex process. Nursing also plays a pivotal role in wound care which mainly includes skin care, pressure relief and nutritional support. The age old saying 'prevention is better than cure' suits this condition the most. This case study highlights the benefits of Triphalā kaṣāya pariṣeka and topical application of Jatyādi taila in pressure ulcers which was found to be effective and shown good healing effect. This case study also highlights potential of āyurveda in ulcer management which may prove as silver lining in the individuals suffering from pressure sores providing quality life to the patients.

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CASE STUDY

Āryavaidyan, Vol. XXXII, No. 4, May - July 2019, Pages 31 - 35

Management of Udāvartinī yonī vyāpat (Primary - dysmenorrhoea)- a case study

Rajalekshmi S. R. and Gayathri Bhat N. V.

ABSTRACT: Udāvartinī yonī vyāpat is a condition caused due to vitiation of apāna and vyāna vāta by withholding natural urges especially mūtra and purīṣa vegadhāraṇa and indulging vātaprakopa āhāra and vihāra. The vitiated apānavāta takes vilomagati and causes different types of pain before onset of menstruation. This pain will be reduced only after expulsion of ārtava. Along with vilomagati of apānavāta there will be vitiation of other types of vāta. Hence, the women experiences nausea, vomiting, diahorrea, etc. To manage suffering of pain vātaśamana cikitsā can be adopted. As Pañcakarma cikitsā is contraindicated during menstrual phase śamana cikitsā was adopted in this case. Hiṅguvacādi capsule and Sukumāra ghṛta with vātahara, śūlahara, anulomana properties was selected to find out safe and effective treatment for Udāvartinī yonī vyāpat. A female aged 22 years with painful menstruation with praseka, chardi, pārśvaśūla and stanaśūla consulted in the OPD of Prasutitantra and Streeroga, SDM College of Ayurveda and Hospital Hassan, Karnataka. To rule out the underlying pathology, ultrasound scan and blood and urine routine investigation was done. Her past history revealed that she was under oral analgesics for pain. Śamana auṣadhis like Sukumāra ghṛta and Hiṅguvacādi capsule was given for two months and follow up was done after one month without medication. After first month of treatment signs and symptoms got reduced, during subsequent cycle markedly for about 50% relief of symptoms and she was asked to continue the treatment for one more month. During third follow up the patient got menstrual cycle without any pain. From the present study we conclude that śamanauṣadhis like Sukumāra ghṛta and Hiṅguvacādi capsule will work better in thse conditions.

Key words: Udāvartinī yonī vyāpat, Sukumāra ghṛta, Hiṅguvacādi capsule

Introduction

Udāvartinī yonī vyāpat (Primary dysmenorrhoea) is one of the most common problems observed in clinical practice with pelvic pain of different magnitude during menstruation that interferes with daily activities of females. Rajaḥsrāva kāla itself is vāta dominant period and initiation of ārtavapravṛtti is due to vyāna and apāna vāta. Āyurveda had given importance to dinacaryā, ṛtucaryā, ācārarasāyana, ṛtumaticaryā, etc. to maintain body in svasthāvasthā. In this regard specific mode of life is explained to be practiced during menstrual phase in the classics called ṛtumaticaryā. The main cause for Udāvartinī yonī vyāpat is vegadhāraṇa which is inevitable in today's lifestyle. Knowingly or unknowingly women are ignoring urge for micturation and defication and this leads to apānavāta prakopa[1] causing different types of vātaduṣṭi in female reproductive system like painful menstruation.

Due to nidānasevana, sthānika doṣa ie. apānavāta prakopa happens and its anulomagati is obstructed due to prasāraṇa and ākuñjana karmahāni of vyānavāta resulting in pratilomagati of apānavāta. Hence, symptoms of vyānāvṛta apānavāta like chardi, praseka, bhrama and tīvraśūla will also be there as menstrual discomforts. Ācārya Caraka has explained snigdha anulomana as treatment for vyānāvṛta apāna.[2,3]

Materials and Methods

Present study was carried out in Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka. Informed and written consent was obtained from the subject and case was

recorded as per detailed case perfoma which was prepared considering all points of history taking, physical examination and lab investigations. Ethical clearance was obtained from institutional ethical committee.

Patient profile

- Women aged 22 years
- Unmarried
- Painful menstruation since 6 years
- Associated with praseka, chardi, pārśvaśūla and stanaśūla

Patient attained menarche at the age of 14 years . Till 2 years of menarche, menstruation was painless. After 2 years she started experiencing pain one day before menstruation which was relieved after onset of menstruation. Due to pain she was not able to do day today activities and she used to skip the classes. For this she was taking oral analgesics every cycle. In her family grand mother and mother was also having painful menstruation before marriage.

Personal history: Table 1

Table 1 Personal history	
Āhāra	Mixed diet, rūkṣa guṇa pradhāna āhāra like chips, kurkure, lays and deep fried items.
Appetite	Viṣamāgni
Bowel	Krūra
Micturition	3- 4 times a day.
Sleep	5- 6 hours daily during night, no divāsvapna

Rajovṛttānta (menstrual history): Table 2

Table 2 Rajovṛttānta	
Age of menarche	14 years
Regularity of cycle	Regular
Duration of flow	3-4 days
Interval of flow	28-35 days
Clots	Present
Smell	Absent
Pain	Present
Colour	Blackish red

General examination: Table 3

Table 3 General examination	
Built	Moderately built
Height	163 cm
Weight	66 kg
BMI	24.8
Tongue	Coated
Pallor	Present
Pulse rate	72
Blood pressure	110/60 mm of Hg
Respiratory rate	16/min
Temperature	97^0 F

Aṣṭasthāna parīkṣā: Normal

Daśavidha parīkṣā: Table 4

Table 4 Daśavidha parīkṣa	
Prakṛti	Kapha vāta
Vikṛti	Vāta pitta
Sāra	Madhyama
Satva	Madhyama
Samhanana	Madhyama
Sātmya	Sarvarasa
Āhāraśakti	Avara
Vyāyāmaśakti	Madhyama
Pramāṇa	Madhyama
Vayaḥ	Yuva

Investigations:Routine blood and urine examination and Ultrasound scan was done. The result was within normal limits. Figure 1.

Samprāpti ghaṭakas: Table 5

Table 5 Samprāpti ghaṭakas	
Doṣa	Vāta
Dūṣya (dhātu and upadhātu)	Rasa, rakta, ārtava
Agni	Jaṭharāgni, dhātvagni
Srotas	Rasa, rakta, ārtava
Srotoduṣṭi	Saṅga, vimārgagamana
Udbhavasthāna	Āmāśaya and pakvāśaya
Vyaktasthāna	Yonī includidng garbhāśaya
Rogamārga	Ābhyantara
Sthānasamśraya	Ārtavavaha srotas

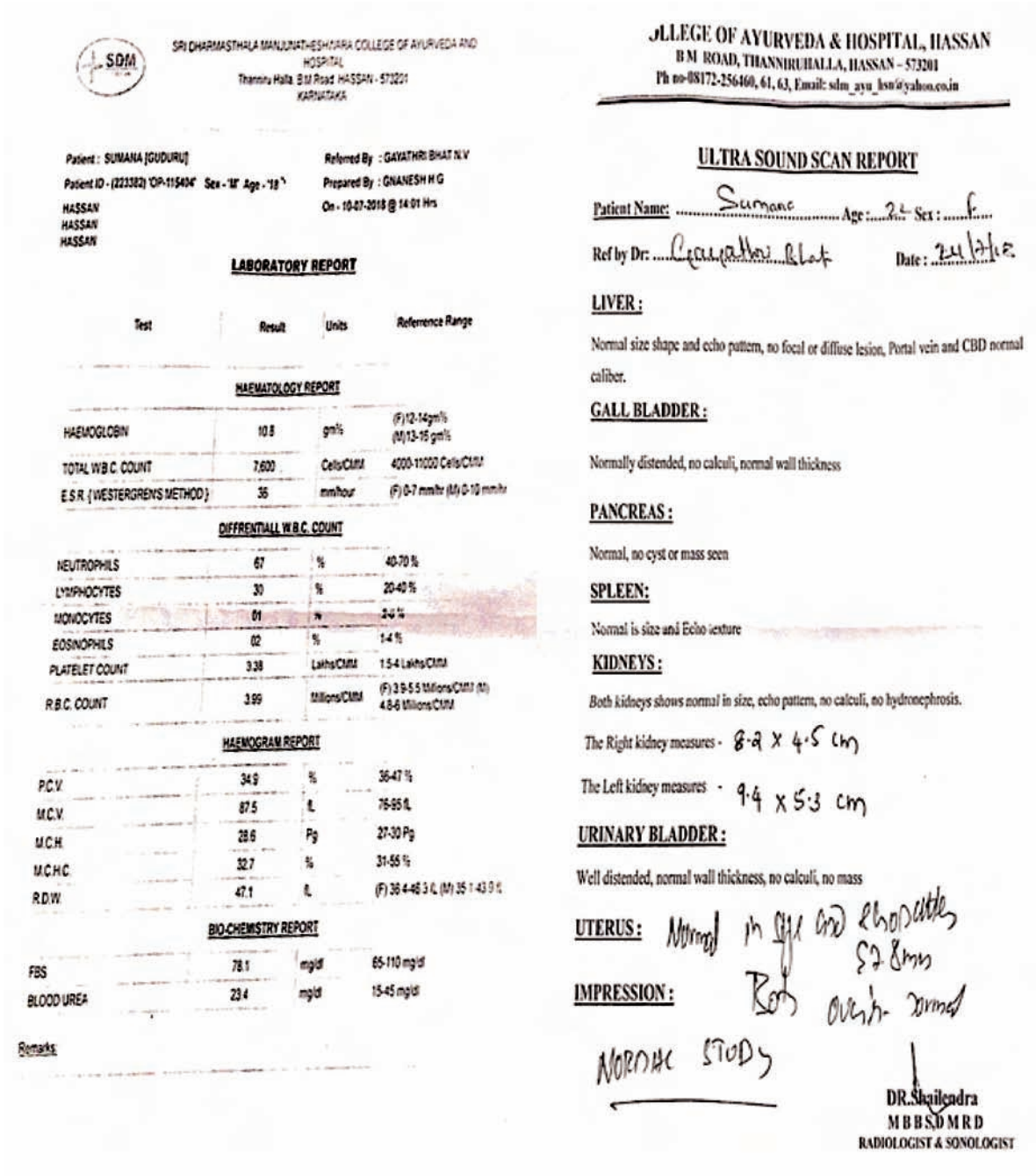
Cikitsāsūtra: Snigdha anulomana, śūlahara and vātahara.

Treatment plan:

Sukumāra ghṛta[4]: 12 gm early in the morning on empty stomach.

