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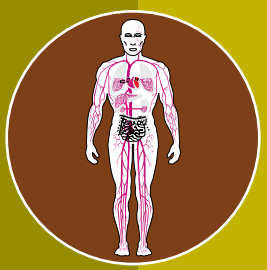
Āryavaidyan

लाभानां श्रेय आरोग्यम्

Of all the gifts,
the most precious is health



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āryavaidyan

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Quarterly journal of Arya Vaidya Sala

सततध्ययनं, वादः परतन्त्रावलोकनम् ।
तद्विद्याचार्यसेवा च बुद्धिमेधाकरो गणः ।।

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learning other disciplines and
serving the preceptor - these factors
endow one with intelligence and memory

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FROM THE PAGES OF VĀGBHAṬA - LXXXVI

Dr. A. Raghunathan*

Abstract: The third chapter of Nidānasthānam viz. Raktapittakāsanidānam is explained here. The aetiology, symptamatology, prognosis, etc. of haemopathy and cough are detailed in this chapter.

अथातो रक्तपित्तकासनिदानं व्याख्यास्याम: ।
इति ह स्माहुरात्रेयादयो महर्षय: ।

(Athāto raktapittakāsanidānam
vyākhyāsyāma:।
iti ha smāhurātreyādayo
maharṣaya:।)

Now let us discuss the chapter regarding the diagnosis of raktapitta and kāsa. Thus spoke the sages like Ātreya.

भृशोष्णतीक्ष्णकट्वम्ळलवणादिविदाहिभि: ।
कोद्रवोद्दाळकैश्चान्नैस्तद्युक्तैरतिसेवितै: ।।१ ।।
कुपितं पित्तळै: पित्तं द्रवं रक्तं च मूर्च्छिते ।
ते मिथस्तुल्यरूपत्वमागम्य व्यप्नुतस्तनुम् ।।२ ।।

(Bhṛśoṣṇatīkṣṇakaṭvamḷa-
lavaṇādividāhibhi:।
kodravoddāḷakaiścānnai-
stadyuktairatisevitai:।। 1 ।।
Kupitam pittaḷai: pittam
dravam raktam ca mūrcchite।
te mithastulyarūpatva-
māgamya vyapnutastanum ।। 2 ।।)

The pitta doṣa gets vitiated because of intake of food items that are vidāhi in nature i.e. things that are hot, intense, pungent, sour and salty. By over-intake of food articles that are vidāhi like kodrava and uddāḷaka also vitiate the pitta. Likewise rakta is also vitiated by these articles and moreover, loses its consistency whereby both pitta and rakta tend to be similar in nature and spread all over the body.

पित्तं रक्तस्य विकृते: संसर्गाद्दूषणादपि ।
गन्धवर्णानुवृत्तेश्च रक्तेन व्यपदिश्यते ।।३ ।।
प्रभवत्यसृज: स्थानात्प्ळीहतो यकृतश्च तत् ।
(Pittam raktasya vikṛte:
samsargāddūṣaṇādapi।
gandhavarṇānuvṛtteśca
raktena vyapadiśyate।। 3 ।।
Prabhavatyasṛja: sthānāt-
plīhato yakṛtaśca tat।)

Here pitta in the form of mala is termed as rakta since it is the derivative form of raktadhātu and this pitta when associates with rakta gets vitiated. This malapitta resembles the actual rakta in smell and colour. One more particularity is that this also originates from the spleen and liver that are the sources of actual raktadhātu.

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शिरोगुरुत्वमरुचि: शीतेच्छा धूमकोऽम्लक: ।।४ ।।
छर्दिश्छर्दितबैभत्स्यं कास: श्वासो भ्रम: क्लम: ।
लोहलोहितमत्स्यामगन्धास्यत्वं स्वरक्षय: ।।५ ।।
रक्तहारिद्रहरितवर्णता नयनादिषु ।
नीललोहितपीतानां वर्णानामविवेचनम् ।।६ ।।
स्वप्ने तद्वर्णदर्शित्वं भवत्यस्मिन् भविष्यति ।

(śirogurutvamaruci:
śītecchā dhūmakoऽmlaka:।। 4 ।।
Chardiśchariditabaibhatsyam
kāsa: śvāso bhrama: kļama:।
lohalohitamatsyāma-
gandhāsyatvam svarakṣaya:।। 5 ।।
Raktahāridraharita-
varṇatā nayanādiṣu।
nīlalohitapītānām
varṇānāmavivecanam।। 6 ।।
Svapne tadvarṇadarśitvam
bhavatyasmin bhaviṣyati।)

The prodromal signs and symptoms of raktapitta are the following: A feeling of heaviness in the head, anorexia, liking for cold items, belching something like fume, soury belching, vomiting, aversion on seeing the vomitus, cough, dyspnoea, giddiness, tiredness, perception of particular smells inside the mouth like that of iron, blood, fish and āmadoṣa, loss of speech, appearance of abnormal colours like red, yellow and green of the organs like the eye, inability to distinguish blue, red and yellow colours and objects appear to be of the same colours dreams as well.

ऊर्ध्वं नासाक्षिकर्णास्यैर्मेढ्रयोनिगुदैरध: ।।७।।
कुपितं रोमकूपैश्च समस्तैस्तत्प्रवर्तते ।
ऊर्ध्वं साध्यं कफाद्यस्मात्तद्विरेचनसाधनम् ।।८ ।।
बह्वौषधं च, पित्तस्य विरेको हि वरौषधम् ।
अनुबन्धी कफो यश्च तत्र तस्यपि शुद्धिकृत् ।।९ ।।
कषाया: स्वादवोऽप्यस्य विशुद्धश्लेष्मणो हिता: ।
किमु तिक्ता: कषाया वा ये निसर्गात्कफापहा: ।।१०।।

(ūrdhvam nāsākṣikarṇāsyair-
meḍhrayonigudairadha:।। 7 ।।
Kupitam romakūpaiśca
samastaistatpravartate।
ūrdhvam sādhyam kaphādyasmāt-
tadvirecanasādhanam।। 8 ।।
Bahvauṣadham ca, pittasya
vireko hi varauṣadham।
anubandhī kapho yaśca
tatra tasyapi śuddhikṛt।। 9 ।।
Kaṣāyā: svādavoऽpyasya
viśuddhaśļeṣmaṇo hitā:।
kimu tiktā: kaṣāyā vā
ye nisargātkaphāpahā: ।। 10 ।।)

Raktapitta with upward movement manifests as bleeding through the nose, the eyes, the ears and the mouth and that with downward movement does manifest through the penis or the vagina or the anal orifice. It may appear on the hair-follicles on over vitiation. The former type, ūrdhvaga can be managed easily as the prevalent doṣa is kapha there. Administration of virecana is the main measure to control this type of raktapitta and abundant number of medicines are there to control the same. Here the principle doṣa involved is pitta and the associated one is kapha. Virecana is the prime treatment method against the vitiated pitta and kapha which is associated here is also purified by virecana process. Decoctions with madhurarasa drugs, which are beneficial for vitiated pitta, are equally effective for purified kapha. Then, of course, the decoctions with bitter and astringent drugs are kapha-alleviating medicines.

अधो याप्यं चलाद्यस्मात्तत्प्रच्छर्दनसाधनम् ।
अल्पौषधं च पित्तस्य वमनं न वरौषधम् ।।११ ।।
अनुबन्धी चलो यश्च शान्तयेऽपि न तस्य तत् ।
कषायाश्च हितास्तस्य मधुरा एव केवलम् ।।१२ ।।

(Adho yāpyam calādyasmāt-
tatpracchardanasādhanam।
alpauṣadham ca pittasya
vamanam na varauṣadham।। 11 ।।
Anubandhī calo yaśca
śāntayeऽpi na tasya tat।
kaṣāyāśca hitāstasya
madhurā eva kevalam ।। 12 ।।)

The second type of raktapitta i.e., adhoga is a palliative one as the associated doṣa is vāta and the major measure to control bleeding is the vamana procedure. A less number of medicines are there against pittadoṣa and vamana would not be a very effective measure to pacify the vitiated pitta associated with vāta. Only the decoctions made out of madhurarasa may be beneficial.

कफमारुतसंसृष्टमसाध्यमुभयायनम् ।
अशक्यप्रातिलोम्यत्वादभावादौषधस्य च ।।१३ ।।
न हि संशोधनं किञ्चिदस्त्यस्य प्रतिलोमगम् ।
शोधनं प्रतिलोमं च रक्तपित्ते भिषग्जितम् ।।१४ ।।
एवमेवोपशमनं सर्वशो नास्य विद्यते ।
संसृष्टेषु हि दोषेषु सर्वजिच्छमनं हितम् ।।१५ ।।
तत्र दोषानुगमनं सिरास्र इव लक्षयेत् ।
उपद्रवांश्च विकृतिज्ञानतस्तेषु चाधिकम् ।।१६ ।।
(Kaphamārutasamsṛṣṭa-
masādhyamubhayāyanam।
aśakyaprātilomyatvā-
dabhāvādauṣadhasya ca।। 13 ।।
Na hi samśodhanam kiñci-
dastyasya pratilomagam।
śodhanam pratilomam ca
raktapitte bhiṣagjitam।। 14 ।।
Evamevopaśamanam
sarvaśo nāsya vidyate।
samsṛṣṭeṣu hi doṣeṣu
sarvajicchamanam hitam।। 15 ।।
Tatra doṣānugamanam
sirāsra iva lakṣayet।
upadravāmśca vikṛti-
jñānatasteṣu cādhikam।। 16 ।।)

In this case, the disease is incurable because neither purgation nor emesis is effective because excess pitta is associated with vāta and kapha whereby bleeding occurs from the upper and lower parts of the body; nor is the availability of the effective drugs. In samsargadoṣas samana procedure can be applied. The doṣa predominance involved in raktapitta can be inferred by observing the features of rakta as detailed in Sirāvedhavidhi of Sūtrasthāna. The complications of the disease may be counted from the descriptions of asādhyalakṣaṇa mentioned in the Vikṛtivijñāna of Śarīrasthāna.

आशुकारी यत: कासस्तमेवात: प्रवक्ष्यति ।
पञ्च कासा: स्मृता वातपित्तश्लेष्मक्षतक्षयै: ।।१७ ।।
क्षयायोपेक्षिता: सर्वे बलिनश्चोत्तरोत्तरम् ।

(Āśukārī yata: kāsa-
stamevāta: pravakṣyati।
pañca kāsā: smṛtā vāta-
pittaśleṣmakṣatakṣayai:।। 17 ।।
kṣayāyopekṣitā: sarve
balinaścottarottaram।)

Among the upadravas of raktapitta, the major one is kāsa. Therefore, it is now detailed. Kāsa has five varieties because of the vitiation of vāta, pitta and kapha and by trauma and kṣaya. If not managed, all the kāsa will become tuberculosis and gets stronger and stronger as the case advances.

तेषां भविष्यतां रूपं कण्ठे कण्डूररोचक: ।।१८ ।।
शूकपूर्णाभकण्ठत्वं तत्राधो विहतोऽनिल: ।
ऊर्ध्वं प्रवृत्त: प्राप्योरस्तस्मिन् कण्ठे च संसजन् ।।१९ ।।
शिर:स्रोतांसि सम्पूर्य ततोऽङ्गान्युत्क्षिपन्निव ।
क्षिपन्निवाक्षिणी पृष्ठमुर: पार्श्वे च पीडयन् ।।२० ।।
प्रवर्तते स वक्त्रेण भिन्नकांस्योपमध्वनि: ।
हेतुभेदात्प्रतीघातभेदो वायो: सरंहस: ।।२१ ।।
यद्रुजाशब्दवैषम्यं कासानां जायते तत: ।

(teṣām bhaviṣyatām rūpam
kaṇṭhe kaṇḍūrarocaka:।। 18 ।।
Śūkapūrṇābhakaṇṭhatvam
tatrādho vihatoऽnila:।
ūrdhvam pravṛtta: prāpyora-
stasmin kaṇṭhe ca samsajan।। 19 ।।
Śira:srotāmsi sampūrya
tatoऽṅgānyutkṣipanniva।
kṣipannivākṣiṇī pṛṣṭha-
mura: pārśve ca pīḍayan।। 20 ।।
Pravartate sa vaktreṇa
bhinnakāmsyopamadhvani:।
hetubhedātpratīghāta-
bhedo vāyo: saramhasa:।। 21 ।।
Yadrujāśabdavaiṣamyam
kāsānām jāyate tata:।)

The prodromal symptoms of kāsa are itching inside the throat, anorexia and a feeling that the throat is full of husks.

When vāyu gets obstructed in the inferior parts, it is forced upwards and reaches the mediastinum area and is suspended there and the throat area. Then that vāyu is pulled upwards, filling up the channels inside the head and all the body parts, pulling the eye balls out, aching the back, the chest and the costal sides and goes out through the mouth making a sound resembling that of a broken bronze. Due to the varied nature of causative factors of kāsa the blocking material of forcefully upcoming vāta doṣa tends to be varied; varied sounds and allied discomforts of kāsa differ from case to case.

कुपितो वातळैर्वात: शुष्कोर:कण्ठवक्त्रताम् ।।२२ ।।
हृत्पार्श्वोर:शिर:शूलं मोहक्षोभस्वरक्षयान् ।
करोति शुष्कं कासं च महावेगरुजास्वनम् ।।२३ ।।
सोऽङ्गहर्षी कफं शुष्कं कृच्छ्रान्मुक्त्वाऽल्पतां व्रजेत् ।

(kupito vātaḷairvāta:
śuṣkora:kaṇṭhavaktratām।। 22 ।।
Hṛtpārśvora:śira:śūlam
mohakṣobhasvarakṣayān।
karoti śuṣkam kāsam ca
mahāvegarujāsvanam।। 23 ।।
Soऽṅgaharṣī kapham śuṣkam
kṛcchrānmuktvāऽlpatām vrajet।)

In vātikakāsa a dry cough is experienced with severe pain and horripilation in order to produce a little dry mucus which is expelled with severe discomforts. Then kāsa diminishes for a while.

पित्तात्पीताक्षिकफता तिक्तास्यत्वं ज्वरो भ्रम: ।।२४ ।।
पित्तासृग्वमनं तृष्णा वैस्वर्यं धूमकोऽम्लक: ।
प्रततं कासवेगेन ज्योतिषामिव दर्शनम् ।।२५ ।।

(pittātpītākṣikaphatā
tiktāsyatvam jvaro bhrama:।। 24 ।।
Pittāsṛgvamanam tṛṣṇā
vaisvaryam dhūmakoऽmḷaka:।
pratatam kāsavegena
jyotiṣāmiva darśanam ।। 25 ।।)

In pittakāsa the eyes and mucus will be yellowish. Bitterness inside the mouth, fever, vertigo, vomiting of bile mixed with blood, dipsesis, impairment of the sound, belching of something like fume and sour are also noticed. Due to the intensity of forceful cough the patient may feel that he sees some luminating things like stars in front of him.

कफादुरोऽल्परुङ्मूर्द्धहृदयं स्तिमितं गुरु।
कण्ठोपलेप: सदनं पीनसच्छर्द्यरोचका: ।।२६ ।।
रोमहर्षो घनस्निग्धश्वेतश्ळेष्मप्रवर्तनम्।

(Kaphāduro'lparuṅmūr-
ddhahṛdayam stimitam guru।
kaṇṭhopalepa: sadanam
pīnasacchardyarocakā:।। 26 ।।
Romaharṣo ghanasnigdha-
śvetaśḷeṣmapravartanam।)

In kaphakāsa the patient experiences slight pain in the chest, stiffness on the head and chest regions, something coated inside the throat, fatigue, coryza, vomiting, anorexia, horripulation and produces mucus which is heavy, unctuous and white in appearance.

युद्धाद्यै: साहसैस्तैस्तै: सेवितैरयथाबलम् ।।२७ ।।
उरस्यन्त:क्षते वायु: पित्तेनानुगतो बली।
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पीतं श्यावं च शुष्कं च ग्रथितं कुथितं बहु।
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क्रमाद्वीर्यं रुचि: पक्ता बलं वर्णश्च हीयते ।।३१ ।।
क्षीणस्य सासृङ्मूत्रत्वं स्याच्च पृष्ठकटीग्रह:।

(yuddhādyai: sāhasaistaistai:
sevitairayathābalam।। 27 ।।
Urasyanta:kṣate vāyu:
pittenānugato balī।
kupita: kurute kāsam
kapham tena saśoṇitam।। 28 ।।
Pītam śyāvam ca śuṣkam ca
grathitam kuthitam bahu।
ṣṭhīvetkaṇṭhena rujatā
vibhinneneva corasā।। 29 ।।
Sūcībhiriva tīkṣṇābhi-
studyamānena śūlinā।
parvabhedajvaraśvāsa-
tṛṣṇāvaisvaryakampavān।। 30 ।।
pārāvata ivākūjan
pārśvaśūlī tato'sya ca।
kramādvīryam ruci: paktā
balam varṇaśca hīyate।। 31 ।।
Kṣīṇasya sāsṛṅmūtratvam
syācca pṛṣṭhakaṭīgraha:।)

When the trauma occurs inside the chest (lungs) by involving in adventures like fighting, vāta becomes stronger and vitiates along with pitta to produce cough mixed with blood, yellowish or blackish in colour, dry, cyst in appearance or putrefied and ample. It may be spitted out with an aching throat expelled out from the chest with a piercing pain. The patient may feel a piercing pain all over the body associated with splitting pain in the joints, fever, dyspnoea, dipsesis, impairment of speech and tremor. He may sound like the cooing of a dove and feel pain over the coastal areas. Gradually his valour, taste in food, digestive capacity, strength and complextion will diminish and may develop the expulsion of urine with blood and experience stiffness of the back and low back.

वायुप्रधाना: कुपिता धातवो राजयक्ष्मिण: ।।३२ ।।
कुर्वन्ति यक्ष्मायतनै: कासं ष्ठीवेत्कफं तत:।
पूतिपूयोपमं पीतं विस्रं हरितलोहितम् ।।३३ ।।
लुच्येत इव पार्श्वे च हृदयं पततीव च।
अकस्मादुष्णशीतेच्छा बह्वाशित्वं बलक्षय: ।।३४ ।।
स्निग्धप्रसन्नवक्त्रत्वं श्रीमद्दशननेत्रता।
ततोऽस्य क्षयरूपाणि सर्वाण्याविर्भवन्ति च ।।३५ ।।

(vāyupradhānā: kupitā
dhātavo rājayakṣmiṇa:।। 32 ।।
Kurvanti yakṣmāyatanai:

kāsam ṣṭhīvetkapham tata:।
pūtipūyopamam pītam
visram haritalohitam॥ 33 ॥
Lucyeta iva pārśve ca
hṛdayam patatīva ca।
akasmāduṣṇaśītecchā
bahvāśitvam balakṣaya:॥ 34 ॥
Snigdhaprasannavaktratvam
śrīmaddaśananetratā।
tatoऽsya kṣayarūpāṇi
sarvāṇyāvirbhavanti ca॥ 35 ॥)

The kāsa occurring in rājayakṣma (malabsorbtion syndrome), the patient is called kṣayajakāsa where all doṣas are lead by vāta vitiated by the same causes for rājayakṣma to produce cough and by that the patient spits putrid, pus-like viscid mucus, which may be either yellow, green or red in colour. Here the patient may feel that his costal regions are being destructed and the heart is falling down. He may have an affinity to both hot and cold things. He tends to grow weaker though he takes heavy meals; he tends to be cheerful with an oil face, glittering eyes and elegant teeth and may turn malnourished on the onset of kṣayajakāsa.