Figure 1

Result of investigations (Routine blood and urine examination and Ultrasound scan)



SRI DHARMASTHALA MANJUNATHESHWARA COLLEGE OF AYURVEDA AND HOSPITAL
Thannu Halla B M Road HASSAN - 573201
KARNATAKA

Patient : SUMANA [GUDURU]
Patient ID - (223382) 'OP-115404' Sex - 'M' Age - '18 Y'
HASSAN
HASSAN
HASSAN

Referred By : GAYATHRI BHAT N.V
Prepared By : GNANESH H G
On - 10-07-2018 @ 14:01 Hrs

LABORATORY REPORT

Test	Result	Units	Reference Range
HAEMATOLOGY REPORT			
HAEMOGLOBIN	10.8	gm%	(F)12-14gm% (M)13-16 gm%
TOTAL W.B.C. COUNT	7,600	Cells/Cumm	4000-11000 Cells/Cumm
E.S.R. (WESTERGRENS METHOD)	35	mm/hour	(F) 0-7 mm/hr (M) 0-10 mm/hr
DIFFRENTIALL W.B.C. COUNT			
NEUTROPHILS	67	%	40-70 %
LYMPHOCYTES	30	%	20-40 %
MONOCYTES	01	%	2-6 %
EOSINOPHILS	02	%	1-4 %
PLATELET COUNT	3.38	Lakhs/Cumm	1.5-4 Lakhs/Cumm
R.B.C. COUNT	3.99	Millions/Cumm	(F) 3.9-5.5 Millions/Cumm (M) 4.8-6 Millions/Cumm
HAEMOGRAM REPORT			
P.C.V.	34.9	%	36-47 %
M.C.V.	87.5	fL	76-95 fL
M.C.H.	28.6	Pg	27-30 Pg
M.C.H.C.	32.7	%	31-35 %
R.D.W.	47.1	fL	(F) 36.4-46.3 fL (M) 35.1-43.9 fL
BIO-CHEMISTRY REPORT			
FBS	78.1	mg/dl	65-110 mg/dl
BLOOD UREA	23.4	mg/dl	15-45 mg/dl

Remarks:

COLLEGE OF AYURVEDA & HOSPITAL, HASSAN
B M ROAD, THANNIRUHALLA, HASSAN – 573201
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ULTRA SOUND SCAN REPORT

Patient Name: Sumana Age: 22 Sex: F
Ref by Dr: Gayathri Bhat Date: 24/7/18

LIVER :

Normal size shape and echo pattern, no focal or diffuse lesion, Portal vein and CBD normal caliber.

GALL BLADDER :

Normally distended, no calculi, normal wall thickness

PANCREAS :

Normal, no cyst or mass seen

SPLEEN:

Normal is size and Echo texture

KIDNEYS :

Both kidneys shows normal in size, echo pattern, no calculi, no hydronephrosis.

The Right kidney measures - 8.2 X 4.5 cm

The Left kidney measures - 9.4 X 5.3 cm

URINARY BLADDER :

Well distended, normal wall thickness, no calculi, no mass

UTERUS : Normal in size and shape 52 cms

IMPRESSION : Both ovaries normal

NORMAL STUDY

DR.Shailendra
MBBS,DMRD
RADIOLOGIST & SONOLOGIST

Hiṅguvacādi[4a,5] capsule: 500 mg, 2 capsules in the morning and evening, half an hour before food.

Anupāna: Warm water

Duration of treatment: 2 months

Follow up: Every month for 2 months

1 month after the completion of treatment without medication.

Result: Table 6

Table 6 Result of the study				
Assessment criteria	Before treatment	During treatment1	During treatment 2	After treatment
Pain in VAS	Moderate pain	Mild pain	No pain	No pain
Duration of flow	3 days	3- 5 days	5- 6 days	5- 6 days
Duration of pain	1- 6 hours	3 hours	0 hours	0 hours
Onset of pain	With menstruation	With menstruation	No pain	No pain
Time of aggravation of pain	1st day	1st day	No pain	No pain
Praseka	Present	Present	Absent	Absent
Chardi	Present	Present	Absent	Absent
Stanaśūla	Present	Present	Absent	Absent

Discussion

In the present study, the subject was pursuing graduation and she was away from home. Due to this there was a lot of changes in her life style. She started taking more spicy food, deep fried items, packed fried foods, cool drinks and packed fruit juices and also untimely intake of food. Vegadhāraṇa, especially mūtravegadhāraṇa, during college hours and stress due to her studies lead to agniduṣṭi ie viṣamāgni leading to vātaprakopa. Due to nidānasevana, prakupita samānavāta along with agniduṣṭi causes sāmarasa utpatti. This sāma rasa is being carried out by vyānavāta to ārtavavaha srotas and produces ārtavavaha srotoduṣṭi in the form of saṅga and vimārgagamana. Prakupita vyāna causes āvaraṇa over apānavāta and hampers the normal functions of apānavāta and produces symptoms of vyānāvṛta apānavāta like pain, nausea, vomiting, etc.

Cikitsā for vyānāvṛta apāna is snigdha anulomana. 'Sarva eva sneha vātam upaghnanti' which shows the importance of sneha in vātavyādhi. Sneha in proper mātra in vātarogi brings dhātupuṣṭi bala and agni. Hence, in this study, for internal oleation Sukumāra ghṛta and for anulomana Hiṅguvacādi capsule was selected.

Hiṅguvacādi capsule contains hiṅguḥ (*Ferula assa-foetida* L.), ajāji (*Cuminum cyminum* L.) and harītakī (*Terminalia chebula* Retz.) which corrects pratilomagati of vāta by its anulomana guṇa. Vacā (*Acorus calamus* L.), śuṇṭhī (*Zingiber officinale* Roscoe), pāṭhā [*Cyclea peltata* (Lam.) Hook.f. & Thomson], sarjakṣāra, yavakṣāra (Carbonate of Potash) and citraka (*Plumbago indica* L.) with vātaśāmaka property reduces the pain. Trilavaṇa [sauvarcala (black salt), saindhava (rock salt) and viḍa (sea salt)] having sūkṣma-aṇu guṇa and yogavāhī property had helped in prasāraṇa of ouṣadha. In total, Hiṅguvacādi capsule with śūlahara, dīpana pācana, anulomaka property corrects the dūṣita agni and normalizes prakupita vāta and relives pain in yoni, kaṭi, basti and trika.

Sukumāra ghṛta contains punarnavā (*Boerhavia diffusa* L.), daśamūla [vilva- *Aegle marmelos* (L.) Correa., agnimanthā- *Premna corymbosa* Rottler & Willd., śyonāka- *Oroxylum indicum* (L.) Kurz, pāṭalā- *Stereospermum colais* (Buch.-Ham. ex Dillwyn) Mabb., kāśmarī- *Gmelina arborea* Roxb., śālaparṇī- *Pseudarthria viscida* (L.) Wight & Arn., pṛśniparṇī- *Desmodium gangeticum* (L.) DC., bṛhatī- *Solanum anguivi* Lam., nidigdhikā- *Solanum virginianum* L. and gokṣuraḥ- *Tribulus terrestris* L.] eraṇḍa (*Ricinus communis* L.), śatāvarī (*Asparagus racemosus* Willd.), guḍa (jaggary), eraṇḍa taila (Castor oil), ghṛta (ghee), kṣīra (milk), etc. possess vātānulomana quality and act as vātānulomaka on udāvarta and helps in the expulsion of rajaḥ from

yoni without pain. Sukumāra ghṛta is mainly indicated in yonīśūla, viḍvibandha, vātaroga and yonīroga. It helps in relieving the pain by correcting the rūkṣata caused in yoni.

Conclusion

Oral medication Hiṅguvacādi capsule and Sukumāra ghṛta administered for two consecutive months was found effective in reducing the pain during menstruation. If ṛtucaryā is practiced the menstrual abnormalities can be prevented.

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CLINICAL STUDY

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A clinical study on Nidigdhikādi yoga in the management of Tamakaśvāsa in children

Girish Kumar S.V., Prathviraj Puranik and Vijayalaxmi Rai H.

ABSTRACT: Bronchial asthma is one of the chronic respiratory disorders in children which is increasing day by day due to the mode of life, dietetic changes, pollution, environmental variations, dust, smoke, etc. In India prevalence of Asthma in school going children has been increased in last two decades. Tamakaśvāsa, as explained in āyurveda literature has a close resemblance with bronchial asthma. Due to its chronic nature, tamakaśvāsa need an effective and long lasting remedy which can be easily administered in children without any complications. In this regards, Nidigdhikādi yoga, as mentioned under the context of śvāsa roga was selected for the present clinical study and it has been administered in syrup form in order to improve its palatability and acceptability by the children. This was a single group clinical study, where in 30 children of age group 5- 15 years suffering from tamakaśvāsa were selected from IPD and OPD of Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Udupi, Karnataka. Total duration of the study was 90 days. In the first 60 days, Nidigdhikādi yoga was administered in syrup form in the dosage of 5 ml for age group of 5-10 years and 10 ml for age group of 11-15 years three times a day, after food. The next 30 days was the follow up period. Clinical assessment was done for both subjective and objective criteria once in every 15 days. The clinical data obtained has been analyzed statistically at the end of the study and extremely significant results were found with maximum relief in śvāsakṛchratā, ghurghurukata and muhuḥśvāsa. At the same time 13.3% of the patients were shown complete remission of the disease, 20.0% of the patients shown marked improvement, 43.3% of patients shown moderate improvement, 16.7% of patients have got mild improvement and 6.7% patients remain clinically un-changed. Hence, it was concluded that the drug was effective in the management of tamakaśvāsa in children.

Key words: Tamakaśvāsa, Nidigdhikā, Bronchial asthma, Śvāsakṛchratā

Introduction

Children are vital to the nation's present and future. Child health is one of the prime concerns in a civilized society and the modern world. Hence, our first and foremost priority must be aimed at maintenance as well as improving the health of a child in order to create a healthy society. According to a survey, more than 30% of the population is said to be suffering from allergic conditions. Among them, respiratory complaints stand in first place.[1]

Bronchial asthma is one such chronic illness of respiratory system in childhood which is responsible for significant impact on social, economic and psychological status of children.[2] The Global Initiative for Asthma (GINA) estimated that 300 million people of all ages and ethnicity worldwide have asthma. As per the, 1993 World Development Report, 30% of all childhood deaths are caused by acute respiratory attack.[2]

Bronchial asthma is a disorder characterized by chronic inflammation and increased responsiveness of trachea and bronchi to various stimuli resulting in bouts of dyspnea, wheeze, cough, chest tightness, etc.[3] In India, prevalence of asthma in school going children has been reported between 4-20% in different geographic regions. The prevalence has increased in last two decades, which is an alarming sign.[4]

Tamakaśvāsa, one of the varieties of śvāsaroga has a close resemblance with bronchial asthma. Vāta and

kapha are the two key pathological factors involved in the samprāpti of tamakaśvāsa. Along with predominant kapha, the vitiated vāta obstructs prāṇavaha and udakavaha srotas and in turn gets obstructed by kapha. As a result of which obstructed vāyu moves in pratilomagati, afflicting the rasadhātu, disturbing the functions of prāṇavahasrotas leading to the manifestation of tamakaśvāsa.

Hence, in such a complex circumstance where the disease is life threatening by involving the vital organs, tamakaśvāsa demands distinct and effective remedy especially while treating children.

In this regards, Nidigdhikādi yoga appears to be more effective śamanauṣadhi in the management of tamakaśvāsa in children. Nidigdhikādi yoga is a cūrṇa yoga consisting of nidigdhikā/ kaṇṭakāri (*Solanum xanthocarpum* Schrad. & H. Wendl.) and hiṅgu (*Ferula assa-foetida* L.) in āmalaka (gooseberry) and ardhāmalaka pramāṇa (i.e. 1:1/2 ratio) respectively and is said to be beneficial in the treatment of śvāsaroga when administered along with madhu (honey).[5] The approximate amount of āmalaka and ardhāmalaka pramāṇa is said to be around 4 gm and 2 gm respectively.[6]

Hiṅgu, though it is a potent drug in alleviating śvāsa-roga, it may not be acceptable for the children due to its strong odour and pungent taste. In this regard, a pilot study has been conducted where Nidigdhikādi yoga has been converted into syrup form by adding nidigdhikā and hiṅgu in same proportion as mentioned in classical text (i.e. āmalaka and ardhāmalaka pramāṇa-1:1/2 ratio), on 10 patients of tamakaśvāsa of 5 to 15 years age group from IPD and OPD of SDM College of Ayurveda and Hospital, Udupi, Karnataka.