इत्येष क्षयज: कास: क्षीणानां देहनाशन: ।
याप्यो वा बलिनां, तद्वत् क्षतजोऽभिनवौ तु तौ ।।३६ ।।
सिध्येतामपि सानाथ्यात् साध्या दोषै: पृथक् त्रय: ।
मिश्रा याप्या द्वयात्सर्वे जरसा स्थविरस्य च ।।३७ ।।
कासाच्छ्वासक्षयच्छर्दिस्वरसादादयो गदा: ।
भवन्त्युपेक्षया यस्मात्तस्मात्तं त्वरया जयेत् ।।३८ ।।

(Ityeṣa kṣayaja: kāsa:
kṣīṇānām dehanāśana:।
yāpyo vā balinām, tadvat
kṣatajoऽbhinavau tu tau॥ 36 ॥
Sidhyetāmapi sānāthyāt
sādhyā doṣai: pṛthak traya:।
miśrā yāpyā dvayātsarve
jarasā sthavirasya ca ॥ 37 ॥
Kāsācchvāsakṣayacchardi-
svarasādādayo gadā:।
bhavantyupekṣayā yasmā-
ttasmāttam tvarayā jayet॥ 38 ॥)

Thus, the kṣayaja (occurring in rājayakṣma) kāsa is dealt which is fatal for weak patients and palliative for strong ones. The previous type of kāsa i.e., kṣataja is also similar to kṣayaja in prognosis. These two may be cured when they are fresh and on the availability of all the positive probabilities of the tetrad of treatment. Other three types of kāsa occurring due to the vitiation of the individual are manageable but become palliative on the combination of doṣa vitiation. All types will be palliative for an old one due to his senility. On neglecting the treatment of kāsa dyspnoea, tuberculosis, vomiting, impairment of speech may develop. Therefore, it should be treated quickly.

इति श्रीवैद्यपतिसिंहगुप्तसूनुश्रीमद्वाग्भटविरचिता–
यामष्टाङ्गहृदयसंहितायां तृतीये निदानस्थाने
रक्तपित्तकासनिदानं नाम तृतीयोऽध्याय: ।।३।।

(Iti śrīvaidyapatisimhaguptasūnuśrīmad-vāgbhaṭa viracitāyāmaṣṭāṅgahṛdayasam-hitāyām tṛtīye nidānasthāne raktapitta-kāsanidānam nāma tṛtīyoऽdhyāya: ॥ 3 ॥)

Thus ends the 3rd chapter named Raktapittakā-sanidānam of Nidānasthānam of Aṣṭāṅgahṛda-yam written by Vāgbhaṭa, the son of Simhagupta.

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BIOLOGICAL AND THERAPEUTIC EFFECT OF *ALANGIUM SALVIFOLIUM* AND ITS ACTIVE CONSTITUENTS - A REVIEW

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Abstract: *Alangium salvifolium* (L.f.) Wang. [Cornaceae (Alangiaceae)], commonly known as ankol or sage-leaved alangium, is a native to tropical Australia, Madagascar, Western Africa, southern and western Pacific Ocean islands, Eastern Asia (China, Malaysia, Indonesia, India, and Philippines) and New Caledonia. In India, it is found throughout the Hyderabad forests and Sitamata wildlife sanctuary and Rajasthan. The leaves, root, root-bark, and seeds are used in traditional and folklore medicine. The present review is an effort to consolidate traditional, ethnobotanical, phytochemical and pharmacological information available on *Alangium salvifolium*.

Introduction

Alangium salvifolium (Alangiaceae) is one of the most valuable drugs in traditional system of medicine from ancient time. The genus contains of 17 species of small trees, shrubs and lianas. It has common names such as sage-leaved alangium (English), akar-kanta (Ben.), ankol, onkola, ankola (Guj.), aṅkol, akda, dhera (Hind.), ankolimara, ansaroli, arinjil (Kan), aṅkolam, azhiññil, iriñjil (Mal.), alangi, ankolum (Tam) and ankolamu, udagu (Tel.)

Habit and habitat

Shrubs or trees; deciduous up to 20 m high; inflorescence sessile, often clusters of 4 to 8 flowers, usually fewer, sometimes only a solitary flower, densely rusty tomentose; flowers fragrant, cream-coloured; distributed over the plains and foothills throughout the greater part of India. (Fig 1a-c)

Traditional uses

The root bark is an antidote for several poisons. Rubbed in rice-water it is given with a little honey in diarrhea. It has a reputation in leprosy, syphilitic and other skin diseases; it is also useful in simple continued fever. Root in infusion or decoction is given with ghee for dog bites. It is also useful in worms, colic, inflammation, and poisonous bites including snake bite. Oil of the root bark is a useful for external application in acute rheumatism. Fruit is useful in burning of the body, consumption and hemorrhages. Root bark is alexiteric especially in cases of bites from rabid animals[1].

Ethnobotanical studies

The plant is used as an antidote to snake poison.[2] The bark is used as an antipyretic, in skin diseases[3], as a hypotensive[4], in insanity, epilepsy[5], jaundice, hepatitis[2], fever[6] and

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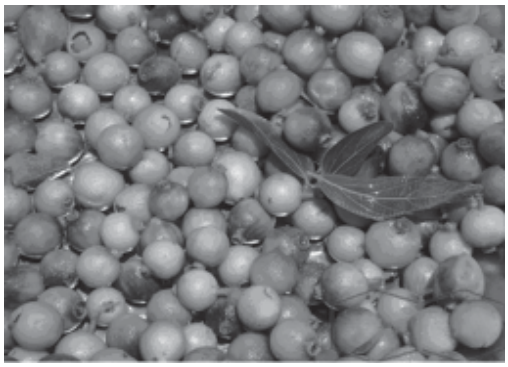

a

b

c

Fig. 1a-c : *Alangium salvifolium*
a Fruit; **b** Flower; **c** Leaf

asthma.[7] It is also used as a contraceptive and abortifacient.[8] The fruit find use in ophthalmic disorders[9,6] and as a tonic. The seeds are employed for application on defective limbs of children, in insanity, epilepsy[5], and paralysis. The leaves are antirheumatic[10], used in common fever, as eye drops to cure conjunctivitis and other ophthalmic disorders[11], as analgesic, for application on bone fracture[12]; as antidote to snake bite[13]; in elephantiasis and diarrhea[14]; as anti-diarrheal, antifungal and in malarial fever. The root is used as an anthelmentic, in fever, skin diseases and as a purgative[15], against rat and insect bites[16], in insanity, epilepsy, in cold and cough, as an expectorant[17]; in stomachache, as antidote to poisoning and snake bite, in rabies, jaundice and hepatitis.

Phytochemical studies

An alkaloid deoxytubulosine was isolated from the flowers reportedly showed a strong binding with DNA.[18] The fruits were found to contain the alkaloids viz., cephaeline, N-methylcephaeline (alamarckine), deoxytubulosine, alangiside and a sterol.[19] The seeds were reported to contain several alkaloids having various structural skeletons, including benzoquinolizine/ benzopyridoquinolozine skeleton. These were characterized as alamarckine[20]; emetin, cephaeline and psychotrin, alangamide, venoterpine, (±)-salsoline, isocephaeline, deoxytubulosine, alangimarine, alamarine, alangimaridine; alamaridine; isoalangimarine, isoalamarine, alangimerinone, dihydroalamarine and dihydroisoalamarine; isomeric alkaloids, 10-demethylprotoemetinol and 9-demethylprotoemetinol; a protoberberine alkaloid, bharatamine. The synthesis of 5-epialamaridine, isoalamaridine and its 5-epimer was also reported. Occurrence of a terpene, lacinilene C

was reported by Mukhopadhyay and associates (1987). The seeds were also reported to contain betulinic acid earlier considered to be a sterol, named alangol or alengol, betulinaldehyde, betulin, lupeol, hydroxylactone A of betulinic acid, ß-sitosterol, desoxybetulonic acid[21] and tannins, sugars, colouring mater.

The leaves were reported to contain several alkaloids, sterol and terpenoids. These were identified as ankorine; choline chloride; alangimarckine, deoxytubulosine; alangiside; stigmasta-5, 22,25, - trien3ß-ol and myristic acid and N-benzoylphenylalaninol In a preliminary study, the leaves were found to contain alkaloids and saponins.[22] The tannins were found to be absent. The stem bark revealed the presence of alkaloid tubulosine[23] reported isolation of the alkaloids viz. cephaeline, psychotrine, demethylcephaeline and desmethylpsychotrine. A new amorphous base AL60 reported by Dutta and Pakrashi (1960) was characterised as dimethylcephaeline along with a new benzoquinolizidine alkaloid, alancine and isoalamarine. The total non alkaloidal extract of the stem bark contained ß-sistosterol, stigmasterol, and a viscous oil.

The investigation of the root bark was done as early as in 1930. The questionable homogeneity, hardly reproducible isolation procedures, incomplete data and inconsistent naming of alkaloids resulted in lot of confusion. Several groups of workers reported isolation of alkaloids and provisionally designated them by the same or different names. These were alangine (mp 80-82^{0}C); alangine (mp 205-208^{0}C); alangine A, alangine B and alanginine; akharkantine, ankoline and lamarkine, five alkaloidal bases designated as B1 to B5. However, none of these could be characterised structurally. This was followed by the report on the presence of two alkaloids which were provisionally designated as alangine A and alangine B, both of which had elemental compositions different from those of the ones reported earlier. The structure of alangine A was established as 3-anisyl-2-piperidyl-n-propanol and was considered identical to alangine isolated by Chopra and Chowhan (1934). This structure was subsequently proved to be incorrect as DL-3-anisyl-2-piperidyl-n-propanol obtained by synthesis was found to be defferent from alangine A. Later on, emetine, cephaline and psychotrine were isolated from the root bark and the identity of alangine B isolated with cephaeline was suggested. (Fig. II)

The root bark was reported to yield ceryl alcohol and a light brown wax. The wax was found to be composed of non-saponifiable matter, myristic, palmitic, oleic, linoleic acids and resin acids. Myricyl alcohol, stigmastrol and ß-sitosterol were also detected.[24] The root contained the

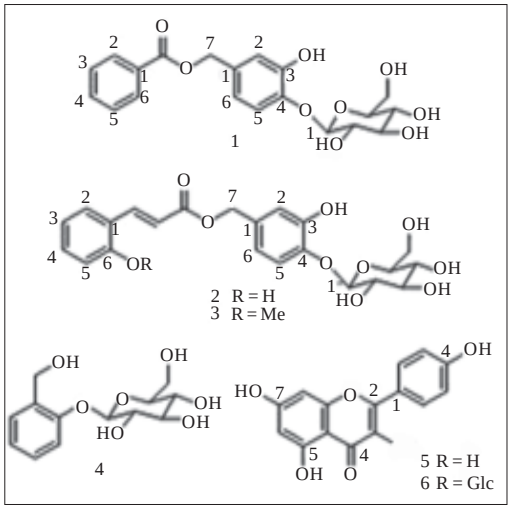

Fig. II. *Alangium salvifolium*
Chemical compounds

alkaloids cephaeline, tubulosine, psychotrine and alangiside.[25]

Pharmacological and biological studies

Alangium salvifolium (L.f.) Wang. is the only species used medicinally in India, China and Phillipines. The different parts of this plant are used different types of diseases. Root bark is an antidote for several poisons including rabies. Fruits are sweet and are used to treat burning sensation, constipation and hemorrhage. Stem barks exerts a biphasic action on the blood pressure in cats at lower doses and marked hypotension in higher doses. The leaves are used as poultice in rheumatism.

The plant has been reported for its anti-tubercular, anti-spasmodic and anti-cholinesterase activity. This plant has been used for rheumatism as externally by the local people of Vellore and Tirupattur districts in Tamilnadu. The root bark is anthelmentic, emetic, febrifuge, purgative and is used for the treatment of leprosy and other skin diseases.

The stem bark is used as externally for scabies, leprosy, etc. The medicated oil is used externally and internally with palm jaggery for syphilitic ulcers, scabies and gonorrhea. The seed oil is used internally with palm jaggery for leprosy. The seed oil is used as fuel also. The stem is used in vomiting and diarrhea.[26] The methanolic extract has been reported to possess antibacterial, analgesic and anti-inflammatory properties.[27] (Table 1).

Anti epileptic activity

Epilepsy is one of the most common brain diseases in human. About 1% of the population diagnosed with the disease. Several different types of human epilepsies have been characterised based on the classification of International League against Epilepsy (ILAE). According to this classification, epilepsy has been divided into partial epilepsy (simple and complex), generalised symptomatic epilepsy and unclassified epilepsy.

An imbalance between the excitatory and inhibitory neurotransmitters is responsible for seizures. At neuronal level, seizures activity often occurs when glutamatergic excitatory neurotransmitters overrides gamma amino-butyric acid (GABA) mediated inhibition. In the assessment of antiepileptic study, several models have been developed. Many drugs that increase the brain contents of GABA have exhibited the antiepileptic against seizures induced by MES induced seizures and PTZ induced seizures.

The MES is probably the best validated method for assessment of antiepileptic drugs in generalised tonic-clonic seizures. At the highest tested dose (500 mg/kg), ethanol extract was found to significantly decrease the duration of the hind limb tonic extensor phase whereas the lower dose (250 mg/kg) shown less effect against seizures. The extracts of leaves of *A. salvifolium* exhibited anticonvulsant activity by delaying the onset of PTZ induced seizures and protecting treated mice from mortality induced by seizures. Drugs protecting against tonic-clonic seizures induced by PTZ are considered as useful in controlling myoclonic and absence seizures in humans. The phytochemical study of extracts revealed the presence of alkaloids, tannins, triterpene and steroids. The phyto-chemicals such as tannins, triterpene and steroids were reported as active substances for anticonvulsant activity[28]. Hence, these phyto-chemicals might be contributing to the anticon-vulsant activity of AEAS and EEAS.

TABLE 1
Properties of various parts of *Alangium salvifolium*

Part	Type of extract	Activity	Active constituents
Leaves	Aqueous and ethanol	Anti epileptic	Alkaloids, tannins, triterpene and steroids
		Anti-inflammatory	
	Ethanolic	Wound healing	Alkaloids, phenoli compounds and flavonoids
Root	Aqueous and alcoholic	Antimicrobial and anti-oxidant	Phenolic compounds and flavanoids.
	Methanolic	Analgesic and anti-inflammatory	-
	Ethanolic	Hypoglycemic	Phytosterols, triterpenes, flavonoids, carbohydrates and alkaloids
	Aqueous and alcoholic	Anthelmentic	-
Root bark	Benzene and ethyl acetate	Diuretic	Flavonoids, alkaloids and steroids
Bark	Ethanol and aqueous	Anti diabetic	Alkaloids, steroids, triterpenoids and flavanoids
Stem bark	Petroleum ether, chloroform, ethyl acetate, methanol and water	Anti fertility	Alkaloids, steroids, saponin and flavonoids. Tannins and phenolic compounds were noticed only in methanolic extract.
	Petroleum ether, ethyl acetate, chloroform and methanol	Anti-arthritic	Alkaloids, steroids and tannins
Ground wood	Lyophilized aqueous	Anti fungal	Flavinoids, glycosides, alkaloids and saponins
Flowers		Cytotoxicity	ß-carboline bezoquinolizidine alkaloid, doxytubulosine (DTB)

Antimicrobial and anti-oxidant activity

Antibacterial activity:- The alcohol extract was higher than the aqueous extract in their inhibition zone diameter. These results indicated that most of the active constituents (responsible for exerting antibacterial action) in these plants are expected to be soluble in polar solvent. It authenticates that the entire tested microorganism are susceptible to alcohol extract and degree of susceptibility is given below in the decreasing order *S. dysenteries* >*S. aureus* > *E. aerogenes* > *S. typhi* > *E. coli* > *B. subtilis*. On the other hand, the susceptibility to aqueous extract is in the order: *E. aerogenes* > *S. typhi* > *S. dysenteries*. >*S. aureus*.[29]

Alcohol extract is effective against all tested microorganism except *E. coli*. On the other hand, aqueous extract is effective against gram $+^{ve}$ and gram $-^{ve}$ organisms. Alcohol extract is having comparable results with gentamycin against *E. aerogenes* and *S. typhi*. On the other hand, aqueous extract is having comparable against *S. dysenteries*.

The above result shows that the alcohol extract is most active extract with less MIC (0.034-0.263 mg/ml). Aqueous extract has high MIC than alcohol aqueous extract (0.130-0.520 mg/ml). All the strains were more susceptible to alcohol extract, our result indicate the presence of chemical compound in both extract with antibacterial activity against all strains comparable to Gentamycin.

In-vitro antioxidant activity:- In today's environment, hyper physiological burden of free radical causes imbalance in homeostatic phenomenon between oxidants and antioxidants in the body. The imbalance leads to oxidative stress that is being suggested as the root cause of aging and various human diseases like arteriosclerosis, stroke, diabetes, cancer and neurodegenerative diseases such as Alzheimer's and Parkinsonism. Thus free radical scavenging is very essential for preventing organ injury associated with shock, inflammation and ischemia or reperfusion. Therefore research in recent past have accumulated enormous evidence advocating enrichment of body system with antioxidants to correct vitiated homeostasis and prevent onset as well as treat the disease caused due to free radical and related oxidative stress. Stress, smoking, drugs and diet generates excessive free radicals in human body. Plants and plant products are known to possess excellent antioxidant properties and play a significant role in preventing the conditions due to the excessive free radicals. The results of absorbance and % inhibition showed decrease in the concentration of DPPH radical due to the scavenging ability of extract and standard ascorbic acid, as a reference standard.

In DPPH method, alcoholic extract of *A. salvifolium* (L.f.) Wang. root presented more activity than aqueous extract; 200 ìg/ml of alcohol, aqueous extracts and ascorbic acid exhibits 76.4, 62.4 and 88.6 % inhibition and the EC50 (ìg)-120.48, 135.14 and 96.15 ìg/ml, respectively.

In Nitric oxide method, alcohol extract of ASW roots presented more antioxidant activity than aqueous extract. Alcoholic extracts, Aqueous extract and Ascorbic acid exhibits 74.9%, 59.7% and 83.5%, inhibition and the EC50 (ìg)-308.80, 450.8 and 201.32 ìg/ml respectively.

The alcoholic extract exhibited more antioxidant activity with low EC50 value in these two methods. The phytochemical analysis indicated the presence of phenolic compounds and flavanoids in extract. Several such compounds

were known to possess antioxidant activity. Hence, the observed activity may be due to the presence of any of these constituents.[30, 31]

Anti diabetic effect

Phytochemical screening showed presence of alkaloids, steroids, triterpenoids and flavanoids. The acute toxicity study showed that test animals at fixed dose of 2000 mg/kg body weight level did not showed significant changes in behavior before and after the administration of an oral dose of extracts of bark of *Alangium salvifolium*. In acute toxicity, there was no mortality recorded in all the groups, i.e. Ethanol, and Aqueous extracts treated groups, at fixed dose of 2000 mg/kg body weight. The extracts of *Alangium salvifolium* bark extracts have shown significant ($P<0.01$) increase in glucose tolerance. The blood glucose levels were reduced considerably within 60 minutes of the drug administration. The ethanol and aqueous extracts reduced the glucose levels to normal. Maximum effect was observed for ethanol extract. These results indicate that the extracts which show significant activity, may have the capacity to block glucose absorption through the GIT, similar to acarbose and other molecules. In glucose loaded animals, the drug has reduced the blood glucose to the normal levels. It is possible that the drug may be acting by potentiating the pancreatic secretion or increasing the glucose uptake. Treatment of alloxan induced diabetic animals with standard drug (Metformin), ethanol and water extract of bark of plant *Alangium salvifolium* showed significant reduction in blood glucose level, increase body weight and impaired serum biochemical parameters as compared to diseased control group. *Alangium salvifolium* bark extracts significantly inhibited diabetes induced by alloxan. For ethanolic extract and metformin, the antidiabetic activity was significant ($P<0.01$) in all respect as compared to aqueous extract. Alloxan treatment causes permanent destruction of β- cells. It can therefore be said conclusively that the responses shown by various extracts exert their effect by extra pancreatic mechanism to normalise alloxan Induced hyperglycemia. This mechanism may be by affecting appropriate changes at the cellular levels by stimulating glucose reuptake and metabolism by specific cells.The ethanolic as well as the aqueous extracts showed significant ($P<0.01$) restoration of the body weight in diseased animals to normal level. Hypercholestrolemia, hypertriglyceridemia, hyperurea have been reported to occur in alloxan diabetic rats and a significant increased observed in our experiment was in accordance to these studies. Repeated administration of *Alangium salvifolium* extracts had decreased the blood glucose, urea, total cholesterol and triglycerides significantly whereas increased the HDL-cholesterol level. Serum SGOT, SGPT, ALP and Bilirubin levels were elevated significantly ($P<0.01$) in alloxan induced diabetes rats as compared to normal rats. In alloxan diabetic rats when treated with bark extracts of *Alangium salvifolium*, there was a significant ($P<0.01$) reduction in the elevated levels of SGOT, SGPT, ALP and Bilirubin levels. Increased urea and creatinine formation in the diabetic condition may be due to increased protein catabolism, which results in increased elimination of urea, nitrogen and creatinine. Administration of *Alangium salvifolium* bark extracts to diabetic rats reduced the elevated levels of urea and creatinine to normal, thus showing the normalising effect of extracts on the synthesis of urea and creatinine.

Phytochemical analysis was revealed that the major chemical constituents of the extract were alkaloids, flavonoids, steroids and phenolic compounds. Over 150 plant extract and some of this active principle including flavonoids are known to be used for the treatments of diabetes. On the basis of the above evidences it is possible that the presence of flavonoids and alkaloids are responsible for the observed antidiabetic activity. The possible mechanism by which bark brings about a decrease in blood sugar level may be by potentiation of the insulin effect of plasma by increasing either the pancreatic secretion of insulin from â cells of the islets of Langerhans or its release from the bound form. A number of other plants have been reported to exert hypoglycemic activity through insulin release-stimulatory effects. Ethanolic extract of *Alangium salvifolium* exhibited significant anti-hyperglycemic activities in alloxan induced diabetic rats. This extract has showed improvement in parameters like body weight, liver function and lipid profile by enhancing effect on cellular antioxidant defenses to protect against oxidative damage. The results of our study suggest the bark of *Alangium salvifolium* has beneficial effects on blood glucose levels, carbohydrate metabolising enzymes, and in protein metabolism (urea, creatinine, and bilirubin). Thus the claim made by the traditional practitioner of Indian system of medicine regarding the use of bark of this plant in the treatment of diabetes stands confirms. Further, pharmacological and biochemical investigations are in process to elucidate the exact mechanism of action.[32]

Anti fertility activity

The dried stem bark of *A. salvifolium* was pulverised into coarse powder and extracted in Soxhlet apparatus sucessively with petroleum ether, chloroform, ethylacetate, methanol and water. The phytoconstituents analysis of the extracts was carried out as per the standard procedures. Gross behavioral effects of the various extracts and antifertility activity were detemined in Swiss albino mice and Wistar strain albino rats respectively.

The phytochemical investigation of the various extracts of the stem bark of *A. salvifolium* showed the presence of alkaloids, steroids, saponin and flavonoids. Tannins and phenolic compounds were noticed only in methanolic extract. The percentage yield of aqueous extract was found to be 4.20 followed by methanol (3.10), ethyl acetate (1.10), chloroform (0.80) and petroleum ether (0.20) extracts. All the extracts of *A. salvifolium* at 250, 500 and 1000 mg/kg dose levels did not show any significant behavioural alterations and toxicity up to four hours. However, slight irritability was noticed in all the extracts treated mice. Ethyl acetate and aqueous extracts (500 and 1000 mg/kg) also showed hyperactivity in the initial hours and no mortality was observed up to 72 hours observation period. Daily administration of petroleum ether, ethyl acetate, chloroform, methanol or aqueous extracts of *A. salvifolium* for eight days starting from the first day of pregnancy showed significant abortifacient activity in comparison to vehicle treated group. Interestingly, except petroleum ether and ethyl acetate extracts, all the extracts showed no anti-implantation activity. Eight days of drug treatment lead to resorption of fertilized ovum as noticed by red spots in the horns of uterus. Among the extracts, chloroform extract was found to be least effective followed by petroleum ether extract. Methanol extract

showed total resorption sites in two animals. Aqueous and ethyl acetate extracts have also shown good activity. These results indicate that *A. salvifolium* produced mainly abortifacient activity and less antiimplantation activity. It indicates that the herbal drugs may have anti-progesterone effects. Mifepristone is a competitive inhibitor that acts both at progesterone and glucocorticoid receptors. It is a weak partial agonist with predominantly antagonistic activity to progesterone. It is widely used to terminate the pregnancy in earlier stage. The available data in the present study indicate that the ethyl acetate, chloroform and aqueous extracts may possess antiprogesterogenic activity. However, further experiments including oestrogenic evaluation are required to elucidate its mechanism of action.[9]

Anti-inflammatory activity

The total alkaloidal fraction of the leaves was administered orally in a dose of 10 mg/100g bw/ day to albino rats to study its anti-inflammatory effect using formalin-induced arthritis; ß-methasone was used for comparison. A significant increase in the inflammatory reaction was observed during the first 5 days and it reduced foot volume from the eleventh day onwards in formalin-induced arthritis. The drug was, however toxic, and 66.7 per cent of rats died during treatment. A reduction in food intake and faecal output of rats was observed after administration of the drug.[33, 34]

Anti fungal activity

The inhibitory effect of lyophilized aqueous extract of *A. salvifolium* ssp. *hexapetalum* on dermatophytes was not significantly different from that of the reference drug, ketoconazole, while the activity against *C. albicans* differed. In addition, lyophilized extract, up to 9 mg per test site, demonstrated no induction of dermal irritability in rabbits.

From the results, *A. salvifolium* ssp. *hexapetalum* showed no toxicity, its active components can be further developed into naturally based cosmetic, externally used products or even herbal drug for treatment of dermatomycotic infections.[35]

Analgesic and anti-inflammatory

Analgesic and anti-inflammatory activities of the methanolic extract of *Alangium salvifolium* roots has been studied in animal models. The methanolic extract showed significant dose dependent inhibition of Carrageenan-induced rat paw edema. The extract also produced marked analgesic activity.[29]

Diuretic activity

Benzene and ethyl acetate extracts of *Alangium salvifolium* ssp. *hexapetalum* were prepared by hot continuous extraction technique using Soxhlet apparatus. The preliminary phyto-chemical analysis showed the presence of flavonoids, alkaloids and steroids in both benzene and ethyl acetate extracts. All these extracts at 250 mg/kg showed increase in urine volume and also the concentration of Na+, K+ and Cl- in urine. From the present study, we concluded that the diuretic activity of *Alangium salvifolium* may be due to the presence of flavonoids in both the extracts.[36]

Hypoglycemic activity

A. salvifolium root extract was found to be nearly as potent, faster onset and significantly decreases the blood glucose when compared with standard tolbutamide drug. The evaluated blood glucose levels in alloxan induced diabetic rats were significantly decreased up to 24th compared to standard tolbutamide drug. The

study revealed that ethanolic extract of *A. salvifolium* roots were found to have hypoglycaemic and anti-hyperglycaemic actions in normal and diabetic rats, respectively.[37]

Wound healing activity

Ethanolic extract of *Alangium salvifolium* possesses a definite prohealing action. This is demonstrated by a significant increase in the rate of wound contraction and by enhanced epithelisation. Significant increase was also observed in skin breaking strength and hydroxyproline content which was a reflection of increased collagen levels that was further supported by histopathological evidence and gain in granuloma breaking strength. This indicated improved collagen maturation by increased cross-linking while an increase in dry granuloma weight indicated higher protein content. An increase in the levels of antioxidant enzymes (superoxide dismutase and catalase) was observed in granuloma tissue of dead space wound model. These enzymes are known to quench the superoxide radical and thus prevent the damage of cells caused by free radicals**.** Phytochemical screening revealed the presence of alkaloids, phenolic compounds and flavonoids. Flavonoids have been documented to possess potent antioxidant and free radical scavenging effect, which is believed to be one of the most important components of wound healing. Thus, the enhanced wound healing may be due to free radical scavenging action of the plant, and enhanced level of antioxidant enzymes in granuloma tissue. Better collagenation seen under the influence of this plant extract may because of improved antioxidant status.[38]

Anti arthritic activity

Preliminary phytochemical investigation revealed that pet. ether extract contains steroids, saponins and flavonoids; ethyl acetate extracts contains alkaloids, steroids, and flavonoids; chloroform extract contains alkaloids, steroids, and saponins; methanol extract contains alkaloids, steroids, tannins and saponins and aqueous extract contains alkaloids, steroids and saponins.

1. The LD_{50} values of all the extracts were found to be 1000 mg/kg and hence $1/10^{th}$ of the LD_{50} was used for pharmacological studies. All the extracts of *Alangium salvifolium* showed potent anti-arthritic activity and the potency of the activity follows the order standard > chloroform > ethyl acetate > aqueous > pet. ether > methanol, flavonoids, saponins, and
2. Steroids are reported to possess anti-inflammatory property; since these phytoconstituents are found in our extracts may have contributed for exhibited anti-arthritic activity by inhibiting the inflammation due to the Fruends adjuant (inflammogen).[39]

Cytotoxicity

ß-carboline bezoquinolizidine alkaloid, deoxytubulosine (DTB) isolated from flowers was evaluated and assessed for its biochemical and biological activity employing the biomaker dihydrofolate reductase (DHFR) (5, 6, 7, 8-tetrahydrofolate: $NADP^+$ oxidoreductase, EC 1.5.13) isolated from *Lactobacillus liechmannii* as the probe enzyme, a key target in cancer chemotherapy. The alkaloid exhibited potent cytotoxicity. It potently inhibited the cell growth of *Lactobacillus leichmannii* and the cellular enzyme activity of DHFR (IC50=40 &30 µM for the cell growth and enzyme inhibitions, respectively). DTB concentration > 75 µM

resulted in a total loss of DHFR activity suggesting it to be a potential antitumor agent. It also had a potential antimicrobial activity. DTB binding to DHFR appeared to be slow and reversible.[40]

Further, deoxytubulosine inhibited the thymidylate synthase (TS) (5, 10- methylenetetrahydrofolate: DUMPC - methyltransferase, EC 2.1.1.45) a key target enzyme purified from *Lactobacillus leichmannii*. Cytotoxicity studies revealed that the cell growth of *Lactobacillus leichmannii* was inhibited (IC50=40-45 µM), the concentration>80 µM resulting in the complete loss of the enzyme activity. The K1 value of the enzyme was found to be 7×10^{-6} M. the alkaloid inhibited (IC50=50 µM) the elevated TS activity of leukocytes in clinically diagnosed cancer patients, chronic myelocytic leukaemia, acute lymphocytic leukaemia & metastatic solid tumours.[41]

Anthelmintic activity

Anthelmintic activity of the aqueous and alcoholic extracts of root of *Alangium salvifolium* ssp. *hexapetalum* were evaluated on adult earthworm, *Pheritima posthuma* (Indian variety) *in vitro*. The alcoholic extract was found to be less effective than the aqueous extract and the activity was comparable with the reference drug, piperazine citrate.[42,43]

Conclusion

A. salvifolium is a biologically active plant and therefore lot of work has been conducted on the extracts and active principle of the various parts of this plant. The pharmacological studies have shown that *A. salvifolium* possesses a number of biological activities such as anti-inflammatory, anti-fertility, antifungal, anti-diabetic, hypoglycemic, anthelmentic, anti epileptic, antimicrobial, anti-oxidant activity, anti- arthritic, diuretic etc. This review will help to conduct clinical trials on above mentioned activities and also to develop herbal drugs by pharmaceutical industries.

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ĀRAGVADHĀDI LEPA IN THE MANAGEMENT OF VICARCIKA (ECZEMA) - AN OPEN STUDY

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Abstract: Eczema (vicarcika) is one of the common inflammatory dermatoses. It is a type of dermatitis and the terms 'atopic eczema' or 'atopic dermatitis' are often used synonymously. Presently, the potent topical or systemic corticosteroids and antihistaminics are the mainstay in this condition. However, they have serious adverse effects and limitations in a long term therapy. Immuno-suppressant drugs like Cyclosporine, Azathioprine and Tacrolimus, which are costly and have low benefit risk, are used in severe cases. A number of indigenous drugs have claimed to be effective in the treatment of vicarcika but their claims have not been substantiated in controlled clinical trials. In this context, the efficacy of Āragvadhādi lepa (prepared according to the text - Ch. Su. 3/17) was evaluated in 24 patients in a clinical study conducted at the Kayachikitsa OPD/IPD of Sir Sunder Lal Hospital (Indian Medicine wing), IMS, BHU, Varanasi and the result was found to be very satisfactory.

Introduction

Skin diseases are included in āyurvedic texts under the heading of kuṣṭha and a clear-cut description of the disease vicarcika is available[1&2]. Vicarcika, to a great extent, resembles eczema.

The term 'dermatitis' is used as a synonym of eczema by most of the dermatologists[3]. These are a kind of noncontagious inflammation of the skin characterised by erythema, scaling, oedema, vesiculation and oozing. Eczema is a reaction pattern that is presented with variable clinical and common histological findings of spongiosis (intercellular edema of the epidermis)[4]. Eczema is not a disease in itself, but comprises of a group of skin disorders exhibiting a common pattern of histological and clinical findings which vary depending on the stage of the disease[5]. Primary lesions may include erythematous macules, papules and vesicles, which can coalesce to form patches and plaques. In severe eczema, secondary lesions from infection or excoriation, marked by weeping and crusting, may predominate. In chronic eczematous conditions, lichenification (cutaneous hypertrophy and accentuation of normal skin markings) may alter the characteristic appearance of eczema[6].

Materials and methods

A total of 24 vicarcika patients were randomly selected regardless of age, sex, occupation and socio-economic conditions from the Kāyacikitsa OPD and IPD of Sir Sunder Lal Hospital,

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Diagnosis criteria

- Classical signs and symptoms of vicarcika.
- A special proforma was prepared by incorporating all the signs and symptoms of vicarcika as well as the duṣti lakṣaṇas of doṣa, dūṣya, srotas and agni. On the basis of the proforma, all the patients were examined in detail.

Inclusion criteria

- Patients between 20-70 years of age
- Those having clinical signs and symptoms of eczema
- Patients with the complaint above 5 years

Exclusion criteria

- Patients below the age of 20 and above 70.
- Patients with the illness for less than 5 years
- Patients with long term steroid and cytotoxic treatment

Drug and application

The trial drug was prepared according to the text (Ch. Su. 3/17)[7] in a paste form out of āragvadha (*Cassia fistula*), karavīra patra (*Nerium indicum*) and kākamāci (*Solanum nigrum*) mixed with takra. The paste was applied on the affected area after applying mustard oil. It was washed with lukewarm water on drying. The procedure was repeated daily for 15 days.

Assessment criteria

Details of scores adopted based on the main signs and symptoms in this study are shown in Table 1. The following criteria were evolved to assess the total effect of the therapy.

- Complete remission: Complete relief in signs and symptoms of vicarcika.
- Marked improvement: More than 75% improvement in the signs and symptoms.

TABLE 1
Scoring criteria

Sign & symptoms	Gradation
1. Kaṇḍu (pruritis)	
- No itching	0
- Mild, not disturbing normal activity	1
- Occasional, disturbs normal activity	2
- Continuous, even disturbing sleep	3
2. Dāha (burning)	
- No burning sensation	0
- Mild, not disturbing normal activity	1
- Occasional, disturbing normal activity	2
- Continuous, even disturbing sleep	3
3. Śrava (oozing)	
- No discharge	0
- Occasional discharge after itching	1
- Occasional oozing without itching	2
- Excessive oozing making clothes wet	3
4. Rākṣata (dryness)	
- No dryness	0
- Dryness with rough skin (ruksa)	1
- Dryness with scaling (khara)	2
- Dryness with cracking (parusa)	3
5. Piḍikotpatti (eruption)	
- No eruption in the lesion	0
- Scanty eruptions in few lesions	1
- Scanty eruptions in half of the lesions	2
- All the lesions full of eruption	3
6. Vaivarṇyata (discolouration)	
- Nearly normal skin colour	0
- Brownish red discolouration	1
- Blackish red discolouration	2
- Blackish discolouration	3
7. Thickening of skin	
- No thickening	0
- Thickening but no criss-cross marking	1
- Thickening with criss-cross marking	2
- Severe lichanification	3
8. Sleep	
- Sound sleep	0
- Some times disturbed due to vicarcika	1
- Often disturbed	2
- Unable to sleep more than 3-4 hr./day	3
9. Śotha (edema)	
- No edema	0
- Present in <25% of the area	1
- Present in 25-50% of the area	2
- Present in 50-75% of the area	3
- Present in >75% of the area	4

- Moderate improvement: Improvement between 50% to 75% in signs and symptoms
- Minor improvement: Improvement between 25% to 50% in signs and symptoms
- No improvement: No change or less than 25% improvement in signs and symptoms

Observation and results

Significant reduction was observed in almost all the signs and symptoms of vicarcika (Table 2) which corroborates the anti-inflammatory, antibiotic, steroidal and cytotoxic activities of the trial drug. Patients who were having chronicity of more than 3 years did not show marked improvement. The overall effect of the therapy is shown in Table 3.