Total duration of the pilot study was 90 days, where first 60 days were planned for drug administration and next 30 days were kept for follow up. Clinical assessment was planned once in every 15 days.

During the pilot study, 7 patients refused to consume Nidigdhikādi syrup because of its unpleasant odour and pungent taste; 3 patients developed gastric irritation and nausea after oral intake of syrup within a short period of time, this may be due to the tīkṣṇatā and kaṭutva of hiṅgu.

These were the main drawbacks observed during the pilot study of Nidigdhikādi syrup with nidigdhikā and hiṅgu in 1:1/2 ratio.

Oral medications with poor palatability may lead to non-compliance, especially among the children. For children, smell and taste of the product are the major factors in their acceptance and willingness to comply with the prescribed therapy. Hence, palatability of the medicine is a prime issue in oral administration especially in pediatric patients. By this pilot study it was concluded that higher proportion of hiṅgu was the main drawback in acceptability and palatability of the drug in syrup form.

Based upon the observations obtained from the pilot study, the present clinical study was started with slight modifications in the preparation of Nidigdhikādi syrup by reducing the proportion of nidigdhikā and hiṅgu from 1:1/2 to 1:1/8 where, for every 1 part of nidigdhikā 1/8 part of hiṅgu has been added and syrup was prepared. This will not only reduces the tīkṣṇatā and kaṭutva of hiṅgu, but also make the preparation more palatable and acceptable.

With these modifications, Nidigdhikādi syrup has been prepared according to śarkarā kalpana vidhi and administered in 30 children of tamakaśvāsa attending IPD and OPD of Department of Kaumarabhrutya, SDM College of Ayurveda and Hospital, Udupi, Karnataka.

Materials and Methods

In this study, the patients of tamakaśvāsa aged between 05 to 15 years attending the OPD and IPD of SDM College of Ayurveda and Hospital, Udupi were taken. The diagnosis of tamakaśvāsa was made as per the lakṣaṇa mentioned in āyurveda classics.

Aims and Objectives

To assess the efficacy of Nidigdhikādi yoga in the management of tamakaśvāsa in children.

Inclusion criteria

1. Patients of either sex, between the age group of 05 to 15 years.

2. Patients with the signs and symptoms described in the context of tamakaśvāsa.

Exclusion criteria

1. Patients below 5 years and above 15 years

2. All other varieties of śvāsa except tamakaśvāsa.

3. Patients with acute or severe exacerbation and status asthmatic, patients associated with other systemic disorders, malignancy, or any other congenital abnormalities of chest and respiratory system.

Research design

It was a single group clinical study on patients of tamakaśvāsa with Nidigdhikādi yoga in syrup form. Nidigdhikādi syrup has been prepared according to śarkarakalpanā vidhi at SDM Pharmacy, Udupi.

30 patients of 05-15 years of age group, diagnosed with tamakaśvāsa were selected from the OPD and IPD of SDM College of Ayurveda and Hospital, Udupi. Routine blood investigations and urine examination was done before commencing the treatment and after the follow up.

Total duration of the study was 90 days. In the first 60 days, Nidigdhikādi yoga was administered in syrup form in the dosage of 5ml for age group of 5-10 years and 10 ml for age group of 11-15 years three times a day, after food. The next 30 days was the follow up period. Clinical assessment was done for both subjective and objective criteria once in every 15 days. However, for the statistical analysis, the clinical data obtained on before treatment (BT on 1st day), during treatment (DT on 30th day), after treatment (AT on 60th day) and after follow-up (AF on 90th day) were taken and results were obtained by using paired 't' test.

Assessment criteria

Subjective parameters: The classical signs and symptoms mentioned in āyurveda textbooks under the context of tamakaśvāsa were considered as subjective parameters and were clinically assessed as per the special scoring method as follows.

1. Śvāsakṛchratā (dyspnoea)

None	0
< 2 Attacks per 60 days	1
2- 4 Attacks per 60 days	2
> 4 Attacks per 60 days	3

2. Ghurghurakata (wheezing)

None	0
Only at the time of attack	1
Frequently	2
Always present	3

3. Kāsa (cough)

Not at all	0
Occasional cough	1
Frequently	2
Distressing nature	3

4. Anidratā (disturbed sleep)

Fine	0
Sleep well slight wheeze or cough	1
Awake 2- 3 times at night, wheeze, cough	2
Awake most of the night.	3

5. Kaṇṭhoddhvamsa (hoarseness of voice)

No kaṇṭhoddhvamsa	0
Occasional kaṇṭhoddhvamsa	1
Very often kaṇṭhoddhvamsa	2
Always present	3

6. Kṣavathu (sneezing)

No kṣavathu	0

Kṣavathu during attack and subside 1- 2 days after attack	1
Kṣavathu during attack and persists for a week after attack	2
Kṣavathu very often without attack	3

7. Pīnasa/ Pratiśyāya (coryza)

No pīnasa	0
Pīnasa during attack and subside 1- 2 days after attack	1
Pīnasa during attack and persists for a week after attack	2
Pīnasa very often without attack	3

8. Prāṇaprapīḍakam (Discomfort in chest)

No feeling of discomfort in the chest	0
Mild discomfort, not hampering the routine.	1
Moderate discomfort, but can breathe	2
Severe discomfort hampering the breathing	3

9. Muhuḥ śvāsa (frequency of attack)

No attack	0
< 1 episode/ month	1
> 2 episodes/ month	2
> 4 episodes/ month	3

Objective criteria

Peak expiratory flow rate (P.E.F.R)

Normal	0
>80% of the predicted	1
50-80% of the predicted	2
<50% of the predicted	3

Assessment of overall improvement of therapy

Based on the assessment of the symptoms, the total effect of the therapy was evaluated and grouped according to the following criteria;

Complete remission	100% improvement in the symptoms
Marked improvement	75% or more relief in the symptoms
Moderate improvement	50% or more relief in the symptoms
Mild improvement	25% or more relief in the symptoms
Unchanged	< 25% improvement in the symptoms

Observations and Result

The clinical data of both subjective as well as objective criteria observed on BT (On 1st day), DT (On 30th day), AT (On 60th day) and AF (On 90th day) were compared by using paired 't' test and the results are detailed in table 1 to 10. The Relief percentage in all the parameters of assessment criteria AT on 60th day and AF on 90th day is detailed in Table 11. The overall improvement of treatment AF on 90th day is detailed in Table 12.

The mean of śvāsakṛchratā, between BT and AF (on 90th day) showed a change from 1.66 to 0.36, showing a reduction of 1.30 (78.31%) which was statistically extremely significant (p <0.0001). Table 1.

Table 1
Effect of Nidhigdhikādi syrup on śvāsakṛchratā

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	1.66	DT	0.7	0.96	57.83	0.65	0.11	12.79	<0.0001
		AT	0.13	1.53	92.34	0.34	0.06	11.500	<0.0001
		AF	0.36	1.30	78.31	0.49	0.08	9.497	<0.0001

The mean of ghurghurakata between BT and AF (on 90th day) showed a change from 2.00 to 0.43, showing a reduction of 1.57(78.5%) which was statistically extremely significant (p<0.0001). Table 2.

Table 2
Effect of Nidhigdhikādi syrup on ghurghurakata

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	2.00	DT	0.86	1.14	57.00	0.57	0.10	10.865	<0.0001
		AT	0.06	1.94	97.00	0.25	0.04	15.314	<0.0001
		AF	0.43	1.57	78.50	0.50	0.09	9.175	<0.0001

The mean of kāsa, between BT and AF (on 90th day) showed a change from 1.3 to 0.30, showing a reduction of 1.00 (76.92%) which was statistically extremely significant (p <0.0001). Table 3.

Table 3
Effect of Nidhigdhikādi syrup on kāsa

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	1.30	DT	0.16	1.14	87.69	0.37	0.06	10.865	<0.0001
		AT	0.06	1.24	95.38	0.25	0.04	13.403	<0.0001
		AF	0.30	1.00	76.92	0.46	0.08	8.515	<0.0001

The mean of anidratā, between BT and AF (on 90th day) showed a change from 0.06 to 0.03, showing a reduction of 0.03 (50%) which was statistically not significant (p 0.3256). Table 4.

Table 4
Effect of Nidhigdhikādi syrup on anidratā

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	0.06	DT	0.06	0.00	0.000	0.25	0.04	0.000	>0.999
		AT	0.03	0.03	50.00	0.18	0.03	0.5708	0.5725
		AF	0.03	0.03	50.00	0.18	0.03	1.000	0.3256

The mean of kaṇṭhodvamsa, between BT and AF (on 90th day) showed a change from 0.3 to 0.3, showing a reduction of 0.00 (00%) which was statistically not quite significant (p > 0.999). Table 5.

Table 5
Effect of Nidhigdhikādi syrup on kaṇṭhodvamsa

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	0.30	DT	0.13	0.17	56.66	0.34	0.06	1.433	0.0960
		AT	0.10	0.20	66.66	0.30	0.05	1.795	0.0831
		AF	0.30	0.00	0.00	0.46	0.08	0.000	>0.999

The mean of kṣavathu between BT and AF (on 90th day) showed a change from 1.03 to 0.56, showing a reduction of 0.47 (45.63%) which was statistically very significant (p 0.0015). Table 6.

Table 6
Effect of Nidhigdhikādi syrup on kṣavathu

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	1.03	DT	0.13	0.90	87.37	0.34	0.06	16.155	<0.0001
		AT	0.23	0.80	77.66	0.43	0.07	6.134	<0.0001
		AF	0.56	0.47	45.63	0.50	0.09	3.500	0.0015

The mean of pīnasa/pratiśyāya, between BT and AF (on 90th day) showed a change from 1.03 to 0.6, showing a reduction of 0.43 (41.74%) which was statistically very significant (p 0.0028). Table 7.

Table 7
Effect of Nidhigdhikādi syrup on pīnasa/pratiśyāya

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	1.03	DT	0.23	0.80	77.66	0.43	0.07	10.770	<0.0001
		AT	0.36	0.67	65.04	0.49	0.08	5.135	<0.0001
		AF	0.60	0.43	41.74	0.49	0.09	3.261	0.0028

The mean of prāṇaprapīḍaka, between BT and AF (on 90th day) showed a change from 0.1 to 0.00, showing a reduction of 0.1 (100%) which was statistically not quite significant (p=0.0831). Table 8.

Table 8
Effect of Nidhigdhikādi syrup on prāṇaprapīḍaka

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	0.10	DT	0.06	0.04	40.00	0.25	0.04	1.000	0.3256
		AT	0.03	0.07	70.00	0.18	0.03	1.000	0.3256
		AF	0.00	0.01	100.0	0.00	0.00	1.795	0.0831

The mean of Muhushwasa, between BT and AF (on 90th Day) showed a change from 1.6 to 0.36, showing a reduction of 1.24 (77.5%) which was statistically extremely significant (p<0.0001). Table 9.

Table 9
Effect of Nidhigdhikādi syrup on muhuḥśvāsa

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	1.60	DT	0.63	0.97	60.62	0.66	0.12	12.794	<0.0001
		AT	0.13	1.47	91.87	0.34	0.06	11.000	<0.0001
		AF	0.36	1.24	77.50	0.49	0.08	9.280	<0.0001

The mean of P.E.F.R between BT and AF (on 90th day) showed a change from 2.26 to 0.96, showing a reduction of 1.3 (57.52%) which was statistically extremely significant (p<0.0001). Table 10.

Table 10
Effect of Nidhigdhikādi syrup on P.E.F.R.

N	BT mean			Diff D	%	Paired 't' test			
						SD	SEM	t	p
30	2.26	DT	1.43	0.83	36.72	0.56	0.10	9.898	<0.0001
		AT	0.66	1.60	70.79	0.71	0.12	12.105	<0.0001
		AF	0.96	1.30	57.52	0.66	0.12	11.948	<0.0001

Table 11
Comparison of relief % after the treatment (on 60th day) and after the fallow up (on 90th day)

Assessment criteria	Relief % on 60th day	Relief % on 90th day
Śvāsakṛchratā	92.34	78.31
Ghurghurukata	97	78.5
Kāsa	95.38	76.92
Anidrata	50	50
Kaṇṭhodhvamsa	66.66	00
Kṣavathu	77.66	45.63
Pinasa/ pratiśyāya	65.04	41.74
Prāṇaprapiḍaka	70	100
Muhuḥśvāsa	90	77.5
P.E.F.R	70.79	57.52

Table 12
Overall improvement of treatment after the Follow up (AF) on 90th day

Overall improvement of treatment	No. of patients in %
Complete remission	13.3%
Marked improvement	20.0%
Moderate improvement	43.3%
Mild improvement	16.7%
Unchanged	06.7%

Discussion

Asthma is a leading cause of chronic illness in childhood. It is responsible for a significant proportion of school days lost because of chronic illness. It not only affects the children's day to day life but also create lots of agitation in family. In India, the prevalence rate of asthma in school going children is found to be considerably very high (4-20%[7]) in different geographic regions. Exposure to mud, dust, pollens and various other types of allergens are significantly high in their outdoor activities like playing outside the home, etc. Based upon this statistical data, the present research work was started focusing on school going children by fixing the age group of 5- 15 years.

Nidigdhikādi syrup, a modified version of Nidigdhikādi cūrṇa yoga was found to be effective in the management of tamakaśvāsa in children. The action of drug might be due to the combined effect of both nidigdhikā (kaṇṭakāri) and hiṅgu. Tamakaśvāsa is a pittasthāna samudbhava vyādhi where agni is the main culprit in the pathophysiology of the disease. The drugs like kaṇṭakāri and hiṅgu acts as agnidīpaka and āmapācaka. Apart from this, both the drugs are said to be having kapha chedaka and kapha nissāraka properties and thereby helps in mitigating the aggravated kapha and vātadoṣa. Hiṅgu is having vātānulomaka property which helps in samprāptivighaṭana of tamakaśvāsa by bringing back the prāṇavāyu which is in pratilomagati to the normalcy.

Both kaṇṭakāri and hiṅgu are having kaṭu rasa. Kḷedopaśoṣa,[8] kaphavilayana, kaphanissaraṇa (i.e. absorption, liquefaction and elimination of kapha) are the main characteristic features of kaṭu rasa. This property helps in removal of excessive production of mucus secretions from the respiratory passages and thereby it clears the mārgāvarodha caused as a result of accumulation of kaphadoṣa and thus it may help in easy breathing by relieving śvāsakṛchratā.

It is found that *Solanum xanthocarpum* is a strong bronchodilator with anti-inflammatory property.[9, 10] The active principles present in it like stigma sterol, carpesterol and diosgenin are having anti-inflammatory effect. Similarly, lupeol in *S.xanthocarpum* also acts as multi target with immense anti-inflammatory potential agent. Lupeol may serve as a therapeutic and chemo-preventive agent for treatment of inflammation, in the management of asthma.[11]

Tīkṣṇaguṇa is said to expel the doṣa completely (śodhano tīkṣṇaḥ) and enhances the quick activity of the drug (śīghrakāritvam tīkṣṇatvam) as said by Hemadri and is mainly related with agni mahābhūta (tejovṛtti). Tīkṣṇaguṇa is the main quality of both kaṇṭakāri and hiṅgu. This property of the drug may help in giving quick relief in breathlessness by its srotośodhana karma. Laghu and rūkṣa guṇa of the drugs help in pattalīkaraṇa (as per Ḍalhaṇa) of doṣa (i.e. thinning of thick mucoid secretions), srotośodhana and in kapha śoṣaṇa. This will help in proper

passage of vāyu by relieving mārgāvarodha i.e. bronchoconstriction and establishes easy respiration.

Ferula assa-foetida extract has got potent relaxant effect on tracheal smooth muscle which is perhaps due to muscarinic receptor blockade.[12] This will help in relieving the broncho-constriction of smooth muscles leading to easy respiration.

As a whole, vāta-kapha-śāmaka property of kaṇṭakāri and vātānulomaka guṇa of hiṅgu plays a vital role in samprāptivighaṭana of tamakaśvāsa. Thus Nidigdhikādi syrup proved effective in the management of tamakaśvāsa in children with statistically extremely significant results.

Conclusion

Nidigdhikādi syrup was found to be effective in the management of tamakaśvāsa in children. The drug was well tolerated by children and there were no adverse effects reported.

The probable mode of action of Nidigdhikādi syrup may be due to the combined effect of both kaṇṭakāri which is said to be kaphavāta śāmaka and hiṅgu which is best vātānulomaka. This helps in the samprāptivighaṭana of the disease, especially in symptoms like śvāsakṛchratā, ghurghurakata and muhuḥśvāsa.

Nidigdhikādi syrup though it is effective in the management of tamakaśvāsa in children, but percentage of relief obtained on after treatment (on 60th day) and after the follow up (on 90th day) reveals that the drug has limited efficacy in the maintenance of sustained relief in many of the symptoms. Mild decline was observed in percentage of relief in some of the symptoms like śvāsakṛchratā, ghurghurukata and muhuḥśvāsa by the end study when compared to the results obtained on AT (Table 11). This may be due to the nature of the disease. Tamakaśvāsa, which is an opportunistic disease, takes an advantage of the triggering factors and ends up in the recurrence of the disease symptoms. Hence, it requires long-term medication.

However, the overall effect of Nidigdhikādi syrup by the end of the study reveals that, 13.3% of the patients were shown complete remission of the disease, 20.0% of the patients have shown marked improvement, 43.3% of patients have shown moderate improvement, 16.7% of patients have got mild improvement and 6.7% patients remain clinically unchanged.

By this, the study was concluded that Nidigdhikādi syrup which is a modification of Nidigdhikādi cūrṇa yoga is highly efficient in providing instant relief in the management of tamakaśvāsa but, it has got limited effect in the maintenance of sustained relief of the disease for longer duration.

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ANALYTICAL STUDY

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Proximate analysis of Niśāmalakī cūrṇa

Dubey Somil and Gubrele Deepti

ABSTRACT: Niśāmalakī cūrṇa, a classical āyurveda medicine mentioned in Aṣṭāṅgahṛdayam for prameha (diabetes and other related disorders) in Agryasaṅgraha prakaraṇa (best drug for any disease). It is a combination of dried haridrā rhizome (*Curcuma longa* L.) and dried de-seeded fruit of āmalakī (*Phyllanthus emblica* L.). Proximate analysis describes the approximate percentage of nutritionally important molecule in any food or plant part. Proximate analysis includes, ash value, loss on drying, crude fibre, fats, carbohydrates, and proteins expressed in percentage. Proximate analysis of Niśāmalakī cūrṇa showed carbhohydrate 72.31%, protein content 4.61%, crude fibre 7.60%, fat 3.83%, loss on drying 6.26%, total ash 5.4%, acid insoluble ash 0.4%, water soluble extract 61.6%, and alcohol soluble extract 37.02%. Nutritive value of drug was expressed in Kcal/100 gm was 342.15 Kcal/100 gm. Very few research work has been conducted till now in this aspect. This paper aims at bringing into light the importance of proximate analysis in field of āyurveda by taking Niśāmalakī cūrṇa in the study.

Key words: Niśāmalakī cūrṇa, Agryasaṅgraha prakaraṇa, Aṣṭāṅgahṛdayam, Proximate analysis

Introduction

Niśāmalakī cūrṇa is a classical herbal drug mentioned for prameha in Agryasaṅgraha prakaraṇa of Aṣṭāṅgahṛdayam.[1] It is a combination of dried rhizome of haridrā and seedless dried āmalakī fruit.[2] Proximate analysis is an important study which details about the nutritional percentage of food or plant. All the tests were done according to the standard parameters. Although there are studies regarding the physiochemical analysis and pharmacognostical evaluation of Niśāmalakī cūrṇa, no study has been done so far on proximate analysis of Niśāmalakī cūrṇa.[3,4]

Materials and Methodes

100 gm of Niśāmalakī cūrṇa in an airtight container was sent to laboratory for analysis. The sample on opening the seal was devoid of any foul smell, fungal growth or extraneous material. Proximate analysis was done by methods outlined by AOAC (Association of Official Analytical Chemists).[5,6]

The Loss of drying was determined by oven dehydration method at 105°C for 5 hours using LOD = W_o/W_i x 100 formula.

Total ash was determined by weighing the furnace incinerated residue at 550°C for 12hours. The formula for calculating the ash percent is M_a/M_s x 100.

Crude fats were determined using petroleum ether as extracting solvent in soxhlet apparatus. The percentage crude fats were calculated by CF (%) = M_{ex}/M_s x 100.

The crude fibre of the sample was estimated by treating moisture and fat free material with dilute acidic solution followed by dilute base, particularly NaOH. After base treatment, the residue was filtered and washed with hot water and then ignited. The loss in weight was calculated from the ash left after incineration in the furnace by W_2-W_3/ W_1 x 100.

The crude protein was determined by using micro Kjeldahl method. Percentage of carbohydrate was calculated by subtraction/ difference method.

Total nutritive value of the drug was calculated by Atwater factors.[7]

Nutritive value = (4 x % Protein) + (9 x % Crude Fat) + (4 x % Carbohydrate)

Results

The results obtained after Proximate analysis are tabulated as follows. Table 1.

Table 1
Showing the result of proximate analysis of Niśāmalakī cūrṇa

Sl. No.	Parameters	Result
01.	Total ash	5.4%
02.	Acid Insoluble ash	0.4%
03.	Water soluble extract	61.6%
04.	Alcohol soluble extract	37.02%
05.	Loss on drying	6.26%
06.	Total carbohydrate	72.31%
07.	Crude fibre	7.60%
08.	Protein content	4.61%
09.	Fat	3.83%

Discussion

The interpretation of result obtained after proximate analysis of Niśāmalakī cūrṇa is discussed as follows[8];

i. Total ash: The ash content of a crude drug is generally taken to be the residue remaining after incineration. It usually represents the inorganic salts naturally occurring in the drug and adhering to it. But it may also include inorganic matter added for the purpose of adulteration. Hence, an ash determination furnishes a basis for judging the identity and cleanliness of a drug and gives information relative to its adulteration with inorganic matter. The ash value in this case was 5.4% which is low and represents the purity of drug. The acid insoluble ash is the part of the total ash which is insoluble in diluted hydrochloric acid.

ii. Water soluble and alcohol soluble extracts: The water soluble extractive value plays an important role in evaluation of crude drugs. Less extractive value indicates addition of exhausted material, adulteration, or incorrect processing during drying or storage. The alcohol soluble extractive value was also indicative for the same purpose as the water soluble extractive value. The water soluble extractive value proved to be higher than alcohol soluble extractive value. It was found to be 61.6% in comparison to alcohol soluble extractive value which was found to be 37.02%. This shows that the constituents of the drug are more extracted and soluble in water as compared to alcohol.

iii. Loss on drying (LOD): Loss on ignition describes the process of measuring the weight change of a sample after it has been heated to high temperature causing some of its content to burn or to volatilise. LOD in this case was found to be 6.21% which is indicative of high shelf life of drug.

iv. Total carbohydrate: Total carbohydrate content in Niśāmalakī cūrṇa was found to be 72.31%. Carbohydrates are the main source of energy.