Discussion

Āragvadhādi lepa is kuṣṭhaghna[7] in action. Its ingredients viz. āragvadha, karavīra and kākamaci possess tikta and kaṣāya rasas hence it acts as vṛaṇaśodhaka and vṛaṇaropana[8]. Āragvadha is a well known drug indicated in kuṣṭha and kaṇḍu[9,11] It is also described as vedanahara, śothahara and dāhaśamaka[10]. Āragvadha prevents secondary infection because of its antibacterial and antifungal action[12-15]. Also, it has antiparasitic[16], anti-inflammatory and antipyretic activities[17].

TABLE 3
Overall effect of the trial

Result	Stage		
	FU 1	FU 2	FU 3
1. Complete remission	0 (00%)	4 (16.6%)	9 (37.5%)
2. Major improvement	2 (8.3%)	8 (33.3%)	8 (33.3%)
3. Moderate improvement	10 (41.6%)	6 (25%)	4 (16.6%)
4. Minor improvement	9 (37.5%)	4 (16.6%)	2 (8.3%)
5. Unchanged	3 (12.5%)	2 (8.3%)	1 (4.2%)

FU - Follow ups

Karvīra is also a well known drug as kuṣṭhahara[8,9,11], vṛaṇahara[12] and kaṇḍughna[10]. It has antibacterial activity[18] and is scientifically proved to have steroidal, antiinflamatory and cytotoxic activities[19]. Kākamāci is also described as kuṣṭhaghna[9,10], kaṇḍughna[11,12] and rasāyana[8]. It has cytotoxic activity[20] and steroidal effect[21].

Conclusion

Āragvadhādi lepa is very effective in vicarcika (eczema). It improves most of the symptoms viz. kaṇḍu (itching), śrava (oozing), piḍikotpatti (eruption), rūkṣata (dryness), thickening of skin, vaivaraṇyata (discolouration) and dāha (burning).

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TABLE 2
Effect of the test drug on the sign & symptoms of vicarcika (n=24)

Sign & symptoms	Grade	BT No. (%)	FU* 1 No. (%)	FU* 2 No. (%)	FU* 3 No. (%)	Group comparison (Friedman $\chi 2$ test)
1. Kaṇḍu (pruritis)	0	0 (00)	4 (16.6)	10 (41.6)	20 (83.3)	$\chi 2 = 33.2$; $p<0.0001$
	1	3 (12.5)	6 (25)	6 (25)	2 (8.3)	
	2	7 (29.1)	9 (37.5)	6 (25)	1 (4.2)	
	3	14 (58.3)	5 (20.8)	2 (8.3)	1 (4.2)	
2. Dāha (burning)	0	4 (16.6)	8 (33.3)	14 (58.3)	18 (75)	$\chi 2 = 25.6$; $p<0.0001$
	1	6 (25)	8 (33.3)	6 (25)	4 (16.6)	
	2	5 (20.8)	4 (16.6)	2 (8.3)	1 (4.2)	
	3	9 (37.5)	4 (16.6)	2 (8.3)	1 (4.2)	
3. Śrava (oozing)	0	6 (25)	9 (37.5)	15 (62.5)	21 (87.5)	$\chi 2 = 52.2$; $p<0.0001$
	1	7 (29.1)	9 (37.5)	7 (29.1)	3 (12.5)	
	2	7 (29.1)	3 (12.5)	2 (8.3)	0 (00)	
	3	4 (16.6)	3 (12.5)	0 (00)	0 (00)	
4. Rūkṣata (dryness)	0	0 (00)	6 (25)	10 (41.6)	18 (75)	$\chi 2 = 41.2$; $p<0.0001$
	1	6 (25)	10 (41.6)	8 (33.3)	4 (16.6)	
	2	12 (50)	6 (25)	6 (25)	2 (8.3)	
	3	6 (25)	2 (8.3)	0 (00)	0 (00)	
5. Piḍikotpatti (eruption)	0	2 (8.3)	6 (25)	13 (54)	20 (83)	$\chi 2 = 56.8$; $p<0.0001$
	1	6 (25)	10 (41.6)	7 (29.1)	3 (12.5)	
	2	10 (41.6)	4 (16.6)	3 (12.5)	1 (4.2)	
	3	6 (25)	4 (16.6)	1 (4.2)	0 (00)	
6. Vaivarṇyata (discolouration)	0	0 (00)	2 (8.3)	6 (25)	17 (70.8)	$\chi 2 = 32.4$; $p<0.0001$
	1	7 (29.1)	10 (41.6)	9 (37.5)	6 (25)	
	2	10 (41.6)	7 (29.1)	7 (29.1)	2 (8.3)	
	3	7 (29.1)	5 (20.8)	2 (8.3)	2 (8.3)	
7. Thickening of skin	0	1 (4.2)	4 (16.6)	10 (41.6)	20 (83)	$\chi 2 = 63.3$; $p<0.0001$
	1	5 (20.8)	6 (25)	8 (33.3)	3 (12.5)	
	2	8 (33.3)	10 (41.6)	5 (20.8)	1 (4.2)	
	3	10 (41.6)	4 (16.6)	1 (4.2)	0 (00)	
8. Śotha (edema)	0	2 (8.3)	6 (25)	12 (50)	21 (87.5)	$\chi 2 = 46.8$; $p<0.0001$
	1	6 (25)	8 (33.3)	8 (33.3)	3 (12.5)	
	2	8 (33.3)	6 (25)	2 (8.3)	0 (00)	
	3	8 (33.3)	4 (16.6)	2 (8.3)	0 (00)	

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HERB-DRUG INTERACTION - AN OVERVIEW

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Abstract: Pharmacotherapeutics is a complex topic as a drug does several types of action at different levels inside the body. Pharmacological action of a chemical compound may be easy to distinguish but it is not so in the case of a herbal compound. Unknowingly uses of organic and inorganic compounds together may produce some negative interactions and can put a patient at risk. Interaction between a herbal or a synthetic compound is called Herb-Drug Interactions. This article is a review of available literature with some clinical experiences regarding this topic.

Introduction

In recent years, organic herbs have become popular especially in western countries. The term organic implies that such herbs are naturally grown. Herbal medicines are believed to be free from side effects. This fact is not always true as we are recognising this under pharmaco-vigilance, when it is used with other treatment modality. Human body is very complex in nature. The effect, reaction or response to herbs may vary from person to person. So, it is very difficult to predict all interactions prior to the prescription. The word 'herb' means natural medicine and the word 'drug' means inorganic medicine in general. Nowadays the separating line between these two treatment modalities has been blurred. Patients are taking more than one treatment modality for their ailments. Although many interactions are likely to be negligible, long term concomitant use raises the potential of negative interactions. In some cases, it is very difficult to say that out of herb and drug, which is causing harm to the patient. So a keen observation of physician is needed during concomitant use of more than two therapies.

Definition

When therapies are used together they can interact in the body, causing changes in the mode of action of herb or drug. These types of changes are called Herb-Drug interactions. They may be beneficial or harmful to the patient depending on the type of interaction.

Importance

Herb-Drug interaction can influence health and effectiveness of the therapy. Some therapies increase the side effect of the Drug, possibly leading to toxicity while some act in reverse manner and may result in failure of treatment. Modification of action and enhancement of therapeutic effect can alter the expected results. Likewise, multi-pharmacy can change the way your body reacts to the therapy.

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Levels of interaction

It is divided into two: i) Pharmacokinetic and Pharmacodynamics. Pharmacokinetic interaction refers to the fluctuation in bioavailability of herb or drug in the body as a result of changes in absorption, distribution, metabolism and elimination.

Absorption

Absorption is the physical passage of herb or drug from outside to inside the body. Drugs such as Colestid, Sucralfate (antacids) may bind to certain herbs, forming an insoluble complex and decreases absorption of both substances. Some drugs may change the pH of the stomach such as antacids. Omeprazole, Ranitidine like drugs may inhibit the stomach acid; subsequently herb may not be broken down properly. Drugs which affect GI motility may affect absorption of the herb. Slow peristaltic movement causes Herb to remain in the intestine for a longer time. Likewise increased motility decreases the absorption.

Distribution

In the second step of pharmacokinetics herbs need to be taken to the affected area to exert their effect. Interaction occurs during the distribution phase if the drug has a narrow range of safety index and highly protein bound. It means they can make a complex with body protein or protein present in the herb. The anti-coagulant medicine warfarin is having both the characters, so it interacts with various drugs, herbs, food items, vitamins, etc. via different mechanisms.

Metabolism

Most of herbs and drugs are metabolised by the liver. The rate at which the liver metabolises these herbs and drugs is determined by the length of time they stay active in the body. If liver is induced to speed up, herbs and drugs would be inactivated in a faster pace, and the overall effectiveness of ingested substance will be lower. The same thing may happen with opposite results, if liver functions altered by any synthetic drug. As an example Phenytoin, Carbamezapine, Rifampcin and Phenobarbitates induce to speed up liver while drugs like Flucanazole, Ketacanazole inhibits the liver metabolism of herbs. Such drugs may interact with medicated ghṛta preparations, additives of some kaṣāyas (decoction) and *Gandhatailam*, etc.

Elimination

The kidneys are responsible for the elimination of herbs or drugs from the body. Kidney damage would slower the rate of elimination leading to accumulation of the drug. Important examples of drugs which can damage the kidney include Methotrexate (anti rheumatic) and antibiotic like Tobramicine, Gentamicin, etc. An āyurvedic drug *Semecarpus anacardium* takes seven days for its elimination from the body. Drugs, which lower the rate of elimination, may increase the chance of cumulative toxicity of Semecarpus.

Pharmacodynamics

It refers to the study of how drugs actually behave inside the body. Pharmacodynamic interactions refer to the fluctuation in the bioavailability of ingested substances as a result of synergistic or antagonistic action between herb or drug molecules. Pharmacodynamic interactions are generally more difficult to predict and to prevent than pharmacokinetic interactions. Most of interactions are documented through case reports and clinical observations. Prevention is best achieved by

observing the patient closely for clinical response during follow-ups. Herbs having sympathomimic effect may interfere with anti hypertensive and anti-seizure drugs. The examples of herbs with sympathomimetic effect are *Ephedra vulgaris, Capsicum* species, *Glycyrrhiza glabra, Zingiber officinale,* etc. due to some chemical components found in these herbs.

Mechanism of interaction

Most of the current evidence of interactions involves metabolising enzymes and drug transporters. Drug interactions can involve enzymes such as Glutathion S-transferase and Uridine diphosphoglucoronyl transferase (UGTs). Most of Herb-Drug interactions are related to oxidative metabolism by the cytochrome P 450 system or by the effect of a herb on the efflux drug transporter P-glycoprotein. This drug transporter is a glycoprotein encoded by the MDRI (multi drug resistance) gene and functions as transmembrane efflux.

Examples of herb-drug interactions

Glycyrrhiza glabra decreases efficacy and increases the toxicity of diuretics while *Commiphora mukul* decreases efficacy of beta blocker and Calcium channel blockers. Ginkgo and Garlic enhances bleeding risks when administered with anti-coagulants. Simultaneous use of coconut water with potassium diuretics may enhance potassium level in the body, which can affect renal as well as cardiac rhythm. These effects are because of the synergistic or antagonistic action between Herb and drug. Some other documented interactions are reported when administered simultaneously (Table 1).

TABLE 1
Few examples of herb-drug interactions

Herb	Drug	Effect
Betal nut	Procyclidine	Decreases drug effect
Fenugreek	Anticoagulant	Increases bleeding risk
Garlic	Anticoagulant	Increases drug effect
Kava	Alprazolam	Increases drug effect
Papaya	Anticoagulant	Increases drug effect
Ginkgo	Haloperidol	Decreases drug effect
Indian-snakeroot	NSAIDs	Increases gastric-ulcer risk
Soya	Anticoagulant	Decreases drug effect

Discussion

Literary review reveals that many herbal products can interact with any other herb or synthetic drugs. Adulteration, inappropriate formulation and lack of understanding of plants are increasing the risk of Herb-Drug interactions. In most of the cases a patient is coming towards āyurveda after getting a primary treatment from modern science. There are two reasons behind looking towards āyurveda, one is complete cure and other to overcome side effect of other therapy. Now the ball comes to āyurvedic physician, who has to take precaution during prescription writing. Herbs reported to be interacting with drug or herb having same property of drug should not be given to the patient who is taking other medication. Physician should report even a single interaction or adverse effect to the center of pharmacovigilance. It is deep rooted belief that āyurvedic medicines have no side effects but the chemical compounds or extracts may interact with organic compounds. Āyurveda believes in use of plants as a whole and this may overcome the side effects of the chemical component of that plant. Most of the āyurvedic herb interactions are reported as allergy to particular

medicine and it may be due to over dose. Success of treatment depends upon physician, medicine, attender and patient. These four factors are called as *chatuspadam*. Herb interaction may occur not only due to the effect of medicine but due to other three factors also. Physician should take care about interaction because he is having the top most position among the four factors.

Conclusion

Documented evidence demonstrates that herbs can interact with prescribed medications and can put a patient at risk. Interactions may occur at different levels. The clinical importance of Herb-Drug interactions depends on many factors associated with the particular herb, drug and the patient. *In vitro* or animal experiments are not sufficient to prove interaction of herbal medicine. Randomised control trial has to be conducted to establish a relation between particular herb and drug. Pharmacists and other health care providers have an important role in preventing such interactions. In resume āyurvedic drugs are mostly safe to use but may produce synergistic and antagonistic action with other synthetic compounds.

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ĀYURVEDIC HERBS IN THE MANAGEMENT OF HEPATITIS B - A CLINICAL STUDY

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Abstract: Hepatitis B is an infection of the liver caused by the hepatitis B virus (HBV). In āyurveda, this condition is correlated with koṣṭhāsṛtakāmala and a large number of herbo-mineral formulations are indicated in its management. A clinical trial was conducted (during 2007-2009) on 45 patients of Hepatitis B at S.V. Ayurvedic College Hospital Tirupathi to evaluate the efficacy of a combination of āyurvedic herbs. The formulation was administered in powder-form (5g) for a period of six months. The result was so significant that after the treatment 32 subjects found negative; and the remaining 13 patients are under investigation.

Introduction

Hepatitis B virus is a major cause of morbidity and mortality world wide. Effective therapies against hepatitis B were first introduced in the mid-1980s when it became apparent that prolonged therapy with alpha interferon resulted in clearance of active HBV infection in 30-40% of treated patients were compared to only 10-12% of controls. However, its use can cause frequent and sometimes severe side effects which may tend to limit its use. Several antiviral and immuno-modulatory agents have been tested in combination in the management of acute and chronic hepatitis B. However, these early studies appeared to offer marginal benefit but others had no benefit whereas the others were not only non-beneficial but also proved to have additive toxicity. Liver is expected not only to perform physiological functions, but also to protect itself against the hazards of harmful medicines and chemicals. Hepatocellular damage is because of various viruses, bacterial toxins and hepatotoxic chemicals. There is no rational treatment available in western medicine as such for the cure of these diseases.

Āyurveda considers this condition as 'koṣṭhā-sṛtakāmala' and recommends a large number of herbal and herbo-mineral preparations in its management. Medicinal plants like kaṭuki (*Picrorhiza kurrooa*), āmalaki (*Phyllanthus emblica*), bhṛṅgarāja (*Eclipta prostrata*), kāḷamegh (*Andrographis paniculata*), etc. are indicated in this condition.

Why āyurveda in the management of hepatitis B? There is no safe drug that specifically acts against hepatitis viruses and protects from

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damage and stimulates liver functions and helps in hepatic regeneration. The use of available antiviral drugs like Ara-A, Ara-AMP, foscarnet, ribaverin and others have not yielded desired success. Only interferons (alpha, beta and gamma) have shown some beneficial results. However, the prohibitive cost, prolonged treatment and side effects have restricted their use. Hence, āyurveda has become an inevitable option in the management of Hepatitis B in the global scenario.

Clinical trials on this disease have been conducted in S.V. Ayurvedic College Hospital, Tirupathi for the past one decade. Significant effect of the āyurvedic compounds in reducing the serum liver enzyme levels and sero conversion from HBs Ag and HBeAg to negative have been noticed. Here, an attempt has been made to brief the clinical effects of an āyurvedic compound on hepatitis B. The study was conducted during 2007-2009.

Materials and methods

A total 45 patients with Hepatitis 'B' were selected from the OP Department of Salya, S.V. Ayurvedic College Hospital, Tirupathi, A.P (India).

Drug: - Finely powdered a) bhūmyāmlaki (*Phyllanthus amarus*) - 5 parts; b) kāḷamegha (*Andrographis paniculata*) - 4 parts; c) punarnava (*Boerhavia diffusa*) - 3 parts; d) bhṛṅgarāja (*Eclipta prostrata*) - 2 parts and e) kaṭuki (*Picrorhiza kurrooa*) - 1 part.

Dose and duration: - The above compound in the powder form was given to all the selected patients in 5 gram schedule thrice a day for one month, twice a day for another three months and one dose for the remaining months of the course.