v. Crude fibre: Crude fibre is the fraction of carbohydrate that remains after treatment with acid and alkali. The crude fibre content of the drug was found to be 7.61% which is an excellent value. Fibre delays and retards absorption of carbohydrates and fats and also increases the satiety value, by virtue of high satiety value it helps to relieve complaint of polyphagia in diabetic patients. Fibres help in easy evacuation of bowel by acting as bulk forming laxatives. In case of diabetes, constipation is a common problem, Niśāmalakī cūrṇa having good value of crude fibre content helps to relive constipation in diabetic patients. Crude fibre is important in the body as it helps in the reduction of serum cholesterol, reduces the risk of heart disease, hypertension and also risk of colon and breast cancer.[9]

vi. Protein content and fat: Protein (also known as polypeptide) is organic compound made of amino acid arranged in a linear chain and folded into a globular form. There are innumerable functions of protein in the body. But the primary function of protein includes building and repairing of body tissues, regulation of bio-chemical functions in body and formation of enzyme and hormones. Protein content in this case was 4.61%, this value is less than the RDA for proteins, and the reason that can be attributed to this is plants are not very good source of protein.

vii. Fats: Fat content was found to be 3.83%. Minimum total fat intake for adults should be 15% of total calories required per day (348 Kcal in case of sedentary male) to ensure adequate consumption of total energy, essential fatty acids, and fat soluble vitamins. Here 100 gm of Niśāmalakī cūrṇa provides 34.47 Kcal (1g fats = 9 Kcal so 3.83 x 9=34.47 Kcal) which is almost 1/10th of total requirement, which is well within the permissible limits as excess of fats could lead to obesity, diabetes, cardiovascular disease and cancer. [10]

viii. Total energy: Nutritive value of drug was expressed in Kcal/100 gm and calculated on the basis of data of proximate analysis using general Atwater factors with the help of equation.[11]

Nutritive value = (4 x % Protein) + (9 x % Crude Fat) + (4 x % Carbohydrate).

In this case= 4 x 4.61 + 9 x 3.83 + 4 x 72.31 = 342.15 Kcal/100 gm. Majority of the nutritive value was contributed by carbohydrates.

Above result clearly shows Niśāmalakī cūrṇa is good source of carbohydrates i.e. 100 gm of Niśāmalakī cūrṇa provides 289.24 Kcal of energy. The recommended dietary allowance (RDA) for carbohydrates is 130 gm/ day for adults and children. The mid-range of the Acceptable Macronutrient Distribution Range for carbohydrates is 55 % of total calories that means 55 % of calories in our diet should come from carbohydrates. The RDA for an adult male having sedentary life style is 2320 Kcal/ day. In this case 55 % of calories should come from carbohydrates that are 1276 Kcal/ day.[12] Here 100 gm of Niśāmalakī cūrṇa contributes only 289.4 Kcal (1 gm carbohydrate = 4 kcal so 4 x 72.31=289.24 Kcal) to total calories required for a sedentary male. So even having high percentage of carbohydrates this medicine does not upset the caloric requirement of an individual.

To best of our knowledge, no study on proximate analysis of Niśāmalakī cūrṇa has been done, so these values are novel for this medicine. Still results obtained in this study are very similar to proximate analysis conducted for other herbal drugs/ plants, which shows the value obtained are within permissible limits.[13]

Anti-diabetic effect of Niśāmalakī cūrṇa

Niśāmalakī cūrṇa was studied for its effect on glycaemia control and erythrocyte parameters of oxidative stress in rats with streptozotocin induced diabetes mellitus in comparison with troglitazone, a thiazolidinedione compound known to possess antioxidant properties and the sulfonylurea drug, glyburide. The results clearly showed that Niśāmalakī treatment achieved significant reduction in both fasting plasma glucose level and glycated hemoglobin in diabetic animals.[14]

Niśāmalakī cūrṇa was given 1gm, 2 times/day with water for 6 weeks in 100 patients of madhumeha (diabetic patients) in an open labeled clinical trial which showed moderate hypoglycemic effect. There was reduction in fasting blood sugar level.[15]

Conclusion

The present study was aimed to perform physical evaluation, proximate analysis of Niśāmalakī cūrṇa. Since this is the first report regarding these parameter and activity on this drug, so could be novel and provide referential information for correct identification and set up some parameters for quality control of Niśāmalakī cūrṇa. All the parameters assessed lies within the permissible limit range. Niśāmalakī cūrṇa was found to be rich in carbohydrates, crude fibre, having good amount of protein and fats which indicates its nutritive potential.

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CONCEPTUAL STUDY

Āryavaidyan, Vol. XXXII, No. 4, May - July 2019, Pages 48 - 51

A relation between Garaviṣa and Monosodium glutamate (MSG)- a conceptual study

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ABSTRACT: In present time people have become dependent on fast foods due to busy schedule of life. In many of the fast foods Monosodium glutamate (MSG) is added to increase their flavour. Human society is unaware of the diseases arising from the use of MSG. The symptoms of garaviṣa mentioned in āyurveda are similar to the side effects of MSG. Therefore present study helps to understand concepts and relation between garaviṣa and MSG which will be beneficial for the āyurveda scholars in managing the side effects caused by it and also to create an awareness among the society as well.

Key words: Garaviṣa, Mono Sodium Glutamate

Introduction

'*Ikeda*' a Japanese chemist discovered a crystalline substance which was most soluble and palatable. It was given the name 'Monosodium glutamate'. It was found to be a taste enhancer and soon most of the restaurants and fast food zones started using MSG as a flavoring agent to improve the taste of the food. Most of the people are unaware of the side effects arising from continuous consomption of MSG. It is a substance or chemical ingredient that is associated with any flavour and generates an umami taste, here 'umami' means the 'fifth taste', which doesn't have any health benefits. Defining the garaviṣa in āyurveda, ācārya says that it is a type of poison which is a combination of two or more toxic and non-toxic substances. MSG also hazards with poisonous symptoms by bonding with other elements of body. Use of MSG leads to many side effects such as obesity, infertility, metabolic disorders, etc. All these side effects are similar to that produced by garaviṣa. Prolonged use, delayed side effects and similarity between symptoms arise a need of research on them.

Review of literature

Garaviṣa: Garaviṣa is derived from two words: gara and viṣa. The word gara is derived from 'gri' dhātu + 'aca' pratyaya, that means swallowing or swallowable. The word viṣa is derived from 'viṣa vyāptau' + 'kṭ' pratyaya, that means encompass or to get occupied.

The thing which is entering the whole body immediately after ingestion is called as 'viṣa'. A substance which causes sadness to the body, is also known as 'viṣa'.

Definition

According to ācārya Caraka 'Garaviṣa' is a combination of two or more toxic and non-toxic substances.[1] While commentating, Cakrapāṇidatta considered it as the poison arising from the combination of various substance and also called as 'samyogajaviṣa'.[1]

The author of Aṣṭāṅgasaṅgrahaḥ specifically mentioned the different things which are to be converted into gara i.e. the combination of parts of the body and excreta of different animals, incompatible drugs, ashes and poisonous substance of mild potency are known as garaviṣa.[3] Hṛdayakāra coined the term kṛtrimaviṣa and it has been linked to gara.[2]

Ācārya Śārṅgadhara, Mādhavakara and Yogaratnākara quotes similar opinion for garaviṣa i.e. the poison which is prepared by the combination of two non-toxic substance.[4, 5, 6]

Lakṣaṇa of Garaviṣa

According to ācārya Caraka, paṇḍuvarṇa (paleness), kṛśata (emaciation), alpāgni (digestive problems), marmapradhamana (abnormal heartbeat/ rapid heart-beat), ādhmāna (flatulence), hastapāda-śvayathu (swelling in hands and feet), jaṭhararoga (metabolic disorders), grahaṇīroga (duodenal diseases), yakṣmā (tuberculosis), gulma (consumption), jvara (fever), sleeping disorders, etc.[1a]

According to Aṣṭāṅgahṛdayam most of the symptoms are similar to that mentioned by ācārya Caraka, but some like pāṇḍu (anemia), śvāsakāsa (respiratory problems), ardita (facial paralysis), sleeping disorders, yakṛtodara (liver diseases), plīhodara (splenic diseases), etc. are different.[2a]

Note: Aṣṭāṅgasaṅgrahaḥ and Mādhavanidāna's garaviṣa lakṣaṇa are similar to Carakasamhita and Aṣṭāṅgahṛdayam.

Monosodium glutamate

History

Glutamic acid was discovered and identified in 1866 by the German chemist Karl Heinrich Ritthausen, who treated wheat gluten with sulphuric acid. Kikunae Ikeda of Jokyo Imperial University isolated glutamic acid as a taste substance in 1908 from the Seaweed Laminaria Japonica (Kombu) by aqueous extraction and crystallisation, calling its taste umami. Ikeda noticed that dashi, the Japanese Broth of Katsuobusi and Kambu had a unique taste which is not yet scientifically described. To verify that ionized glutamate was responsible for umami, he studied the taste properties of glutamate salts, calcium, potassium, ammonium and magnesium glutamate. All these salts elicited umami and a metallic taste due to the other minerals. Of them, sodium glutamate was the most soluble, most palatable, and easiest to crystallise. Ikeda called his product 'Monosodium glutamate' and submitted a patent to produce MSG.

Effects of long term use of MSG[7,8,9]

It is proved that prolonged use of MSG causes chest pain, rapid or abnormal heart beat, difficulty in breathing, swelling in face and throat, sleeping disorder, obesity, hypertension, abnormality of heamoglobin, metabolic disorders, disorder related to reproductive organs, digestive problems, respiratory problems, neurotoxic effects, hepatotoxicity and oxidative stress.

Toxic effects of MSG according to previous studies

Monosodium glutamate is one of the world's most widely used food additive which enhances the flavour of food. The toxic effects of MSG on central nervous system, adipose tissue, hepatic tissue and reproductive organs were shown in numerous animal studies. However, the method of administration and the used doses in most of them were not comparable with human MSG intake. Animal studies in which MSG was administered per-orally in doses similar to average human intake or intake of regular users showed that MSG led to disturbances in metabolism with the increase in parameters including insulin, fatty acids and triglycerides in serum. MSG increases the expression of several genes implicated in adipocytes differentiation. It affected the liver function resulting in elevation of transaminases levels and bile synthesis. It also led to oxidative stress in liver, pathological changes in ovaries and fallopian tube. MSG intake in human studies was associated with increased levels of several circulating amino acids. However, no changes in the postprandial glucose and insulin were found, which was in contradiction to the animal studies results.[7]

A research entitled 'To study the effect of monosodium glutamate on histomorphometry of cortex of kidney in adult albino rats demonstrated

that MSG induces marked histopathological changes in the kidneys of the rats'[8] suggested it to be toxic, which was also collaborated by other researchers. So the use of MSG in foods remains controversial.

Discussion

Samhita classifies viṣa as sthāvara, jaṅagama and kṛtrima. Kṛtrima viṣa is again classified into two; one is dūṣīviṣa and other is garaviṣa. In that, garaviṣa is toxic combination of poisonous or non-poisonous substances and which exert the toxic effect after interval of some time and that does not harm the person instantly. Garaviṣa has significant role in causing toxic symptoms due to its variety of uses in society. Many side effects of long term use of MSG are similar to the lakṣaṇa of garaviṣa especially marmapradhamana (rapid heartbeat or abnormal heartbeat), śvāsa-kāsa (difficulty in breathing and respiratory problems) and śopha (swelling in the face and throat). Similarly few mānasika lakṣaṇa mentioned in garaviṣa like person having dreams of cats, jackals, fierce animals, monkey, dried rivers and trees, have lost his sense organs, feel himself as fair complexioned though actually being dark and *vis-a-viz* or devoid of ears and nose, etc. These symptoms disturbes the sleep pattern and causes various sleeping disorders. Due to agnimāndya, doṣa gets vitiated, especially kaphadoṣa. Presence of āma at different dhātu levels cause diseases like pāṇḍuroga in rasa-rakta dhātu, atisthaulya at medodhātu and disturbes the metabolism causing hepatotoxicity (mahodara-kṛtplīhī). From the above discussion, it is known that the symptoms arising due to regular use of the MSG are similar to garaviṣa. It can be further researched and the treatment application similar to garaviṣa management will be beneficial for human society. Table 1.