Observation and result

Of the 45 cases, majority was male between the age group of 30-39 years (Table 1). The compound drug opted for the study was very effective. Marked improvement was seen in almost all the signs and symptoms as well as in biochemical values (Table 2). 32 patients were found to be negative with serum Australian antigen negative and the remaining 13 patients

TABLE 1
Distribution of patients accodring to age and sex

Age group	Male	Female	Total	%
10-19	2	-	2	4.4
20-29	9	2	11	24.4
30-39	16	3	19	42.2
40-49	7	4	11	24.4
50-59	2	-	2	4.4
60 above	-	-	-	-

TABLE 2
Sign/symptoms and biochemical values (n=45)

Prameters	BT		AT	
	No.	%	No.	%
1. Symptoms				
- Loss of appetite	8	17.7	1	2.2
- Jaundice	3	6.6	-	-
- Hepatomegaly	1	2.2	1	2.2
- Pain abdomen	1	2.2	-	-
- Ascitis	1	2.2	-	-
- Diarrhoea	-	-	-	-
- Splenomegaly	-	-	-	-
- Fever	1	2.2	-	-
- General weakness	28	62.2	2	4.4
2. Bio-chemical values				
- S. Bilurubin	5	11.1	1	2.2
- SGOT	6	13.3	1	2.2
- SGPT	6	13.3	1	2.2

are under further clinical assay. During the entire treatment period, 22 cases were cured in the 3rd month itself (Table 3).

TABLE 3
No. of cases cured in different duration (n=45)

Month					
1st	2nd	3rd	4th	5th	6th
-	-	22	6	3	1

Reaction: - There were no other adverse reactions but for severe gastric irritation and diarrhoea in two patients. Another patient had some allergic rashes on the body and the same was controlled by reducing the dose of medicines for few days.

Mode of action of the compound: - Possible mode of actions of the compound can be classified into two i.e. hepato protection and antiviral, which weakens the Hepatitis B virus and thus makes human sero-negative.

Hepato protective

- Liver protection can reduce the impact of viral hepatitis without necessarily reducing the viral load or the immune response to the virus. The compound appears to possess this property.
- The ability of the virus to infect new cells may also be impeded by these compounds. Liver protection appears to be conferred by several processes including antioxidant activity, stimulating bile production and release, and inhibiting inflammation and fibrinogenesis.

Anti-viral

- The ability to inhibit viral activity by promoting the production of interferon or other immune responses to viruses (including both cell-mediated and antibody responses to infected cells), or by blocking some step in viral replication, such as reverse transcriptase.

Discussion

Why *Phyllanthus amarus* is a must in all the combinations? It can be seen that two medicinal plants, *Phyllanthus amarus* L. and *Eclipta prostrata*, have been used for treatment of clinical jaundice in all Indian medicine systems. With the help of Timothy Sheppard of Oxford University, a review of literature on ethnobotany was carried out to identify plants which had been used for the treatment of jaundice and other liver disorders. Of nearly 1000 plants or more in the global regions, *Phyllanthus* species was prominent in this list and was frequently used in India, China, Myanmar, Pakistan, Philippines, Guam, West Indies and other countries. It was therefore, decided upon to work on *Phyllanthus* species documented in Indian medicine which has now been identified as *Phyllanthus amarus* (Grady Webster, University of California, Davis, CA).

Goerge Holen, CSIRO, Clayton, Vic., Australia, partially list the components list of *P. amarus* and its chemical structure are as follows: Querrcetin, Quercirtin: iso-Quercitrin: Rutin: Kaempherol-4-hamnopyranoside: Eridicryol-rhamnopyranoside: fisertin-4-Q-glucoside and 5,6,,4-Tetrahydroxy-8-3-Methyl-but-2-enyl 5-0-Mutinoside (Nirurin). Phyllanthin: Hypophyllanthin: Nirtetranlin: Phyltertralin and Lintetralin. Lup- 20(29)-en-3B-olNorsecurinin: Securtinine: Ent-nursectirtanine: Methyynorsecurtrine and Geranin. Vit.C: Phthalic acid ester: fatty acid, Ellagic acid and Gallic acid.

Conclusion

Hepatitis B remains a significant public health problem in India and will continue to do so as long as commercial blood banks remain operational and until appropriate nationwide vaccination programs and other control measures are established. Records indicate that a disease corresponding to hepatitis B was known to Indian origin 1000 B.C ago. From the available records it is clear that none of these preparations have been analysed for their anti-viral properties against the viruses producing jaundice, safety of these preparations for human consumption both acute and chronic toxicity using *in-vitro* and *in-vivo* methods and assessment of the active principles from the whole drug by chemical characterisation procedures like nuclear magnetic procedures, X-ray defraction studies and others that are essential in establishing the facts. The present study indicates the effect of the āyurvedic combination in the management of Heapatitis B.

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SENILITY AND PALLIATIVE CARE

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Abstract: Ageing is a natural decaying process. The rate of decay is increased during vṛddhāvastha (later life-span) due to increased vāta-pitta (physiological entities) and decreased kapha, which decreases immunity of the person. All these factors are merged together and make aging a yāpya (palliative) condition. It has been given prime place among yāpya (palliative) diseases due to involvement of nature and time. So, aging can be managed only by pathyāhāra and vihāra (wholesome diet and activities) as well as drugs if necessary.

Introduction

"....vṛddho yāpyanam...." - It is a quotation from Carakasamhita (Sūtrasthānam, Chapter 25) in which various foremost factors, drugs and diets are described in different groups. Among the eternal principles, agrya (foremost or first line of preventive/treatment factors) is important and plays a crucial role in maintenance of health and treatment of diseases. Agrya principle is based on first line of factors related with prevention and treatment. It includes drugs, diets and other factors which are most important in that particular group. For instance, milk is excellent in the group of jīvanīyadravya (diet/ drugs which increase vitality). Another example is taking bath; this is excellent in the group of factors relieving fatigue. In this way, there is a total of 155 excellent factors described in various groups. These factors are preventive, curative and palliative in nature and play a very important role in the acquisition of dhātusāmya (homeostasis). According to '....vṛddho yāpyanam...', vṛddhāvastha (later period of life-span) is one among the group of yāpya (palliative) conditions. Therefore, vṛddhāvastha is a very important period of the lifespan that needs special attention. Yāpya (palliative) disease is a type of incurable disease and should be managed throughout the remaining life span. In this way vṛddhāvastha can be made pleasant and disease-free by following certain principles related with yāpya diseases.

Aims and objectives: - i) to elaborate the agrya principle; ii) to study aging as a yāpya condition and iii) to elaborate the principles of management of vṛddhāvastha (later period of life-span).

Concept of aging and senility (vṛddhāvastha)

Aging is a natural process. Old age should be regarded as a normal and inevitable biological phenomenon. From the physiological standpoint, aging is characterised by progressive constriction of the homeostatic reserve of every organ system. Ācārya Caraka divides the whole life-

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span into three parts, i.e. bālāvastha (early age), madhyāvastha (middle age) and vṛddhāvastha (later age). Aging starts at the time of conception and ends at death but the mode of aging is different at every stage of life, e.g. bālāvastha is characterised by growth and development, madhyāvastha is characterised by manifestation of all the bodily factors like strength, energy, power of understanding, etc. in their best form and vṛddhāvastha is characterised by decay and degeneration. According to modern medical science this decline and decay, often referred to as homeostenosis, is evident by the third decade and is gradual and progressive, although the rate and extent of decline vary. The decline of each organ system appears to occur independently of changes in other organ systems and is influenced by diet, environment and personal habits as well as by genetic factors. According to ācārya Caraka, the old age is the stage of diminution of dhātus (tissues), strength of sense organs, energy, manliness, valor, power of understanding, retention, memorising, speech and analysing facts. There is gradual diminution in the qualities of dhātus and dominance of vāta during this age.

"Samadoṣa: samāgnisca…" (Su. Sū. 15) - According to āyurveda, every variation from the ideal state of dhātusāmya, is termed as disease and these diseases have been classified in various ways. From the prognostic point of view, vṛddhāvastha is a yāpya disease and the basic causative factor behind it is kāla (time) and svabhāva (nature). In the words of Seneca also; "Old age is an incurable disease". It could not be stopped but can be modified; even premature aging can be prevented also as Sir James Sterling Ross commented: "You do not heal old age. You protect it; you promote it; you extend it".

Aging as a yāpya condition

Disease is considered as homeostatic disturbance in anatomy and physiology of body which results in painful experience. From the prognostic point of view diseases are classified into two categories, i.e. curable and incurable. Incurable diseases are further classified into two categories, i.e. yāpya (palliative) and pratyākheya (totally incurable). Yāpya diseases are manageable while pratyākheya diseases are totally incurable. Acārya Caraka has clearly mentioned the diagnostic characters of yāpya diseases as follows:

- The patient has survived for a certain period by following a wholesome regimen and has enjoyed a little relief; but even a slightest carelessness might instantaneously aggravate the condition.
- The disease has affected deep seated dhātu.
- The disease has involved a number of dhātu
- It affects the vital organs and joints
- It affects continuously for a long time
- It is caused by the vitiation of two doṣas

Aging is a phenomenon of decay and degeneration which leads to aggravation of vāyu. Vāyu is very important in the causation of pathological changes as its physiological margin is very narrow due to its specific properties like cala (mobility), āśu (fast), laghu (light), sūkṣma (subtle and minute) and rūkṣa (rough). Once vāyu is aggravated in the body, it aggravates rest of the doṣas and complications arise. This condition is not corrected by natural immunity of the body. Consequently pathology is caused in deep seated dhātus with complications and this stage is continuous and prolonged due to continuation process of aging.

Management of aging

Aging is manageable by the following principles

of palliative treatment mentioned in āyurveda.

1. As it is a stage of vāyu predominance, nourishment of dhātu and status of agni (power of digestion, metabolism and biotransformation) should be maintained by laghu (light) and santarpaka (nutritive) diet planning.
2. Light physical exercises like walking, simple yogic practices, etc. must be included in daily routine.
3. Dincarya (daily regimen) and ṛtucarya (seasonal regimen) must be followed strictly but should not include heavy meal and activities.
4. Sadvṛtta (personal and social ethics) and ācāra rasāyana (ethics having rasāyana properties) should be followed as far possible because they work as rasāyana (rejuvenative) therapy without taking any dravya (drugs/diet).
5. Rasāyana, vājikaraṇa (aphrodisiacs) and yāpanavasti (palliative enema) should be used regularly as they increase nutrition and rejuvenation of dhātu and thus maintain the normal condition of the body.
6. Do not utilise such a diet pattern and activities which tend to cause vāyu aggravation which cause degenerative changes.
7. Some processes related to mental concentration like prāṇāyāmam (yogic procedure related with respiration), dhyāna (meditation), worships, etc. should be included in daily routine.
8. Do not be frustrated that you are old and useless and that nobody is going to care you. If such condition persists, just live for yourself and enjoy the remaining life span.
9. If any disease persists, take appropriate and complete treatment. Do not be careless about your health.

Discussion and conclusion

Old age has been given prime place among palliative diseases as it is natural, time bound, continuous and characterised by aggravation of vāyu. All these characteristics lead to decay and degenerative changes and cannot be stopped. Therefore it has given prime place in yāpya group of diseases in agrya principle. Old age is susceptible to various types of diseases due to predominance of vāyu and decayed condition of dhātu. If a disease has been described, its treatment has also been described. Old age can be managed by simple modification in the routine of this life span according to principles of palliative treatment mentioned above. Carelessness in the management may lead to serious complications.

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MANAGEMENT OF HEEL-SPUR WITH SPECIAL REFERENCE TO VĀTAKAṆṬAKA - A CASE STUDY

R.V. Shettar and Pragati A. Katariya*

Abstract: Vātakaṇṭaka is very common and affecting normal routine work. A case with chronic vātakaṇṭaka managed successfully by iṣṭikāsveda along with agnikarma is reported here.

Introduction

There are many forms of foot pain, but heel pain can be one of the most troubling. The most common form of heel pain in people is known as 'heel spur' or 'calcaneum spur' and it is one of the most troublesome because it is very difficult to heal.

Heel spur is actually a type of bone growth that develops outside of the calcaneum bone where the plantar fascia ligament is attached. Spurs may form when the plantar fascia becomes inflamed causing calcification or bone growth. They are often described as having a small hook shape to them, which causes pain by irritating the surrounding soft tissue.

Middle aged, overweight, and athletic individuals are more prone to plantar problems. A recent study found that over 50 per cent of people who suffer from calcaneum spur are on their feet nearly all day.

Heel spurs usually develop gradually. Heel pain may only occur when taking the first steps after getting out of bed or when taking the first steps after sitting for a long period of time. If the plantar fascia ligament is not rested, the inflammation and heel pain will get worse. Other aggravating factors, such as repetitive stress of walking, standing, running or jumping, will contribute to the inflammation and pain.

Studies suggest that approximately 10% of the individuals who see a doctor for heel spur have the problem for more than a year. Heel spur can be correlated with vātakaṇṭaka in āyurveda[1] as having similarities in lakṣaṇas (symptoms). In this case, the following line of treatment has shown encouraging results:

The case and course of illness

A 40 year old female from North Karnataka was presented on 31st August, diagnosed as calcaneum spur based on X-ray report. The patient was having pain in and behind the heel of the left foot since 5 years. Along with pain there was inflammation. Patient was unable to walk properly and was putting more stress on the right heel to avoid the pain of left heel. Pain

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with stiffness was more in morning hours, and she was unable to walk for some time after waking up. Initially she had undergone allopathic as well as āyurvedic treatment but got only temporary relief. Later the patient approached to D.G.M.A.M.C. & Hospital, Gadag and got admitted.

Materials and method

Materials: Piṇḍataila for abhyaṇga, two moderate size pieces of iṣṭika (brick) of dark brown colour, supernatant water of boiled rice (1 litre), loha śalāka, Jātyādi taila, Mahāmañjiṣṭhādi ghanavaṭi and Kāñcanāra guggulu.

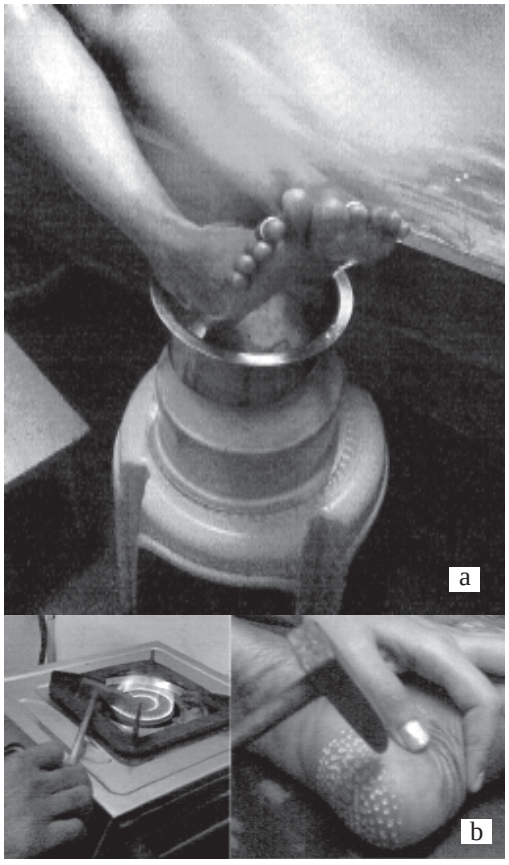

Fig.I. - **a** Iṣṭikāsveda; **b** Agnikarma

Piṇḍataila was used for sthānika abhyaṇga (for left foot concentrating more on the heel) for 20 minutes. After abhyaṇga, iṣṭikāsveda was done. Iṣṭika was heated on a moderate flame till red hot, and immediately it was kept in a vessel and prepared rice water poured over it. It yields hot fumes and the affected foot was held over it, till the iṣṭika became cold. (Fig. Ia) When iṣṭika became cold it was replaced by another red hot iṣṭika and thereby the temperature was maintained. The procedure was repeated till the appearance of samyaksvinnalakṣṇas. Abhyaṇga and iṣṭikāsveda were done for 7 days.

After 7days, agnikarma was followed on the 8th day with loha śalāka and made the signs of bindu all over the heel of left foot (Fig. Ib). After agnikarma, Jātyādi taila was applied on the same area.

During this procedure, the patient was taking Mahāmañjiṣṭādi ghanavaṭi (2 tab. twice a day, after meal with hot water) and Kāñcanāra guggulu (2 tab. twice a day, after meal with hot water).

Observation

After 7 days' treatment of abhyaṅga and iṣṭikāsveda, the patient got significant relief from inflammation, stiffness and pain, and after agnikarma, the patient got complete relief from pain. She was able to walk properly without much stress. X-ray was repeated after the treatment but did not show any significant change.

Discussion

Depending on the vyādhilakṣaṇas, the duṣṭi of vāta along with kapha, was considered here, and treatment was planned accordingly.

Piṇḍataila was selected for abhyaṅga as it is indicated in vātavyādhi[2]. Rūkṣasveda is specially indicated for kaphaja and vātakaphaja disorders[3]. Here, considering kaphānubandha

along with vāta, rūkṣasveda i.e. iṣṭikāsveda was selected. Also, rūkṣasveda helps to improve the kharatva of asthidhātu and gives strength to it. Snigdha (Piṇḍataila abhyaṅga) - rūkṣa (iṣṭikāsveda) - cikitsa was followed keeping in mind vāta as pradhānadoṣa along with anubandhi kapha.

Agnikarma played an important role in giving instant relief from pain and it is directly indicated for vātakaṇṭaka[4]. Internal medicines also have been selected, keeping in mind the doṣa-dūṣya involvement and clinical manifestation.

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EFFECT OF VAMANA, VIRECANA AND VASTI IN EKAKUṢṬHA WITH SPECIAL REFERENCE TO PSORIASIS - A PILOT STUDY

Paresh A. Katariya and Santosh N. Belavadi*

Abstract: Ekakuṣṭha is one of the kṣudrakuṣṭhas. Bhāvaprakāśa mentions that it is the prime among the kṣudrakuṣṭha, thus it is called ekakuṣṭha. Almost all symptoms are vāta-kapha predominant and even tridoṣa involvement, and for this, vamana, virecana and vasti, as the case may be, are indicated. The study was conducted to evaluate the efficacy of vamana, virecana and vasti in ekakuṣṭha. Highly significant result was found in group A (vamana and virecana) and marked improvement was seen in group B and C. It shows that āyurvedic modality of treatment gives very good result in ekakuṣṭha.

Introduction

The word kuṣṭha is a broad term, which covers almost all the skin diseases. Kuṣṭha is produced invariably by the vitiation of seven factors i.e. three doṣas and four dūṣyas[1]. Different types of pain, colour, shape, specific manifestation, etc. are found in kuṣṭha because of amśāmśa-kalpana of the doṣas. Accordingly, Caraka explains that kuṣṭhas are in fact of innumerable types[2]; for systemic study, they are classified into two major groups: 7 mahā kuṣṭhas and 11 kṣudra kuṣṭhas[3]. Ekakuṣṭha is one of the kṣudra kuṣṭhas. According to Bhāvaprakāśa, it is the prime among the kṣudra kuṣṭhas, hence it is called ekakuṣṭha[4].

Aims and objectives:- i) To assess and compare the efficacy of vamana, virecana and vasti in ekakuṣṭha.

Materials and methods

Three patients having classical signs and symptoms of ekakustha[5] (psoriasis) were selected from the O.P.D. of D.G.M.A.M.C. Gadag. A special performa including all the aetiological factors of kuṣṭha with duṣṭilakṣaṇas of doṣa, dūṣya and srotas were made for assessing all the patients. The patients were thoroughly questioned and examined on the basis of performa and clinical tests like Auspitz sign, Candle grease were carried out to confirm the diagnosis.

The patients were divided into three groups. In 1st patient (group A) vamana and virecana, in 2nd patient (group B) virecana and vasti, and in 3rd patient (group C) virecana were carried out.

Assessment criteria

The assessment of overall effect of the therapy

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was based on grading of signs and symptoms (Table 1). Accordingly, 76 - 100% was regarded as complete remission, 51-75% as marked improvement, 26-50% as mild improvement, below 25% as improvement and 0% as no change.

TABLE 1
Grading of sings & symptoms

Sign & Symptoms	Group A		Group B		Group C	
	BT	AT	BT	AT	BT	AT
Matsyaśala-kopamam	4	0	4	0	4	2
Rūkṣata	4	0	4	1	4	0
Asvedanam	4	3	4	3	4	2
Kaṇḍu	4	0	4	0	4	0

Observation

The patients were males in the age of 42, 54 and 60. They showed krūrakoṣṭha, disturbed sleep, and chronic condition (>1 year). The aggravating season was winter in all three patients. All the patients showed matsyaśalkopamam almost all over the body. Pravaraśudhi was noticed in patient of vamana and virecana administered group (A). Avaraśudhi was noticed in patient of virecanakarma administered in group (A & C).

Result

Group A showed most promising result than the other groups. However, other two groups also showed almost satisfactory results in ekakuṣṭha (Table 2 & 3)

Discussion

Ekakuṣṭha is very difficult to treat even though āyurvedic modality shows very good effect in this condition. Almost all symptoms are vāta-kapha predominant and even tridoṣa involved, and for this vamana, virecana and vasti can be used as per requirement. This disease requires repeated śodhana[6]. While doing these treatments, the strength of the patient and chances of getting other complications have also to be kept in mind[7].

Study design

Group-A: - i) Dīpana and pācana with Ārogyavardhini vaṭi (2 tabs) - tid, before food, for 3 days; ii) Snehapāna - Ārohaṇakrama snehapāna with Pañcatiktaguggulughṛta, starting from 30 ml continued till samyaksneha lakṣaṇas. Snehapāna was done for 7 days, up to 220 ml, by that samyaklakṣaṇas were seen and then mṛdusveda was done; Maricādi taila was used for abhyaṅga; iii) Vamana - Madanaphalādi yoga (madanaphala, pippali, vaca, saindhava and madhu), for ākaṇṭapānakṣīra was selected, and Yaṣṭīmadhu phanat was given after madanaphala yoga.

After 15 days, i) Dīpana and pācana with Ārogyavardhini (2 tab) tid, before food; ii)

TABLE 2
Effect of the therapies in percentage

Sign & Symptoms	Group A		Group B		Group C	
	BT	AT	BT	AT	BT	AT
Matsyaśala-kopamam	100	100	100	100	100	50
Rūkṣata	100	100	100	75	100	100
Asvedanam	100	25	100	25	100	50
Kaṇḍu	100	100	100	100	100	100

Values are in %

TABLE 3
Overall effect of the therapies

Sign & Symptoms	BT (%)	AT (%)
Matsyaśalakopamam	100	83.33
Rūkṣata	100	91.66
Asvedanam	100	33.33
Kaṇḍu	100	100

Snehapāna - Ārohaṇakramasnehapāna with Pañcatiktaguggulu ghṛta, starting from 30 ml to 120 ml, continued for 3 days, till appearance of samyaksnehalakṣaṇas followed by mṛdusveda was done; Maricādi taila was used for abhyaṅga. Virecana - Abhayādi modaka (1 tab) was given followed by śuṇṭhyādi śītajala for anupāna.

Group-B:- i) Dīpana and pācana with Ārogyavardhini vaṭi (2 tabs) - tid, before food, for 3 days; ii) Snehapāna - Ārohaṇakrama snehapāna with Pañcatiktaguggulu ghṛta, starting from 30 ml to 120 ml, continued for 3 days till samyak snehalakṣaṇas seen, followed by mṛdusveda and Maricādi taila was used for abhyaṅga; iii) Virecana - Trivṛtleha (30g), followed by uṣṇajala for anupāna; iv) Vasti - Paṭolādinirūhavasti (6)[8] and Paṭolādi anuvāsana vasti (10)[9] in kālavasti pattern.

Group-C: - i) Dīpana and pācana with Trikaṭu cūrṇa (6g) bd, before food; ii) Snehapāna - Ārohaṇakramasnehapāna with Pañcatiktaguggulu ghṛta, starting from 50 ml and continued for 3 days i.e. 100ml on the 2nd day and 150 ml on the 3rd day and sneha samyak lakṣaṇas were seen, followed by mṛdusveda and Maricādi taila was used for abhyaṅga; iii) Virecana - Abhayādi modaka (2 tab) was given, followed by śuṇṭhyādi śītajala for anupāna.

Conclusion

Ekakuṣṭha is kṣudrakuṣṭha, a vāta-kapha predominant or tridoṣic condition. It is very difficult to treat, even though so many modalities are explained for this disease[10]. In this study, virecana, vamana and vasti were tried in different conditions. (The disease aggravates in winter.) Almost all body parts were covered by matsyaśalklopamam in all the patients. Rasa, rakta, māmsa and svedavaha srotodusṭi were found mainly. Highly significant results were found in group A (vamana and virecana) and marked improvements were seen in group B & C. It shows the efficacy of overall āyurvedic modality of the treatment in ekakuṣṭha.

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VṚNDAMĀDHAVA - A REVIEW

K.J. Lavanya Lakshmi and K. Nishteswar*

Abstract: Siddhayoga written by Vṛnda in 9th century A.D. is considered as the first published treatise on treatment of diseases and it is popularly known as Vṛndamādhava. Some diseases mentioned by Vṛnda such as 'vardhma' (ch.40) and 'snāyuka' (ch.55) do not appear in Mādhavanidāna. In this work, different kinds of therapies needed in specific diseases are included as a part of treatment. Keeping this in view, a review was made to identify the novel inclusions of Vṛndamādhava.

In the history of āyurveda the Medieval period is considered as the golden period (i.e. 8th cen. A.D to 16th cen. AD) with the development of Indian Alchemy. During the Medieval period, scholars like Mādhavakara, Vṛndamādhava, Tisaṭācārya, Cakrapāṇidatta, Vaṅgasena, Śārṅgadhara, Bhāvamiśra, etc. have contributed to āyurveda through their works. Siddhayoga written by Vṛndamādhava is considered as the first published treatise on treatment of diseases by Vṛnda (9th century AD). In this work, Vṛnda has recorded not only single and simple herbal remedies but also several herbo-mineral formulations. He has mentioned that the treatise Siddhayoga was composed by himself after going through many a number of earlier treatises. Vṛnda has followed Mādhavakāra for the serial order of the chapters dealing with treatment of respective diseases and Cakrapāṇidatta has followed Vṛnda. On the basis of the above facts historians place Vṛnda somewhere around 9th Cent. A.D

The book Vṛndamādhava consists of about 5427 verses in all in 82 chapters. Among these 82 chapters, the first 68 are devoted to the treatment of various diseases and the next two chapters (69 and 70) for rasāyana and vājīkaraṇa respectively. Chapters 71 to 79 deal with different cleansing therapies (snehana, svedana, vamana, virecana, vasti, nirūha-vasti, dhūma, nasya and kavaḷa-gaṇḍūṣa). The 80th chapter contains ariṣṭas (signs of imminent death) and general svasthavṛtta is described in the 81st chapter. Qualities of the four pillars of treatment and weights and measures are described in the last i.e. 82nd chapter (Miśrakādhikāra).

Though the author says that the book was followed in the course of Mādhavanidāna, some variations can be found in the arrangement of chapters. Four new chapters i.e. Jvarātisāra, Pariṇāmaśūla, Anāha, and Śothodara, have been added. Small and independent chapters have been combined into one i.e. Yonikanda, Mūḍhagarbha, Sūtikaroga, Stanaroga and Stanyaroga into Strīroga and Śarīravraṇa into Vraṇaśotha. Some chapters like Bālagraharoga and Udāvartta have been given independent status. Some diseases viz. vardhma (ch. 40) and

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snāyuka (ch.55), mentioned by Vṛnda do not appear in Mādhavanidāna.

Every chapter (1-70) commences with a line of treatment, followed by description of formulae along with their ingredients, their proportion, mode of preparation and administration, dosage, actions and indications. Most of the chapters end with enumeration of wholesome and unwholesome foods and regimens. Preparation and properties of certain kinds of diets having medicinal value are mentioned.

Different kinds of therapies needed in specific diseases have been included as a part of treatment. For e.g., i) application of caustic alkalis (kṣārakarma), ii) cautery with fire (agni-karma), iii) surgical intervention (śastrakarma), iv) blood-letting (raktamokṣaṇa), v) wearing of amulets of potent herbs (oṣadhī-dhāraṇa), vi) wearing of precious stones (maṇidhāraṇa), vii) wearing of yantra (amulets/talismans), viii) chanting of sacred hymns (mantrajapa), ix) worship of gods (pūja, homa, etc.) and x) magical rites (bhūtabandha, pūjana, ucchāṭana, etc.)

Incorporation of some yogic methods such as prāṇāyāma (in the treatment of colic - 26/87), usahpāna and jalaneti (as rejuvenators) into āyurvedic literature has been done for the first time through this treatise besides the inclusion of kṣārasūtra (5/144) application in rectal fistula and śirobasti in diseases of the head.

Only herbal drugs are described for preparing various recipes. Metals other than loha and maṇḍūra are prescribed only for external use. Gold, silver, copper, lead, etc. are referred to for preparing pots, nozzles, rods for applying collyrium, etc. Mercury is described only once for external use (application of rasendra i.e. mercury along with dhāttura or tāmbūla leaves to eradicate lice - 7/15).

Some other descriptions are: i) use of pārasika yavāni for the treatment of helminths (VM 7/1); ii) cautery with fire on heels for the treatment of viṣūci (6/95); iii) tub bath for relief from burning sensation (19/14); iv) cautery with fire and venesection for the treatment of gṛdhrasi (22/77-80); v) śirobasti for the treatment of śirorogas (62/4–7); vi) oral administration of the water consecrated with Cyavana mantra, and showing of ubhayatrimśakayantra for easy delivery in obstructed labour (65/25–26); vii) test of kastūri for determining genuineness (22/266-267); viii) right stage of cooking of medicated fats - ghṛtapāka and tailapāka (1/479, 492-494); ix) procedure of guḍapāka (5/91–93); x) procedure of maṇḍūrapāka (27/43).

Conclusion

Mādhavanidāna enjoys the popularity in the field of āyurveda which is reflected in the adage 'nidāne mādhava śreṣṭha' (in the diagnostic medicine Madhāva's work Mādhavanidāna is an excellent work). Vṛnda who has added therapeutic descriptions to his work Vṛndamādhava gave completeness to Mādhava's work on Nidāna.

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APPLIED ASPECT OF KRIYĀKĀLA

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Abstract: Kriyākāla divides the phases of development of diseases into six different stages in relation to treatment. Now-a-days the concept of kriyākāla is not given due importance in the clinics. Methodical application of the concept of kriyākāla not only prevents the development of future diseases but also helps to treat a disease. This article deals with the application of the concept of kriyākāla in both prophylactic and curative aspects of a disease.

Introduction

Kriyākāla is a unique concept of āyurveda. The concept of kriyākāla can be applied to fulfill both the aims of āyurveda i.e. to maintain the health of a healthy individual and to cure a disease[1]. The term kriyākāla is composed of two words viz. kriya and kāla; kriya means treatment and kāla means time of administration of the treatment[2]. Thus kriyākāla deals with selection of proper therapy to be applied in the specific stage of a disease. As per āyurvedic classics the vitiated doṣas pass through six different stages during manifestation of a fully established disease and there are six different modalities of treatment available for each stage. These six different stages of development of a disease are collectively known as kriyākāla. The six stages are: i) sañcaya or the stage of accumulation of doṣas, ii) prakopa or the stage of aggravation or excitation of doṣas, iii) prasara or the stage of spread of aggravated doṣas, iv) sthānsamśraya or the stage of localisation of doṣas, v) vyakti or the stage of manifestation of a fully established disease and vi) bheda or the stage of development of complication[3]. If in the earlier stages the disease process is diagnosed and an appropriate therapy is applied then it does not proceed further and thus an upcoming disease can be prevented[4]. Applied aspect of the above six stages can be detailed as follows:

Sañcayāvastha

It is the first and most important stage of kriyākāla in relation to prophylaxis because identification of this stage can prevent so many diseases in future. As per āyurveda any disease is the outcome of vitiation of three bio-humors or tridoṣas namely vāta, pitta and kapha[5]. At sañcaya stage these doṣas begin to accumulate in excess in their normal locations[6]. Each doṣa during sañcaya gives some warning signs like fullness of abdomen and flatulence in case of vāta sañcaya, paleness of body in case of pitta sañcaya and lowered body temperature, heaviness of body and lassitude in case of kapha sañcaya[7]. These features are so non-specific that they are often ignored by the physicians.

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Often very simple readjustment of our diet and routine can counteract the effects of sañcaya of doṣas in our body. Intake of unctuous, hot and heavy diet, proper evacuation of bowels and good sleep can be applied during vāta sañcaya stage[8]. Intake of bitter, astringent and sweet diet, avoid intake of fried items and kṣāras like vinegar, soda, etc. can counteract the effects of pitta sañcaya[9]. Kapha sañcaya can be treated by intake of unctuous, hot and light diet, mild physical exercise and avoidance of day sleep[10]. Again, sañcaya of these doṣas take place due to the effects of different seasons on the body and this is inevitable[11]. In order to prevent this sañcaya one has to follow the seasonal regimens as described by the classics. As per āyurveda sañcaya of vāta, pitta and kapha take place in summer, rainy and winter seasons respectively. During summer, intake of less potent and dry diet, excess environmental dryness and temperature makes the body dry and light. These qualities within the body are responsible for vāta sañcaya[12]. So, during this season one has to take sweet, cold and unctuous foods like ghee, milk, sali rice, cold - demulcent - sweet drinks and one must avoid excessive exposure to hot and dry environment[13]. In rainy season the food, drinks and vegetables becomes less potent, immature and muddy. Again, the cold and humid wind during this time impairs the power of digestion. Thus the impaired power of digestion cannot digest the muddy, less potent and immature food and drinks and produce vidagdhata[14]. As a result there is pitta sañcaya. In order to avoid pitta sañcaya in rainy season one should take sour salty and unctuous foods and the foods that stimulate the power of digestion like meat or vegetable soup, barely, wheat, etc. And addition of honey to any kind of food or drinks is beneficial in this season[15]. In winter season the foods and vegetables become mature and heavy. Again, the cold wind during the season impairs the power of digestion and obviously the impaired agni cannot digest the foods properly and there is avidagdhata or increase of sweetness in the body[16]. This in turn produces kapha sañcaya. To avoid kapha sañcaya in the winter season, one must take hot, dry, pungent, bitter and astringent foods and he must avoid the intake of any cold items[17].

Prakopāvastha

In this stage the accumulated dosas get excited when exposed to some specific lifestyle related and environmental factors. The excited doṣas became ready to be spread all over the body[18]. The life style related factors that excite vāta doṣa are excessive physical and mental stress, trauma, long journey, use of pungent, astringent, bitter, dry and cold articles, use of dry vegetables or meat, irregular dietary habits, eating before the previous meal is digested, after digestion and suppression of normal evacuatory reflexes like micturation reflex, defecation reflex, etc. In rainy and cold seasons, cloudy days and last part of the day and night the vāta doṣa becomes normally excited[19]. Anger, grief, fear, indigestion, physical exercise, long journeys, use of pungent, sour, saltish, sharp, hot and light articles, while the food is in the process of digestion, excessive use of mustard oil, fish, meat of goat, alcohol, etc cause excitation of pitta doṣa. Again, in autumn season and in the midday and midnight pitta doṣa becomes automatically excited[20]. Kaphadoṣa gets excited due to day-sleeping, lack of physical exercise, intake of sweet, sour, saltish, cold, greasy, heavy, slimy articles and excessive use of milk and milk products, just after meal and intake of meal before the previous meal is digested. As per environmental factors, kapha

automatically gets excited in spring season and in the first part of day and night[21]. In this stage no specific features of a disease is manifested but the patient begins to feel sick[22]. Excitation of vāta doṣa produces pain in the abdomen and flatulence. Sour eructations, thirst, burning sensation in the body, etc. are produced due to excitation of pitta doṣa and excited kapha doṣa produces features like anorexia, nausea, etc[23].

In order to avoid harmful effects of prakopa, sañcayāvastha has to be considered first; because accumulation of doṣas in the body makes it more susceptible for prakopa. Elimination therapy in the form of pañcakarma is applied for the excitation of doṣas due to seasonal factors. In early rainy season the aggravated vātadoṣa is eliminated with the help of vastikarma and in autumn and spring season the excited pitta and kapha doṣas are being eliminated with the help of virecana and vamana karma respectively[24]. Avoidance of specific etiological factors for specific doṣa is an important prophylactic measure for prakopāvastha.

Prasarāvastha

If the prakopa stage is not controlled then the disease process precedes to its subsequent stage namely prasarāvastha or the stage of spreading of doṣas in the body. This stage is predominantly controlled by vāta doṣa. The two qualities of vāyu i.e. rajoguṇa (propelling force of all substances) and calaguṇa (motion) make the previously excited doṣas to spread over the whole body[25] and produce some clinical features specific to each doṣa. The clinical features of vātaprasara are antiperistalsis, distension of abdomen and borborygmi. Localised or generalised burning sensation, sucking type of pain and acid eructations are produced by spreading of pitta doṣa and anorexia, indigestion, lassitude, vomiting, etc. are produced by spreading of kapha in the body[26]. Sometimes, in prasara stage, the doṣas after spreading, stays in latent form within some particular channels of the body and remains there unless it finds an appropriate exciting cause for further vitiation[27].

Management in this stage of the disease does not depend on the doṣa that gets spread but it depends on the doṣa affected location or area. For example if vata doṣa in prasarāvastha comes to the location of pitta doṣa (like āmāśaya) then the treatment modalities of pitta doṣa should be applied to pacify the effects of prasarita vāta doṣa[28]. Again symptomatic management is also applied in this stage[29].