Table 1
Comparison of the side effects of Monosodium glutamate to the lakṣaṇa of Garaviṣa mentioned in different āyurveda classics

Sl. No.	Symptoms	Carakasamhita	Aṣṭāṅgasaṅgrahaḥ	Aṣṭāṅgahṛdayam	Mādhavanidānam
01.	Fatigue	-	+	+	-
02.	Rapid heartbeat	+	-	-	-
03.	Abnormal heartbeat	+	-	-	-
04.	Difficulty in breathing	-	+	+	-
05.	Swelling in the face	+	+	+	+
06.	Swelling in the throat	+	+	+	+
07.	Sleeping disorders	+	+	+	+
08.	Obesity	+	+	+	+
09.	Hemoglobin disturbance	+	+	+	+
10.	Metabolic disorders	+	+	+	+
11.	Digestive problems	+	-	-	+
12.	Respiratory problems	-	+	+	+
13.	Hepatotoxicity	-	+	+	-
+ = Present - = Absent					

Conclusion

Through this study, one can know that symptoms arising from garaviṣa and the side effects of the MSG are similar. Most of people are unaware of the side effects arising from continuous consumption of MSG. Use of it leads to many side effects such as obesity, metabolic disorders, sleeping disorders, haemoglobin disturbance, palpitation, etc. All these side effects are similar to that produced by garaviṣa. According to some studies, the MSG overstimulates

the brain tricking to thinking that food tastes really great, so the person consuming it not only wants to have more of that food, but also want to go back to it. This is termed as magic ingredient that food companies love to use as a flavour enhancer in their products. It was banned by the Punjab Food Authority, Pakistan in January 2018, as the regular use of this ingredient can cause longterm issues like high blood pressure, autism, hormonal imbalance, epilepsy, food allergies, asthma, reduction in bile formation, cancer and possible sterility in females. Thus the present study helps to understand concepts and relation between garaviṣa and monosodium glutamate which will be beneficial to those working in the field of āyurveda and it also creates an awareness among the common people.

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COMPARATIVE STUDY

Āryavaidyan, Vol. XXXII, No. 4, May - July 2019, Pages 52- 53

Comparative study on Raktagulma with Polycystic ovarian syndrome

Shivangee Jain, Sanjay Shukla and Aruna Ojha

ABSTRACT: Raktgulma is described under the gulmaroga in Carakasamhita and other āyurveda texts. Raktagulma is distinguished from garbha but there is no clear demarcation between arbuda, vidradhi, granthi and vṛddhi. Polycystic ovarian syndrome (PCOS) is a group of symptoms clinical and subclinical manifestation found in a women during reproductive age. In younger women reproductive features predominate but prevalence of metabolic features increases with age and can occur also in younger women who are overweight. Polycystic ovarian syndrome is a common gynaecological complaint of present era.

Key words: Raktagulma, Polycystic Ovarian Syndrome

Introduction

Raktagulma primarily described under gulma roga in nidānasthānam and cikitsāsthānam of Caraksamhita under five types of gulma which are vātaja, pittaja, kaphaja, sannipātaja and raktaja.[1] Etymological meaning of gulma is 'tumor or lump' like structure which is immobile. Raktagulma is accumulation of ārtava in uterus.

Etiological factors

Raktagulma is accumulation of artava because of margāvarodha of ārtavavāhi srotas by many activities and drugs taken by the rajasvala, rūkṣa āhāra, supression of natural urges of micturation, defaecation and vomiting, intake of stambhaka medicine and fear.[2]

Symptoms of raktagulma

The symptoms include amenorrhea, abdominal pain specially in lower abdomen, cough, diarrhoea, increased desire of defaecation, vomiting, nausea, malaise, hypothermia, indigestion, dilation of vaginal orifice, foul discharge from vagina, appearance of solid lump with pulsation but without any movement, excessive salivation, appearance of milk in breast, blackish discolouration of lips, heaviness in eyes and craving for some specific object. Symptoms of raktagulma described in various samhita are mentioned in Table 1.[3, 4, 5, 6]

Polycystic ovarian syndrome: While there are number of definitions of PCOS the Rotterdam criteria is most widely accepted across Europe, Asia

Table 1
Symptoms of Raktagulma described in various Samhita

Sl. No.	Symptoms	Caraka-samhita	Suśruta-samhita	Aṣṭāṅga-hṛdayam	Mādhava-nidānam	Bhāva-prakāśaḥ	Śārṅgadhara-samhita
01.	Abdominal mass/growth	-	-	-	+	-	~
02.	Movement in lump	-	-	-	-	-	~
03.	Occurs only in women	+	+	+	+	-	+
04.	Amenorrhoea	+	+	+	+	+	+
05.	Pain in abdomen	+	+	+	-	+	~
06.	Nausea/ vomiting, craving for some specific object	+	+	+	+	+	~
07.	Appearance of milk in breast	+	~	~	~	~	~
08.	Emaciation	-	-	+	-	-	~
09.	Stiffness	-	-	+	-	-	~

Here + means described as symptom,- means not described as symptom ~ not clear

and Australia and the definition used for the guidelines.

Diagnostic criteria for Rotterdam diagnosis of polycystic ovarian syndrome[7]

Two of the following three criteria are required.

1. Oligo/anovulation
2. Hyper androgenism
   a. Clinical (hirsutism)
   b. Biochemical (raised free testosterone)
3. Polycystic ovaries in ultrasound.

Other aetiologic factors such as adrenal hyperplasia, androgen secreting tumours, Cushing syndrome, thyroid dysfunction and hyperprolactinemia must be excluded.

Features of presentation [8, 9]

1. Hirsutism.
2. Irregular and absent menstrual cycle
3. Infertility and subfertility
4. Psychological symptoms like anxiety, depression, psychosexual dysfunction and eating disorder.
5. Metabolic disorders like obesity, dyslipidemia and diabetes.

Common features of raktagulma and PCOS

Table 2.

Table 2
Common features of Raktagulma and PCOS

Sl.No.	Symptoms	Raktagulma	PCOS
01.	Present only in women	+	+
02.	Amenorrhoea	+	+
03.	Dysmenorrhea and abdominal pain	+	+
04.	Nausea ,vomiting, anxiety disorder	+	+
05.	Appearance of breast milk	+	+
06.	Blackening of areola	+	+
07.	Presence of lump in abdomen	+	+

Conclusion

Though raktagulma and PCOS were described in different era of time there are striking similarities in both disease.

If we exclude the diagnostic criteria which is based on diagnostic tools like ultrasound imaging of ovarian cyst and biochemical analysis of androgen, we can consider polycystic ovarian syndrome as raktagulma described in āyurveda.

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LITERARY STUDY

Āryavaidyan, Vol. XXXII, No. 4, May - July 2019, Pages 54 - 59

Life profile and contribution of Vaidya Sripada Krishnamurthy Sastry to Āyurveda literature

Ganti Dutta Sharma K.S. and Lakshmi Prasanna A.V. K.

ABSTRACT: During the pre-independence period of 19th and 20th Century, āyurveda faced decline due to lack of support from the British and flourished under only a few princely states. Disappearing Gurukula system and introduction of English education also added to this. Great personalities who have belief and obedience towards āyurveda and love for humanity had contributed a lot to āyurveda in literature, clinical practice and methodical pharmaceutical manufacturing irrespective of state support both in Sanskrit and regional languages. Vaidya Sripada Krishnamurthy Sastry was one among such great vaidya who contributed his life time works in Rasaśāstra, pharmaceutical preperations, clinical experiences and Carakasamhita in Telugu language.

Key words: Āyurveda, Rasaśāstra, Telugu, Carakasamhita

Ayurveda Bhushana, Bhishagvara
Dr. Sripada Krishna Murthy Sastry[1] AMAC
11-01-1894 to 17-10-1953

Revitalization of Āyurveda[2]

During the Pre Independence Period of 18th 19th and 20th Century, āyurveda faced decline as the British promoted Allopathy or Western Medicine as a cultural force to hegemonize Indian masses and establish superiority over āyurveda in the public sphere. A number of protagonists, such as Gangaprasad Sen, Gangadhar Roy and Gananath Sen in Bengal, Shastri Shankar Daji Pade in Maharashtra, D. Gopalacharlu, Duraiswami Iyengar, Achanta Lakshmipathi (A. Lakshmipathi), Thriprarangode Parameswaran Moossad, Panniyampally Sankunni Varier (P.S. Varier), and others in Madras Presidency in South India, were involved deeply in the revitalization movement. The practitioners of āyurveda strove to uncover causes for the decline, such as the ignorance of practitioners, stagnation of knowledge and non-availability of medicines and hegemony of Western medicine in the public sphere. In these aspects, Vaidya Sripada Krishnamurthy Sastry also rendered his contribution for promotion of literature, clinical practice and traditional methodical pharmaceutical manufacturing practices in Telugu language.

Biography [3, 3a]

Krishnamurthy Sastry was born to Somayaji and Subbamamba in Modekurru Agraharam of Konaseema region in East Godavari District, of Andhra Pradesh, on 11th January 1894. His grand father was Venkateswara. He belonged to the Brahmin sect of Kausikasa Gothra and the family name was 'Sripada'. His dedication, hard work, conceptual thinking, simplicity, dutifulness, and discipline made him unique and incomparable. He left this material world on 17th October 1953.

Early life and education [3b]

He completed primary education in Oriental (Sanskrit) school in his native village and nearby villages of Mukkamala and Vakkalanka under Sanskrit guru Kandukuri Krishna Sastri. In 1912 he joined Maharaja Sanskrit Pathasala of Tuni under guru Somanatha Sastri. Krishnamurthy Sastry studied Tarkaśāstra and Vyākaraṇa and received a scholarship for his excellence in studies and was appreciated by teachers for having in depth knowledge of Sanskrit. His teacher Somanathasastri was also an āyurveda physician and used to treat public for ailments. Apart from Sanskrit literature he read āyurveda books during his Sanskrit studies at Gurukulam and grew fond of the subject and gained belief and confidence not only in the effect of āyurveda medicines but also in the philosophy of āyurveda and its spirituality through his teacher. After completing his higher secondary education with flying colours. He was offered teaching job by many Sanskrit Pathasala. Wishing to have an independent profession and urge to serve others he did not chose teaching Sanskrit.

Āyurveda education [3c]

With a great urge to study āyurveda, he joined Madras Ayurveda College on April 14th, 1914 with a scholarship of Rs15/- granted by Maharaja of Pithapuram. He completed degree of AMAC (Associate of Madras Ayurveda College) in 1918 as a college topper. He also qualified in exams 'Ayurveda Bhushana' and 'Bhishagvara' during this period conducted by Nikhila Bharateeya Ayurveda Parishad. He was disciple of Pandit D. Gopalacharlu Principal of Madras Ayurveda College and was very much influenced by the greatness of his personality and became a devotee and ardent follower of āyurveda.[4]

Professional acheivements [3d]

After graduation, due to excellency in academics and good conduct, he was requested to continue in Madras Ayurveda College as Faculty and Head of Pharmacy by his Principal Pandit D. Gopalacharlu. He taught Carakasamhita, Human Physiology and Roganidāna. He supervised the procurement of raw drugs and preparation of medicine. He learned modern methods of diagnosis and treatment from Bhishagratna Dr. Achanta Lakshmipathi a modern medical doctor and an alumni of Madras Medical College who used to teach modern subjects to āyurveda students and learnt āyurveda, in Madras Ayurveda College under Pandit D. Gopalacharlu.

Due to personal reasons he resigned from teaching and returned to Andhra Pradesh in 1920 and worked as the Chief Physician at Trilinga Ayurveda Vaidyasala, Warangal.[3e] In 1922 he was appointed as the Chief Physician of Sri Rama Mohana Charitable Ayurveda Vaidyasala, Vijayawada. Due to his contribution and constant efforts the hospital became famous and patients from all over the South (Madras and Mysore states) and Orissa came to him for treatment. He was a physician to the elite and reputed personalities and their families like the Raja of Nuzivid, Pithapuram, Muktyala. Famous personalities like Sadasivayya, Srinivasan Iyyengar, Ramarayani, P. C. Ray (Prafulla Chandra Ray), Kasinadhuni Nageswara Rao[4] (Founder- Amrutanjan pain balm) and the then District Collector, Sub-Collector and District Magistrate of Vijayawada used to visit him

for treatment. Luminaries of āyurveda viz Dr. Yogendranath Sen, Dr. A. Lakshmipathi were his friends. He earned a lot of money through āyurvedic medicine manu-facturing and clinical practice. However, he used to treat students and poor for free and with affection. In 1924 due to his constant efforts, Rama Mohana Ayurveda Vaidyasala[1a] developed into Ayurveda Medical College and he served as the first Principal and developed it into a reputed institution.[3e]

Contribution in the field of pharmacy[3f]

While working as an āyurveda physician he faced difficulty in acquiring medicines as those available in the market were either expensive or therapeutically ineffective. To overcome this problem he wanted to start a pharmacy for manufacturing genuine medicines at affordable cost. During this period he found that there was no uniformity in formulae and methods of preparation of essential medicines. He was also very keen on the genuineness of raw drugs. Acquiring source books necessary for medicinal formulations was an impossible task as they were available in Sanskrit and Telugu palm leaf manuscripts in the collections of old physicians and personal libraries of kings. He visited all of them and prepared own handwritten notes and clarified his doubts talking to them.[3g] Being a scholar in Sanskrit, he translated many original śḷoka and defined technical terms in Telugu. He learned the practical difficulties faced while manufacturing āyurveda medicine and various methods of preparation through traditional vaidyas and standardized the most acceptable method by doing practicals and compiled all the information into books.

By 1928 with a view to supply genuine medicines at affordable cost to fellow āyurveda practitioners and patients spread in hundreds of villages, he started 'Sri Krishna Ayurveda Pharmacy and Charitable Dispensary'. He used to deliver his drugs by post to āyurveda dispensaries, hospitals, and even individuals. Āyurveda drugs that he supplied were cost-effective and efficient. So within no time he gained popularity and his medicines were in demand. Due to the increasing demand for his medicines, he was unable to allocate time to both academics and pharmacy. Hence, he resigned from Ram Mohana Ayurveda College and Hospital and started private practice in Vijayawada. During World War II in 1938 due to the restrictions imposed by the British, he had to shift his pharmacy from Vijayawada to Raja-mahendravaram where he established a bigger manufacturing unit and Charitable Vaidyasala for treating patients and continued his services.[3h]

Contributions in the field of Āyurveda literature[3i]

Vaidya Krishna Murthy Sastry is remembered by āyurveda practitioners and scholars of Telugu speaking states in the 20th century for his contributions to the literature of āyurveda. He understood that the lack of knowledge among practitioners and the unavailability of medical texts were the fundamental causes for the degeneration of āyurveda. He read many āyurveda texts in Sanskrit and palm leaves and tried to bring āyurveda knowledge to the common man in Telugu language. Though he agreed that knowledge of Sanskrit is necessary to keep up the tradition alive, it is also needed that the literature should be available in regional languages to derive the practical benefit of āyurveda by everyone in the changing circumstances. He devoted all his life for this aim. He was the first to translate 'Carakasamhita' completely into Telugu. He collected information from ancient classics and published a number of books on pharmaceutical preparations. He opined that the practical knowledge he acquired with pharmaceutical preparations should reach every physician so that they can save time and get good quality medicines and in turn help the sufferers in attaining health through āyurveda.

He followed the style which suits the needs of

āyurveda manufacturers and physicians by incorporating relevant practical and technical inputs. His books were quite popular among generations of Telugu speaking āyurveda physicians. He brought into light the practical methods and SOP (Standard Operative Procedure) guidelines regarding medicine manufacturing and precautions to be taken during preparation including mātra/ dosage and anupāna in various diseases.

The following are the original books written by Krishna Murthy Sastry in Telugu;

1. Bhasmaprakāśikā[5,6]: Published in 1925 by Rama Seshu Press, Rajahmundry. This book deals with medicinal preparations related to Rasauṣadha. Mahārasa, uparasa, sādhāraṇa rasa, ratna, uparatna, kṣāra and sudhā vargadravya their method of preparation including purification, puṭa and therapeutic indications and anupāna to be used and other guidelines were given in detail.

2. Āyurveda auṣadha ratnākaram: Published in 1928 by Sujanaranjani Mudranalayam, Rajahmundry. This book is an exclusive collection of Rasauṣadha preparation through kūpīpakva and khalvīya methods mentioned in ancient texts of Andhra Sampradāya (methods and nomenclature native to āyurveda books in telugu from ancient times) and followed by native vaidyas during his time. All those books were referred by the author and a detailed translation of the names of drugs was made in Telugu along with translation for all Sanskrit sḷoka to Telugu. Complete formula, their quantity, abhāva dravya, their method of preparation and therapeutic indication are also discussed in detail.

In the foreword of this book, the author refers about a rare book 'Mahāyogānanda amṛta kalpavalli' available at personal collection of a king in his region and he made a hand written notes of the complete book as it was out of print. This shows the genuineness and authenticity of this work.

A few important formulations from Āyurveda auṣadha ratnākaram compiled and manufactured by Krishna Murthy Sastry are given below.

1. Rajataloharasāyana
2. Rajatacandrodayam
3. Rajatamehavaṅgarājīyam
4. Rajamṛgāṅkarasa
5. Kāntavallabharasa
6. Vātarākṣasa
7. Rasarāṭ
8. Rasabhūpati
9. Agnikumārarasa
10. Hutāśanarasa
11. Kanakabalasurodaya
12. Pañcaloharasāyana
13. Tāmraloharasāyana
14. Pāṣāṇa vātarākṣasa
15. Navalohacintāmaṇi
16. Māṇikyarasa
17. Vaiṣṇavīrasa
18. Suvarṇasūryavarti
19. Vaṅgarājīyam
20. Kṣayakuṭhārarasa
21. Sūtikābharaṇarasa
22. Suvarṇabhūpatīrasa
23. Suvarṇakāntavallabharasa
24. Vātagajāṅkuśam
25. Laghusūryavarti
26. Suvarṇasindūrabhūṣaṇa

3. Andhra Bhaiṣajyaratnāvali[7] : Published in 1925 by ABS Publishers, Rajahmundry. This book deals with various herbal medicinal preparations. famous and effective medicines along with their formula, manufacturing methods and therapeutic indications.viz Ariṣṭa, Āsava, Kaṣāya, Guggulu, Ghṛta, Cūrṇa, Taila, Vaṭaka, Avaleha, etc. are explained in detail.[5]

4.Vaidyavijñānam or Kṛṣṇapaṇḍitīyam: Published in 1930 by Box Press, Rajahmundry. This book is an autobiography of the author along with

some clinical experiences of common diseases and their treatment.[1b]

5. Anubhavadīpikā: Published in 1931 by Box Press, Rajahmundry. This book deals with various practical methods of medicinal preparations like khalvīya rasāyana and kūpīpakva rasāyana, etc. Precautions to be taken, the number of puṭa for proper preperation of bhasma, substitute herbs to be taken if the original herb is not available, utensils, nature of equipment their advantages and disadvantages and other categorically related information is mentioned. This book is a ready reckoner for pharmacists containing SOP standardised operational procedures for herbal and herbo-mineral medicine manufacturing. This book is the first of its kind in āyurveda containing valuable and practical information on pharmaceutical manufacturing practices.

Books translated by Krishna Murthy Sastry into Telugu

i. Carakasamhita: He was the first to translate Carakasamhita into Telugu completely. This book is a free translation of Carakasamhita consisting of three volumes. Volume I- Sūtrasthānam, Volume II- Nidāna, Vimāna, Śarīra, Indriya, Kalpa and Siddhi sthāna (Sthānaṣaṭka- 6 Sthāna) and Volume III consists of Cikitsāsthānam. Telugu/ local names are provided for all the plants, animal and mineral drugs after proper literary research which is a herculean task.[1c]

Conclusion

Among the four pramāṇa mentioned by Caraka āptopadeśa[8] is the first. Caraka defined āpta as persons who have freed themselves from passion (rajas) and ignorance (tamas) by means of spiritual endeavour and knowledge, whose understanding is eternal including the past, present and future (trikāla), are pure (amala) and at all times unclouded (avyāhata). Those are authoritative, the learned (śiṣṭhā), the enlightened (vibuddha) and their word are unimpeachable (asamhata) and true (satya). Krishna Murthy Sastry is one among such āpta who is an authority in the present era in Āyurveda pharmaceutical preparations related to both rasauṣadhi (metals/ minerals) and kāṣṭauṣadhi (herbal) who enlightened the community of āyurveda with his indispensable scientific, humanitarian and universal spirit. As per Caraka's words 'na arthārtham na cāpi kāmārtham athaḥ bhūtādayam prati' Krishna Murthy Sastri dedicated his entire life in selfless service to fellow human beings through the propagation of āyurveda. He was a stalwart and pioneer in revitalisation of āyurveda in the 20th Century in Telugu. He dedicated his life for reviving the ancient glory of āyurveda and professionalising it. He worked hard to standardize the method of preparations especially kūpīpakva and khalvīya auṣadha.The life and contributions of Krishna Murthy Sastry will always be a source of inspiration and guiding light for the budding practitioners and the medicine manufacturers in āyurveda.

Acknowledgments

The author is highly thankful to Dr. Krishna, grandson and Dr. Archana great-grand daughter of Vaidya Sripada Krishna Murthy Sastry for their great help in providing necessary photographs, books and narrative information in the preparation of this article.

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A case report

Punnasseri Nambi Neelakandha Sarma, Pattambi

Dhanvantari is the first medical journal in Malayalam published every month by Vaidyaratnam P. S. Varier from Arya Vaidya Sala uninterruptedly for 23 years from 1903 to 1926 . This clinical note was published in its column on Book No. 6, 1084 Tulam Malayalam Era (1909 CE), Article No. 11, Page 63.

A 25year old lady from Tanjore recently called on me for medical advice. She was suffering from her illness for 5 years. She had regular periods but for the mild and pale discharge. She had poor appetite though her bowel movements were regular. All the more she had a weak digestion. She also had the habit of eructating. She used to feel uneasy when she had her stomach full and there were gurgling sounds as well. She had a normal output of urine. She was of medium built and had no issues. The first 3 years of treatment was in modern medicine and she was in Chennai for nearly 6 months to undergo the treatment. She had been to various doctors but to no avail. All of them could give her only a temporary relief. Her periods was regular with a mild and pale discharge as mentioned earlier. After 3 years they tried various local or regional herbal medicines. The first one was the treatment based on Cintāmaṇi, but the result was not a good one. Sometimes she had dizziness and fever and found a cure with certain medicines. This Cintāmaṇi treatment continued for a year. Then started the treatment based on Aṣṭāṅgahṛdayam.