Sthānsamsrayāvastha

The spreading of aggravated doṣas if not controlled then they become localised in a particular part of the body and produce prodormal feature of a specific disease[30]. This stage is termed as sthānasamsrayāvastha or the stage of specific localisation of doṣa. The localisation of aggravated doṣas causes specific disease. For example if the doṣas are located in the abdomen then diseases like gulma (intra-abdominal tumors), atisāra (diarrhea), viṣūcika (gastroenteritis), etc. are produced. When the aggravated doṣas pervade the whole body then the diseases like jvara (fever), prameha (urinary disorders including diabetes mellitus), etc are manifested[31] .

This is the stage of development of pūrvarūpa or prodromal features of a disease. So the principles of treatment of different prodromal phase of different diseases are to be applied here. For example if the prodormal feature of fever is manifested then light diet and depletion therapy are administered[32].

Vyaktāvastha

After sthānasamśraya the next stage is the stage of manifestation of disease or vyaktāvastha. This stage is characterised by development of pathognomonic features of different diseases i.e. increased body temperature than normal in jvara (fever), excessive passage of loose stool on atisāra (diarrhea), fullness of abdomen in udararoga, etc[33]. In this stage a full fledged disease is manifested.

So disease specific dietary restrictions, śamana (internal medicine) and śodhana (pañcakarma) cikitsas are applied here. If proper therapy is not applied in this stage then the clinical condition may deteriorate and the disease may pass on to the next stage of bhedāvastha.

Bhedāvastha

In this stage the disease becomes chronic or it becomes associated with complications. Treatment in this stage becomes very difficult[34]. This stage is characterised by severe impairment of dhātu functions and serious damage to srotas[35]. So a disease when reaches this stage the prognosis becomes obviously very bad.

Conclusion

From the above discussion it is evident that the concept of kriyākāla plays an important role in the prophylaxis and treatment of diseases. A clinician must be very careful regarding the diagnosis of a specific stage of kriyākāla. The clinical features of sañcaya, prokopa and prasara are so non-specific that they are often unnoticed by physicians. Early diagnosis and implementation of specific therapeutic measures in the first four stages of kriyākāla prevents development of future diseases; and identification of the last two stages deals with specific management of specific diseases.

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ROLE OF VIṢA-UPVAVIṢA DRAVYAS IN RASAUṢADHIS

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Abstract: Some āyurvedic medicines involve potentially serious risks, including toxicity. This article discusses some plants (viṣa-upaviṣa dravyas) that are commonly used to improve health and their role in the preparation of making formulations in single or compound.

Introduction

The pharmacology of āyurvedic system is divided into three major parts viz. i) herbal, ii) metals and minerals and iii) animal kingdom.

It is important to have an awareness regarding the poisonous drugs, which, when used in the proper form and prescribed dose, act as potent therapeutic agents. Any substance can be harmful at high concentrations as Paracelsus (1493-1541) said that "All substances are poisons; there is none which is not a poison. The right dose differentiates a poison from a remedy"

Many classical literatures explain the use, importance, toxic symptoms and therapeutic consideration of viṣadravyas (poisonous substances). In Rasaśāstra, the use of viṣa-upaviṣa dravyas in rasakarma as well as rasabandhana has got prime importance and they are classified on the basis of their uses in rasakarma[1].

Viṣa-upaviṣa dravyas are considered highly valuable due to their quick effectiveness even in smaller doses; but at the same time, they are fatal if used without proper care and in higher doses. Therefore, understanding their uses, applications, benefits, toxic symptoms and its management deserve a special attention especially in the field of Rasaśāstra.

It is said that viṣa and upaviṣa when used properly, would prove to be highly beneficial; otherwise they are considered to be fatal. Probably because of this reason their use was very much limited in the ancient times. The emergence of Rasaśāstra and the advancement of various purification methods helped much in making their use safer and more frequent in therapeutics. According to Carakasamhita, even an acute poison can become an excellent drug if it is properly administered. On the other hand even a drug, if not properly administered, becomes an acute poison.[2]

Classification

Various types of viṣas are described in ancient āyurvedic literatures viz; sthāvara, jaṅgama, kṛtrima (samyogaja/gara), etc. Among these, sthāvara are used mainly in therapeutic purposes. The criterion of classification is different and hence the substances included in each may vary from author to author. However,

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the most common method of classification is based upon the occurrence of the poison.

Kṣīra (milky-exudates) kanda (rhizome) mūla (root) viṣa and dhātuviṣa are commonly used as they are claimed to be more effective and potent.

Guṇa

Viṣa, due to their properties of laghu (lightness), rūkṣa (roughness), āśu (rapid action), viśada (non-sliperiness), vyavāyi (quick absorption), tīkṣṇa (intensity), vikāsi (spreading), sūkṣma (subtleness), uṣṇa (hot), anirdeśyarasa (uncertain taste), act very fast and also enhance the action of the formulation being used[3]. A few examples of the use of sthāvara and jaṅgama viṣa mentioned in the Samhitas are as follows:

- Use of small amount of viṣa in Aindra rasāyana (Carakasamhita, Cikitsasthānam, 1/3)
- Kākodumbaramūla kvātha along with viṣa in treating kuṣṭha (Aṣṭāṅgasamgraham, 48/31)
- Guñja, karavīra, etc. in sannipātodara (Aṣṭāṅgahṛdayam, Cikitsasthānam, 15/78)
- Sarpaviṣa in sannipātodara (Aṣṭāṅgahṛdayam, Cikitsāsthānam, 15/79)

The practice

Rasaśāstra is based mainly on the use of metallic and mineral drugs which need some processing before they are internally used so that they may be least toxic and highly absorbable. The processes of śodhana (purification) and māraṇa (incineration) deserve special mention in this connection because through these processes such drugs could be made suitable for internal use. Before using viṣas in therapeutics, the following steps are involved:

- Proper identification
- Collection of the therapeutically beneficial part
- Collection in the correct season
- Purification
- Proper storage
- Accurate dosage
- Anupāna (vehicle)
- Diet and regimen

Potential upgradation

The technique of detoxification applied to heavy metals and toxic herbs are called samskāras, which involve prayers as well as physical pharmacy techniques, both of which are necessary to transform the toxicity.

Examples

- Kṛṣṇa dhāttura is used for removing the cāpalya guṇa of pārada in the special purificatory method of pārada.
- The use of viṣadravya in rasabandha i.e. changing the real state of pārada from liquid stage to solid or powder form by removing the cāñcalyata and durgrahata (escaping nature) of pārada is described in Rasaratnsamuccayam[4]
- Śudha vatsnābha is used in making various parpaṭi kalpanas like Tāmra parpaṭi, Vijaya parpaṭi, etc.
- Arka and snuhi kṣīra are used in making śatapuṭa Abhrakabhasma
- Manaśśila and haritāla cūrṇa are used in the process of gomūtra śilājatu māraṇa.

Role

Some examples of viṣa-upaviṣa dravyas and their role in rasauṣadhis are detailed below:

1. Navajīvana rasa
   (Rasataraṅgiṇi - 24/204-209).

Ingredients: - Kupilu (2parts), Lohabhasma (2parts), Rasasindūra (2parts), tryuṣṇa (½ part each) (Bhāvana with ārdraka svarasa)

Action: - Dīpana, pācana, balasañjananaparam, nāḍibalaprajanan, ratiśaktivivardhana, śūlāpaham.

Kupilu (*Strychnous nuxvomica*):- This contains Strychnine, Brucin, Loganin and Vomicin. Among these, Strychnine is the most toxic ingredient. Nuxvomica is one of the drugs used for the diseases of the nervous system.

Strychnine has tonic, stimulant, relaxant and aphrodisiac action. The absorption of strychnine is rapid from stomach and intestine and elimination is through urine, bile, sweat and saliva.

2. Tribhuvanakirti rasa
(Bhaiṣajyaratnāvali, Jvarādhikāra)

Ingredients: - Viṣa, pippali and hiṅguḷa śuddha - 1 part each (Jala Q. S. for mardana)

Action: -Vātajvara nivṛtti and āmavātahara

Vatsnābha (*Aconitum ferox*):- Aconite mainly contains alkaloids viz. Aconitine, Pseudoaconitine, Bikhaconitine etc. Pseudoaconitine is highly toxic and biologically more active than Aconitine. The antipyretic action is the result of its influence on the circulation and respiration and of its diaphoretic action. Aconite further depresses the activity of all nerve-terminals, the sensory being affected before the motor, it therefore tends to relieve pain. It also acts as a stimulant.

3. Bhallātaka Rasāyana
(Rasatarṅgiṇi - 24/484-485)

Ingredients: - Śudha bhallātaka, śuṇṭhicūrṇa, viḍaṅgacūrṇa and lohabhasma - 1 part each.

Action: - Raktavṛddhi, Bala vivardhana

Bhallātaka (*Semicarpus anacardium*):- It contains chemical constituents like Anacardol, Semicarpol and Bhilavanol. All these are highly toxic substances. Anacardol acts as a tonic, a stimulant, and has haematinic effect. It has direct effect on skeletal and cardiovascular system.

3. Guñjabhadra rasa
(Rasataraṅgiṇi - 24/467)

Ingredients: - Śuddha guñja (6 parts), jāyanti (6 parts), nimbabīja majja (6 parts), śuddha pārada (3 parts) and śuddha gandhaka (12 parts) (Bhāvana dravya - dhatura-nimbu svarasa)

Action: - Ūrustambha (mahāghoram vinihanti)

Guñja (*Abrus precatorius*):- Indian Liquorice contains chemicals like Hemagglutinin and Abrin as the main constituents which are toxic in nature. Abrin maintains the peripheral and central circulation effect as well. It stimulates CNS and causes reflex stimulation which helps in maintaining the neuron transmission in the brain.

4. Śvāsakuṭhāra rasa
(Yogaratnākara, Śvāsacikitsa)

Ingredients: - Śuddha rasa (4 parts), śudha gandhaka (4 parts), śudha vatsnābha (4 parts), śudha taṅkaṇa (4 parts), śudha manaśśila (4 parts), marica (36 parts), śuṇṭhi (4 parts) and pippali (4 parts)

Action: - Kāsa, śvāsa, mandāgni, vātaśḷeṣmāmayeṣu, sannipāta mūrca and apasmāranāśana.

Manaśśila (Arsenic disulphide):- Red arsenic or realgar is very hot in potency. It acts as an appetiser, an expectorant and a rejuvinator. It helps in the opening of the (viscous or thicker) mucus present within the bronchial lumen. It removes the spasm of the bronchial smooth muscles.

5. Rasamāṇikya (Rasataraṅgiṇi - 11/83)

Ingredient: - Suddha haritāḷa (Bhāvana dravaya as kūśmāṇḍa svarasa and dadhi).

Action: - Vātaraktahara, vividha kuṣṭha, nādīvraṇa

Haritāḷa (Arsenic trisulphide):- Yellow Arsenic or Orpiment strengthen the blood vessels and regain its toxicity. It promotes the formation of new micro vessels, a process called angiogenesis which are essential in providing nutrients for rebuilding or repairing the tissues. It helps in preventing the excessive production of sebum and prevents the hyperkeratinisation.

Discussion

Āyurvedic multi ingredient compounds are formulated in such a way that the ingredients

are capable of counter balancing toxic effects, if any, present in the herbs or metals used. Besides this, the use of these Rasauṣadhi preparations is discontinued after a certain period or gap, so that the body can neutralise the effect of the medicine given. The period after which the use of Rasauṣadhis should be discontinued may differ from metal to minerals and kind of viṣa-upaviṣa dravyas used. Even in classics the intake details has been highlighted; for e.g., some Rasauṣadhis like Viṣamuṣṭi vaṭi has to be taken for a period of 15 days, then a gap, and start again if the symptoms persist. Proper dose of these medicines is also very important.

Conclusion

- Poisonous substances can be effectively used in therapeutics.
- In Rasauṣadhi preparations, they are frequently used but after proper processing especially in chronic diseases when conventional treatment fails.
- Selection of right condition and dose is very much essential.
- Dravyas used in certain Rasauṣadhis are very poisonous in nature and should only be used with extreme caution and under the supervision of a qualified practitioner.

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Clinical observation

SIRAVEDHAM IN A VARICOSE VEIN - A clinical experience

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Varicose vein is a condition where veins become elongated, dilated and tortuous. There are various places in the body where it can be manifested; but usually, it appears in lower limb veins, spermatic veins, esophageal veins and rectal veins. The term commonly refers to the veins on the leg. The etiology of this condition is mainly the incompetence of the vein. Some other etiologic factors like elasticity of vein's muscle, tone and contractility of calf muscles and congenital arterial-venous fistula play major roles. When the veins become varicose, the leaflets of the valves no longer meet properly and the valves do not work. This allows the blood to flow backwards and they enlarge even more. Varicose veins are most common in the superficial veins of the legs, which are subject to high pressure when standing.

About 15% of the Indian populations are affected with this. Women are more prone than men. Genetics, age, women, overweight and a prolonged standing nature of work are the main risk factors. Varicose veins usually do not cause life-threatening problems. Treatment is required when pain, skin problems and other complications arise.

Case history

On April 2010, a 48 year old man came to our Hospital with the complaint of pain in the right calf. The pain increased when standing for a long time and numbness and feeling of heaviness were also felt in the right leg. The problem started gradually 5 years back and he had tried many treatments, but in vain. Modern doctors told him that surgery was the only way to solve this problem, but he did not prefer to do it. The patient was heavy-built in nature and was working in a gulf country for more than 20 years and his work demanded prolonged standing. His bowel was constipated and urine output was satisfactory; sleep and appetite were good. He had no bad habits such as cigarette smoking, tobacco chewing, etc.

Examination

Prominence of veins from the lower part of the thigh to ankle was seen in the right leg. A swelling-like appearance of tangled veins was seen below the knee joint and another one nearer to the mid calf lateral aspect. The affected part was long saphenous vein in the right leg. Palpation and percussion were done. The Schwartz test was positive.

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Treatment

The patient was advised to take the following medicines for two weeks and then was asked to come for doing siravedham.

1. *Sahacharabaladi kashayam* (3 tsp) with warm water (12 tsp) and *Sahacharadi*-7 (10 drops) - twice daily, at 6.00 am and 6.00 pm before food.
2. *Trivrilleham* (10 g) - at bed time.

Siravedham

Materials:- Surgical handle with curved blade (size No.12), trays, carved (semicircle shape on upper part) wooden piece, long cotton cloth, plaster, cotton, *Jatyadi ghritam* and a mixture of cloroxylenol and terpineol alchohol (antiseptic disinfectant).

Procedure: - A short while after fulfilling the natural urges and lunch, the patient was asked to stand on a table and a mild downward massage was given for 5 minutes on the right leg. A long cotton cloth was bandaged on the leg in such a way that it ends (four fingers high) above the ankle. (This was to exert enough pressure in veins to make the superficial veins more prominent.) The patient was then asked to put his right foot on the wooden piece (that was placed in a tray) in such a way that the big toe touches the tray. (The patient was asked to balance properly by placing the other leg on a small stool.) The foot was cleaned, mildly tapped on the selected veins (to raise it little upwards) and then the patient was asked to exert maximum pressure on the foot. Placing a surgical blade on the vein, slight tap was made on the vein to make a small incision and the spurting blood was collected in a tray. Spurting of the blood stopped automatically in two and half minutes. The bandage was removed from the leg and the patient was asked to lie down keeping the leg a little upwards; then a cotton piece soaked in *Jatyadi ghritam* was placed over the incision. The patient was advised to take rest for one hour and then discharged.

On the very next day, he reported. The pain, numbness and heaviness were relieved; swelling of one tangled vein had totally disappeared and the other one markedly reduced in size. The internal medications were stopped with an advise to take self-care measurements like keeping the legs in an elevated position while sitting, resting and sleeping. He was advised to follow a controlled diet, regular exercise and avoid prolonged standing.

The case was reviewed after one month. Though there was prominent appearance of some veins and a mild swelling of tangled veins, he was comfortable. No more medications were advised.

Discussion and conclusion

Regarding the cause and symptoms, Aṣṭāṅgahṛdaya describes that by exhaustion from physical labour, vāta gets perturbed with blood and enters blood vessels causing pain, contraction, twisting and drying and lead to the formation of a swelling, non-pulsatile and free from pain[1]. In this case, the standing nature of work and irregular diet habit of the patient caused varicose disease. According to Aṣṭāṅgahṛdaya, intake of sahacara, upanāha (warm poultice) with drugs having vāta-alleviating properties, vasti and siravedha are to be done in the case of new siragranthi (varicose veins)[2].

The aim of this treatment procedure is to ease the symptoms, prevent the complications, improve the cosmetic appearance and to keep off new varicose formation.

References:

1. पदातेस्तु सहसाऽम्भोवगाहनात्।
   व्यायामाद्वा प्रतान्तस्य सिराजालं सशोणितम्।।
   वायुः सम्पीड्य सङ्कोच्य वक्रीकृत्य विशोष्य च।
   निःष्फुरं नीरुजं ग्रन्थिं कुरुते स सिराह्वयः ।। (अ. हृ. उ. २९/१०-११)
2. सिराग्रन्थौ नवे पेयं तैलं साहचरं, तथा।
   उपनाहोऽनिलहरैर्वस्तिकर्म सिराव्यधः ।। (अ.हृ उ. ३०/७)

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EXCERPTS FROM CIKITSĀMAÑJARI - LXIV

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Abstract: The chapter 'Mukharogacikitsa' (treatment of face/mouth) starts with this issue. The causative factors of oṣṭharogas (diseases of lips), gaṇḍarogas (diseases of neck) and dantarogas (diseases of teeth) and their various remedies are explained here.

DISEASES OF THE FACE AND MOUTH

Excessive consumption of fish, beef, pork, raw radish, black gram soup, curd, milk, śukta (fermented sour liquid), sugarcane juice and liquid jaggery (phāṇita) can cause diseases of the face. Sleeping in the position by head below the body level, aversion to cleaning of teeth, dhūma (inhalation of medicated smoke), nasya (nasal medication) and inappropriate blood-letting cause an increase in kapha which causes diseases of the mouth.

Diseases of the lips

Diseases of the lips are classified into eight viz. vātika, paittika, ślaiṣmika, sannipātika, raktaja (caused by blood), māmsaja (involvement of lip muscles), kṣataja (secondary to injury) and medoja (vitiation of lipid tissue).

Khaṇḍoṣṭha (split lips) is a condition caused by vitiated vāta. Oṣṭhakopa (dry painful lips) is a condition where vāta causes stiffness, pain, cracking, dryness, black colour and roughness to lips.

Vitiated pitta causes sensitivity of lips to hot food and drinks; hard and dense abscesses on the lips resembling mustard seed and exudation are common features. Vitiated kapha causes sensitivity of lips to cold food and drinks, dense large lip coloured abscesses all over the lips that secrete foul smelling and exudates of variable colours. Some of the abscesses may continue in the raw, hardened state for a long period.