To start with, she was given Kaṇāśatāhvādi karañja, a kaṣāyam. But it did not give her any relief. Sometimes she had an irregular periods with fatigue. She also tried Tilakvātha ghṛtam, which again proved futile. But I was unable to arrive at a precise treatment on listening to her medical history.

My prescription ran thus for a period of 21 days: Saptasāram kaṣāyam with Indukānta ghṛtam as an additive. This again was not effective. The next in the list was Sukumāram kaṣāyam for 21 days. During this period I advised her to take Ārdraka ghṛtam during lunch. As I did not get the desired result, I was a bit perturbed. Though there were not any significant

changes, the lady was able to notice some positive changes in her bowel movements, appetite and digestion.

By the blessings of my guru, I was able to find a solution. The mild and pale discharge was not because of an obstruction. Had there been an obstruction, the lady might have had severe pain and a distended abdomen. So this might be because of anemia. I reached this conclusion. I asked her to withdraw all the medicines so that I could start a new. The prescription was as under:

Tintriṇīitaruṇaparṇaśalāka kaṣāyam with maṇḍūra vaṭakam as additive, Ciñcādi leham and Gomūtra harītakī.

After 21 days, the lady looked better. The next menstruation had a normal flow and colour.

But still she was weak and had not gained enough strength. So, Drākṣāmadhūkādi kaṣāyam was advised. Ārdraka ghṛtam and Ciñcādi leham were also advised along with this. She regained her strength during the course of 21 days. After this period, she was advised to take Sukumāra ghṛtam. She was cured of her illness and was on her way to motherhood; was in the 4th month of her pregnancy (gestation).

The causative factors and the condition of the disease vary. But one has to have the blessings of one's teachers to strike at the right diagnosis and treatment modalities.

Translated by: Rati Vijayan, Publication Department, Arya Vaidya Sala, Kottakkal, Kerala.

Āryavaidyan, Vol. XXXII, No. 4, May - July 2019, Page 62

A taste of success

Asramattu P. K. Narayanan

Dhanvantari is the first medical journal in Malayalam published every month by Vaidyaratnam P. S. Varier from Arya Vaidya Sala uninterruptedly for 23 years from 1903 to 1926 . This clinical note was published in its column on Book No. 6, 1084 Vrscikam Malayalam Era (1909 CE), Article No. 8, Page 83.

On my findings request I happened to consult a girl of 14 years in the nearly place called 'Uliyakkovil'. She was diagnosed with 'Raktavāta' associated with vraṇa. She was suffering from this for the last 3 years and was very lean and weak. She had irregular bowel evacuation. Her left leg, from the knee to the foot was affected with deep ulcers and glands. Numerous ulcers were visible on her right ankle joint. She was totally unable to move around and was confined to a seat. Both allopathy and āyurveda medicines or treatments could not give her a relief. Since they had lost all hope, they had withdrawn all the medications. This was when my friend requested me to help them.

Though I could infer that they had tried a variety of medicines, I decided not to give up. To start with, I prescribed Māṇibhadraguḷam for a week which is a good cleansing agent. My next advice was Kaiśora-guggulu along with hot milk (as anupāna), for a period of 1 month. One can find a mention of it in Bhaiṣajyaratnāvali. Moreover, my guru Sri. M. R. R. C. Krishnan Vaidyar has shared very many fruitful experiences of his with me, regarding this wonder drug. A medicine (oil) for application on the wound was also prescribed. The ingredients are as under:

A handful of leaves of piccakam (mālatī- *Jasminum grandiflorum* L.), kāṭṭupiccakam (wild variety of mālatī) and pullāni (suṣavī- *Getonia floribunda* Roxb.). Double the quantity of karuka [durvā- *Cynodon dactylon* (L.) Pers.]. The juice of these is to be collected by grinding them, in kāḍi. This is to be cooked in 1 nāzhi (192ml) of stable coconut oil. This is to be removed on kharapāka. To this, add 16 kazhañju (1kazhañju - 4gms) of ponmezhuku (bee wax). Again, put it on fire. Remove from heat on dissolving and thorough mixing. On cooling, this was to be applied on the vraṇa after proper washing and cleaning the area. This is to be done twice daily. After 15 days, the wounds had almost healed. The treatment and diet restriction gave her renewed strength and vigour.

I thought it right to share this experience and thereby enlighten the medical fraternity in the use of Kaiśora-guggulu.

Translated by: Rati Vijayan, Publication Department, Arya Vaidya Sala, Kottakkal, Kerala.

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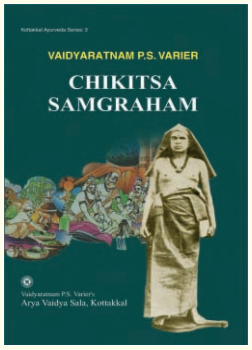

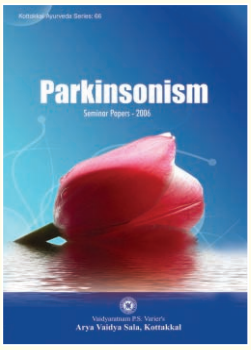

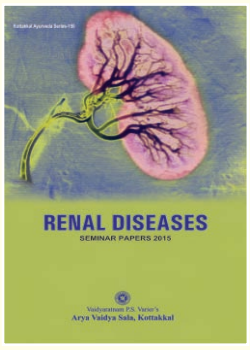

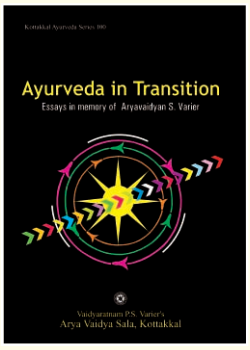

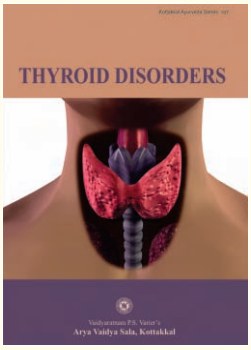

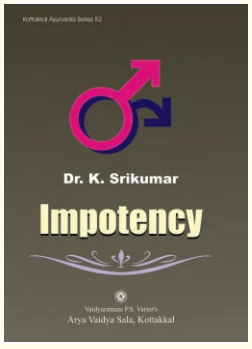

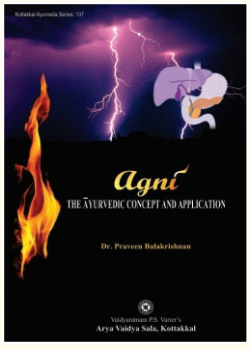

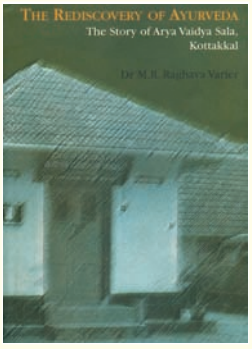

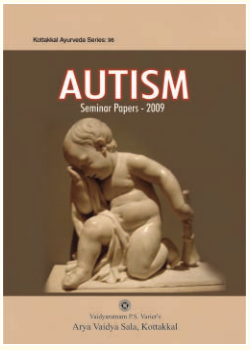

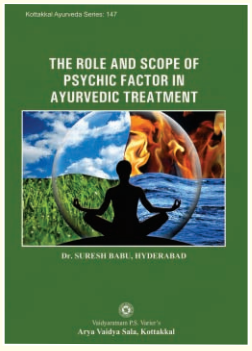

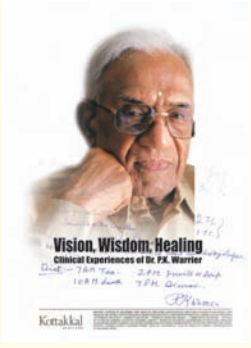

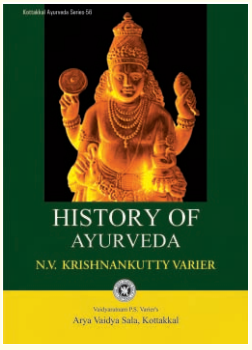

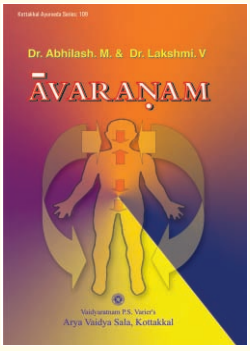

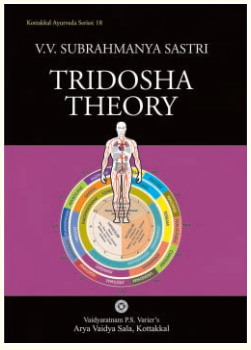

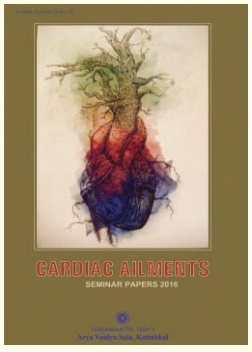

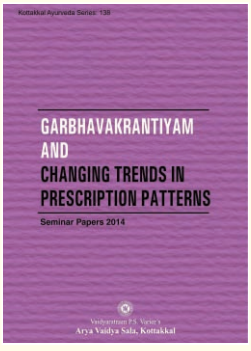

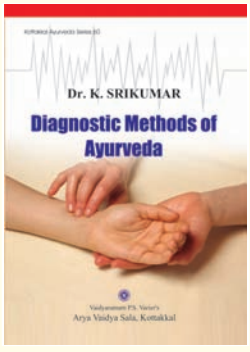

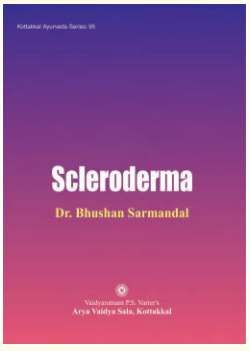

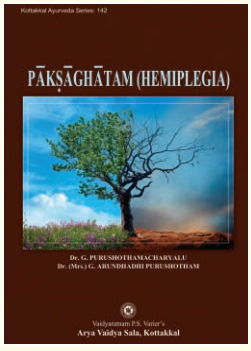

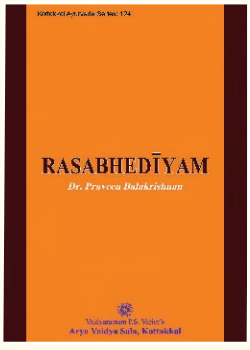

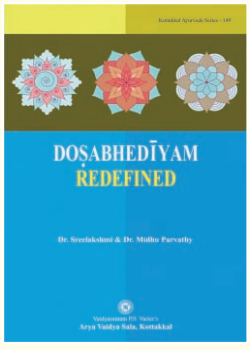

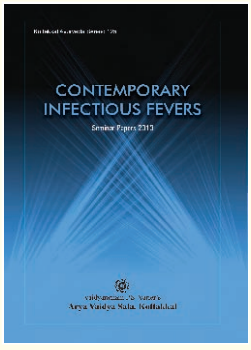

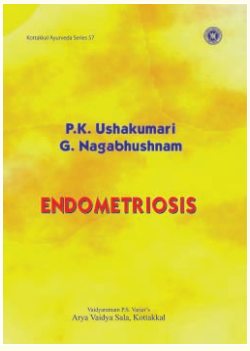

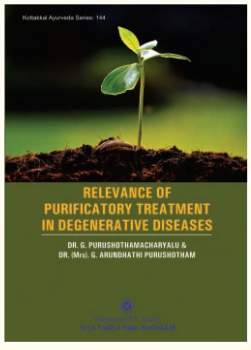

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