Vitiated blood causes reddening of lips and secretion of haemorrhagic exudates. When the exudates dry up, it may cause development of dark brown coloured growths. Muscular involvement causes flesh coloured abscess, pyogenic. Oil coloured abscesses, edema, itching and exudates are characteristic features of vitiated meda. Abscesses secondary to injury cause itching, splitting and cracking of lips and development of blisters.

Joint vitiation of vāta and kapha cause blisters on the lips termed jalārbuda (fluid filled abscess). Māmsaja, raktaja, raktārbud and sannipātika hardly respond to the treatment.

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In khaṇḍoṣṭha, suturing after fraying the open edges and treatment of vrana (abscess) are to be followed. Nasya with drugs included in the madhura group (svādu skandha) that relieve vāta should be done. Oṣṭhakopa caused by deranged vāta is to be treated with local application of sesame oil medicated with the following:

Devadāru	*Cedrus deodara*
Guggulu	*Commiphora wightii*
Sarjarasa	*Veteria indica*
Madhūchiṣṭa	Bees wax

Alternatively, oil medicated with powder of yaṣṭimadhu (*Glycyrrhiza glabra*) can also be used. Milk medicated with the tender shoots of eraṇḍa (*Ricinus communis*) can be used for fumigation of the lips (pālpuka). Nasya and application of oil on the vertex with oils indicated for khaṇḍoṣṭha can be done.

Bloodletting with leeches is indicated in pittaja and abhighātaja diseases of the lips. External application and rubbing of fine powders of lodhra (*Symplocos cochin-chinensis*), sarjarasa (*Veteria indica*) and madhuka (*Glycyrrhiza glabra*) mixed with honey (to promote secretion) is indicated.

Application of medicated ghee with guḍūci (*Tinospora cordifolia*), yaṣṭi (*Glycyrrhiza glabra*) and pattaṅga (*Caesalpinia sappan*) is indicated in pittavidradhi and śoṇitavidradhi (abscesses due to vitiated pitta and blood). All the treatments indicated in pittavidradhi also have to be done.

All the above treatment can be followed in kaphoṣṭha, when it is of fresh. Dhūma, nasya and gaṇḍūṣa, capable of relieving kapha, can also be performed. Lip disease caused by vitiated meda where there is cracking and absence of fat, the region should be burned and frayed with fine powders of the following mixed with honey.

Priyaṅgu	*Callicarpa macrophylla*
Lodhra	*Symplocos cochin-chinensis*
Triphala	*Terminalia chebula*
	Phyllanthus emblica
	Terminalia bellirica

Jalārbuda should be split and drained; rub the region with fine powders of tīkṣṇa (pungent) drugs mixed with honey. When the deeper tissues are involved and the disease advanced, kṣāra (application of alkalis) of suitable strength and burning are indicated.

Fine powders of hima (*Santalum album*) and yaṣṭi mixed with kovappazham (ripened fruit of *Coccinia grandis*) juice of pazhukka (*Areca catechu*) and butter (prepared by buffalo milk), when applied locally relieves blisters on the lips.

Fine paste of the following in water, mixed with buffalo butter, sesame oil and honey, on local application relieves diseases of the lips. Butter prepared from cow's milk can also be used if buffalo butter is not available.

Pūvāte tecci	*Ixora coccinia*
Tozhukai	*Mimosa pudica*
Karinocci	*Vitex negundo*
Durvā	*Cynodon dactylon*
Rambhā	*Musa paradisiaca*
Veppila	*Azadirachta indica*

Ash of pūtīkapallava (*Holoptelea integrifolia*), kaṭalāṭi (*Achyranthus aspera*) and nidigdhika (*Solanum virginianum*), mixed with fine powder of niśa (*Curcuma longa*) made to a paste in cow's urine, on application on the lips relieves severe diseases of the lips. Medicated ghee prepared from cow's butter or buffalo butter with the following, and milk as liquid component, relieves diseases of the lips.

Konna	*Cassia fistula*
Tānni	*Terminalia bellirica*
Kuriñjiyugma	*Barleria prionitis*
	Barleria cristata
Kuṭajam	*Holarrhena pubescens*
Tvak	*Cinnamomum verum*
Pāṭha	*Cyclea peltata*
Bhīmānuja	*Terminalia cuneata*
Ugra	*Acorus calamus*
Agni	*Plumbago zeylanica*
Perumkurumba	*Chonemorpha fragrans*
Amṛtin nūr	*Tinospora cordifolia* - extract
Kurucūli	*Pongamia pinnata*
Pullānni	*Calycopteris floribunda*
Āvil	*Holoptelea integrifolia*
Paṭola	*Trichosanthes lobata*
Mañjal	*Curcuma longa*
Triphala	*Terminalia chebula*
	Phyllanthus emblica
	Terminalia bellirica
Jātikka	*Myristica fragrans* - Nut meg
Pātiri	*Stereospermum colais*

Itching, dryness and edema of the lips are to be treated with repeated bloodletting by leeches. Sesame seed paste, tied in a cloth bundle and fried in medicated ghee, shall be pressed softly on the lips. Application of a paste made out of the juice of pazhukka (ripened shell of areca nut), mixed with fried sesame seed powder, on the lips is effective. Butter (of cow's or buffalo) medicated with the juice of pazhukkatol (ripened shell of areca nut) as liquid component and a paste of sesame seed and aṭakotiyan kizhaṅgu (tuber of *Holostemma ada-koedien*), on application, relieves edema of the lips. Śatadhouta or Gopātmajādi ghṛta, on local application or irrigation, relieves abscesses on the lips caused by deranged pitta and raktta.

Medicated butter (of buffalo) prepared with juices of karuka (*Cynodon dactylon*), kottambāla (*Coriandrum sativum*), pazhukka (ripened shell of *Areca catechu*), kīzhkāyanelli (*Phyllanthus amarus*) as liquid component, on external application or irrigation relieves edema of the lips. Medicated butter (of buffalo) mixed with fine powder of yaṣṭimadhu (*Glycyrrhiza glabra*) can also be applied. Local application of Mahātiktaka ghṛta or Guggulutiktaka ghṛta is also effective. A paste made out of bark of atti (*Ficus racemosa*) mixed with the juices of tirutāḷi (*Ipomoea sepiaria*) and tīṇṭāmāzhuki (*Mimosa pudica*) can be applied locally. Butter (of cow or buffalo) medicated with the kaṣāya of iraṭṭimadhuram (*Glycyrrhiza glabra*) and milk as liquid components, and fine powder yaṣṭi as solid component, on topical application, relieves diseases of the lips. Gopātmajādi oil can also be used for application or irrigation. Application of trimadhura ghṛta prepared with milk as additional liquid component, is also effective. Suitable drugs depending upon the condition of disease are to be prescribed. Edema of the lips is relieved by application of Ārukālādi medicated butter or Tuṅgadrumādi oil on the head. Balādhātryādi yoga medicated with ghee as additional lipid component can also be used for head. Medicated buffalo butter and pig fat as lipid component, the kaṣāya of cerūḷa (*Aerva lanata*) as liquid component and fine powder of yaṣṭimadhu and bee's wax as solid components on application relieves edema, itching and dryness of lips. Application of ghee, butter or buffalo butter is also prescribed. Application of paccapuzhuku (civet) relieves cracked lips. Fat of kuḷakkozhi (grouse) or ash of karimpola (leaves of *Saccharum officinarum*) mixed with butter can also be applied. Ash of erukkila (leaves of *Calotropis gigantia*) mixed with

buffalo butter on local application relieves edema of lips.

Diseases of the neck (gaṇḍarogas)

Characteristic features of gaṇḍālajī are stable edema on the neck, burning and fever. The edema, when unripe (āma), shall be treated as in the case of śopha (edema).

Diseases of the teeth (dantarogas)

There are ten types of dantarogas viz. śītadanta, dantabheda, dantaharṣa, dantacāla, karāḷadanta, adhidanta, dantaśarkara, dantakapālika, śyāvadanta and kṛmidanta.

Dantapāḷī (gums) should be frayed and burned. Induce secretions by rubbing a mixture of ghana (*Cyperus rotundus*), sesame oil, honey and rock salt. This is the treatment for śitadanta. Gargling (kabaḷa) with the kaṣāya of the following and nasya using Aṇutaila are also to be done. [Kaṣāya prepared from the following or kaṣāya prepared from the barks of kṣīri (the four Fig trees) can also be used for kabaḷa.]

Ḍāḍimatvak	*Punica granatum* - fruit rind
Varā	*Terminalia chebula*
	Phyllanthus emblica
	Terminalia bellirica
Tārkṣya	Copper vitriol
Ghana	*Cyperus rotundus*
Jambvasthi	*Syzygium cumini* - seed
Nāgara	*Zingiber officinale*

Dantaharṣa and Dantabheda are to be treated with all medicines and measures indicated to pacify vāta. Sesame oil medicated with yaṣṭimadhu is used for filling of the mouth (gaṇḍūṣa) and nasya. Filling the mouth with medicated liquid and retaining it for a specific period of time is known as gaṇḍūṣa.

Loosening of teeth, known as caladanta is treated by gaṇḍūṣa with kaṣāya prepared from daśamūla added with oil. Application of fine powders of the following mixed with honey, on the gums and teeth is effective.

Tūtha	Blue vitriol
Lodhra	*Symplocos cochin-chinensis*
Kaṇa	*Piper longum*
Śreṣṭhā	*Terminalia chebula*
	Phyllanthus emblica
	Terminalia bellirica
Pattaṅga	*Caesalpinia sappan*

Depending upon the stage of the disease, application of oil (snehana), nasya and kabaḷa are to be done. Application of alkalis is effective to make adhidantaka (additional teeth) brittle and easily removable. Kṛmidanta should be extracted and treated as above. In cases where gum bleeding is uncontrollable, burning and classical treatments of vraṇa are to be followed. Dental plaques are to be removed physically with instruments without injury to gums. Rubbing the gums with alkalis mixed with honey is also effective.

In dantakāpālika, treatments of dantaharṣa are to be followed. Improper cleaning of the teeth causes to collect food particles at the roots of the teeth and makes harden. Here, kapha dried up by vāyu promotes adherence of debris at the roots of teeth (dantaśarkara) and foul smelling. If left untreated, it causes erosion of teeth sockets in jaw bones and this condition is known as dantakāpalika.

Teeth that becomes discoloured and darkened due to vitiation of vāta, rakta and pitta, is termed as śyāvadanta. When tissue debris at the roots of teeth is vitiated by doṣas with predominance of vāta, the channels of marrow at the roots gets dried up. Super infection by micro organisms at

this site is known as kṛmidanta. At times, there may be severe pain with no apparent cause and it may subside automatically. Teeth become loose and black coloured. Pus formation and bleeding will be present. This condition is known as kṛmidanta. In the absence of loosening of teeth, kṛmidantaka is treated with sudation and rubbing of medicated powders to induce secretions (pratisāraṇa). External applications, gaṇḍūṣa, nasya that contain sneha (oil) are advised. Foods that normalise vitiated vāyu are to be consumed.

Cavity in the tooth is to be filled with jaggery and burned with bees wax. Filling of the cavity with the milky latex of saptachada (*Alstonia scholaris*) or arka (*Calotropis gigantia*) relieves pain in kṛmidanta. Tie fine powders of the following in a small cloth bundle and bite by the affected teeth.

Hiṅgu	*Ferula assa-foetida*
Katphala	*Myrica nagi*
Kāsīsa	Onsulphate
Svarccika	Impure Sodium bicarbonate
Kuṣṭha	*Saussurea costus*
Vella	*Embelia ribes*

Medicated oil prepared from all the above drugs used for filling the mouth (gaṇḍūṣa) also relieves pain.

When all the above procedures become ineffective in relieving the pain, the tooth has to be removed from its root using a forceps or a suitable small hammer. Sesame oil mixed with fine powder of yaṣṭīmadhu is used for filling the mouth. Honey can also be used for filling the mouth (gaṇḍūṣa). After gaṇḍūṣha, nasya with sesame oil medicated with the kaṣāya of the following and milk (ten times the quantity of oil as liquid component) has to be done.

Vidāri	*Pueraria tuberosa*
Yaṣṭyāhva	*Glycyrrhiza glabra*
Śṛṅgāṭaka	*Trapa natans* var. *bispinosa*
Kaśeru	*Cyperus esculentus*

Extraction of tooth shall not be attempted in the case of frail (kṛśa), weak (durbala), and old (vṛddha) patient. The teeth on the upper jaw should not be extracted as associated complications may arise. After extraction, diet containing oily (snigdha) and sweet substances (svādu) having cold potency (śīta) are to be consumed for relief of pain.

Śyāvadanta and karāḷadanta hardly respond to treatments. Dantabheda becomes incurable when the tooth is broken.

Gaṇḍūṣa with a paste of sesame seeds mixed in cold or lukewarm water relieves sensitive teeth (dantaharṣa), loosened teeth (dantacāla) and diseases of the mouth caused by deranged vāta.

Pain of the teeth is reduced by filling a paste of kṛṣṇā (*Piper longum*) mixed with honey and medicated ghee in the mouth. Alternatively, sesame seed paste can be substituted in the place of kṛṣṇā.

A paste of hiṅgu (*Ferula assa-foetida*) or bakuḷāsthi (seeds of *Mimusops elangi*) mixed with warm water, on application, fixes loosened teeth. Loosened teeth are fixed and pain relieved by filling the mouth with coconut oil medicated with the following.

Tālpoṭakarasa	Juice of *Borassus flabellifer* (leaf stalk)
Rāmaṭha	*Ferula assa-foetida*
Lavaṇa	Rock salt

Tilaja (sesame seeds) and abhaya (*Terminalia chebula*) cooked in the kaṣāya of śarapuṅkha śipha (*Tephrosia purpurea* - root) and added

with a small quantity of powder of trikaṭu (*Zingiber officinale, Piper longum* and *Piper nigurm*) on filling the mouth, relieves all diseases of the mouth in general.

Coconut oil medicated with the juice of kuriñji (*Barleria prionitis*) as liquid component and paste from the seeds of ilañji (*Mimusops elangi*) as solid component on application relieves pain of the teeth.

Sesame oil, medicated with the juices from the leaves of kuriñji and ilañji as liquid component, and the paste from the following as solid component, used for gargling (gaṇḍūṣa) in the morning and evening relieves numbness, loosening and pain of the teeth. Inflammatory lesions and wasting of the gums, etc. are also relieved. The oil should be filtered in wax (cikkaṇa) state of the solid component. (Fine paste of any of the group detailed below can be used as solid component for the oil.)

Solid component:

Group A:

Ilañjittoli	*Mimusops elangi*- bark
Kozhiñjil veru	*Tephrosia purpurea* - root

Group B:

Ilañjittoli	*Mimusops elangi* - bark
Kozhiñjil veru	*Tephrosia purpurea* - root
Trikaṭu	*Zingiber officinale*
	Piper longum
	Piper nigurm

Group C:

Citraka	*Plumbago indica*
Trikaṭu	*Zingiber officinale*
	Piper longum
	Piper nigurm
Śreṣṭhā	*Terminalia chebula*
	Phylanthus emblica
	Terminalia bellirica
Vaca	*Acorus calamus*
Bhārṅgi	*Rotheca serrata*
Rohiṇi	*Picrorhiza kurrooa*
Mustā	*Cyperus rotundus*
Elā	*Elettaria cardamomum*
Kaṭphalam	*Myrica nagi*
Lodhra	*Symplocos cochin-chinensis*
Nimba	*Azadirachta indica*
Takkola	*Piper cubeba*
Saindhava	Rock salt
Arimedatvak	*Acacia leucophloea* - bark
Jātīphalam	*Myristica fragrans* - Nut meg
Hima	*Santalum album*
Niśādvayam	*Curcuma longa*
	Berberis aristata

Oil medicated with sesame oil (one part) and coconut milk (four parts) as liquid component and a paste of the components of group C (above) as solid component, on gaṇḍūṣa (filling the mouth) with powdered vyoṣa, relieves loose or partially detached teeth. Pain resulting from the damage or degeneration of gum is also relieved. This oil is a lauded remedy in almost all diseases of the mouth.

A paste of sesame seeds prepared with water boiled with dry ginger on filling the mouth in lukewarm relieves pain of the teeth and gums.

Sesame oil medicated with the fine paste of the following used for filling the mouth hardens teeth in the sockets. It is said that the teeth become so firm that it could not dislodge even by a hit of an elephant or by Indra's vajrāyudha or by gada (a massive weapon) of Vṛkodara (a strong character of Mahābhārata - Bhimasenan).

Cavya	*Piper mullesua*
Vyoṣa	*Zingiber officinale*
	Piper nigrum
	Piper longum

Vara	*Terminalia chebula*
	Phyllanthus emblica
	Terminalia bellirica
Arimeda	*Acacia leucophloea*
Bakuḷatvak	*Mimusops elangi* - *bark*
Bāṇapuṅkha	*Tephrosia purpurea*
Cāturjāta	*Elettaria cardamomum*
	Cinnamomum tamala
	Cinnamomum verum
	Mesua nagassarium
Śaśāṅka	*Cullen corylifolium*
Śīta	*Santalum album*
Paṭu	Rock salt
Takkola	*Piper cubeba*
Jātīphala	*Myristica fragrans* - Nut meg

Juice from the leaves of kuriñji (one part) coconut milk (four parts) and fine pastes of the 19 drugs detailed above as solid component; coconut oil prepared by reducing this mixture in fire, used for gargling alleviates all diseases of the mouth.

Sesame oil medicated with the leaf juice of karinocci (*Vitex negundo*) as liquid component and kaṭutraya (*Zingiber officinale, Piper longum, Piper nigrum*) as solid component, on gargling relieves toothache.

Inflammation of the gums, salivation and toothache are relieved by chewing the leaves of kuriñji and mañjal (*Curcuma longa*) about 48 minutes (till they become a paste).

A kaṣāya prepared from one pala (48 gm) of the root of tāla (*Borassus flabellifer*) in one kuḍaba (192 ml) of water, on gargling in lukewarm for five days in the morning fixes loosened teeth.

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- Contributions in the form of a research paper, review article, clinical observation or a book review are welcome from the fields of Āyuṛveda and allied subjects, naturopathy, Siddha, Unani, Homoeopathy, Yoga, Modern medicine, drug research, pharmacognosy, botany, phytochemistry and pharmacology. Publication will be made on the basis of the recommendation of an expert body.
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  1. John Bernar Hentory, *Clinical diagnosis and management by laboratory methods*, 17th Ed., WB Saunders Company, Philadelphia, pp 172-175, 1989.

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