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लाभानां श्रेय आरोग्यम्

Of all the gifts,
the most precious is health

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FROM THE PAGES OF VĀGBHAṬA - LXXXIV

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Abstract: Samsargaja and sannipātika types of jvara are discussed in this issue. Varieties of fevers originated from external cause (āgantu) and dual nature of various types of fevers are also detailed.

काले यथास्वं सर्वेषां प्रवृत्तिर्वृद्धिरेव वा।
निदानोक्तानुपशयो विपरीतोपशायिता।
यथास्वं लिङ्गसंसर्गे ज्वर: संसर्गजोऽपि च।।२३।।

(Kāle yathāsvam sarveṣām
pravṛttirvṛddhireva vā ।
nidānoktānupaśayo
viparītopaśāyitā ।
yathāsvam liṅgasamsarge
jvara: samsargajoऽpi ca ।। 23 ।।)

All the doṣas (vāta, pitta and kapha) will either provoke or appear at regular intervals (for vātajvara afternoon, noon time for pittajvara and morning for kaphajvara and so on).

The subjects described in the first chapter under each heading like - tikta, ūṣaṇa, etc. for vāta; kaṭu, amḷa, etc. for pitta - are to be considered as the opposite items of upaśaya of each roga whereas the subjects are to be reckoned with the upaśaya of each variety of jvara disease.

Normally, samsargaja varieties of jvara like vātapittajvara, vātakaphajvara do show the combined characteristic features.

[Kaphadoṣa causes kaphajvara in a patient and the intensity of kapha activities are during the specified time internal viz. first 1/3 parts of day and night. At that time the patient will either feel feverish or, in severe case, he will be running a high temperature. This is applicable to pitta and vātajvara in reference to particular timings.

On considering the upaśaya of vātajvara, pittajvara or kaphajvara which is one among the five parts of nidānapañcakam, two aspects are to be considered. Upaśaya means the favourable things for an ailing patient which are usually non-favourable for the disease. The provoking aspects of doṣa like tikta, ūṣaṇa, etc., for vātadoṣa (vide Nidānasthāna, 1/14-23) are the non-favourable items for a patient, who wants to be cured. Their opposite items in property and action are to be counted as the upaśaya items of the patient afflicted with a particular type of jvara.]

Out of eight types of jvara the lakṣaṇas of the first three are explained now. Vātapittajvara, vātakaphajvara and pittakaphajvara are the 3 samsargaja types of jvaras. The lakṣaṇa of these

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types are also the combinations of the particular lakṣaṇas of each type. For instance one can find spontaneous affliction and delirium as well as anorexia and inactiveness in pittakaphajvara. In normal course the manner of lakṣaṇas of samsargaja jvara run thus:

शिरोर्तिमूर्च्छावमिदाहमोह–
कण्ठास्यशोषारतिपर्वभेदाः।
उन्निद्रतातृड्भ्रमरोमहर्षा
जृम्भातिवाक्त्वं च चलात्सपित्तात्।।२४।।
तापहान्यरुचिपर्वशिरोरुक्
पीनसश्वसनकासविबन्धाः ।
शीतजाड्यतिमिरभ्रमतन्द्राः
श्लेष्मवातजनितज्वरलिङ्गम्।।२५।।
शीतस्तम्भस्वेददाहाव्यवस्था
तृष्णाकासश्लेष्मपित्तप्रवृत्तिः।
मोहस्तन्द्रालिप्ततिक्तास्यता च
ज्ञेयं रूपं श्लेष्मपित्तज्वरस्य।।२६।।

(Śirortimūrcchāvamidāhamoha-
kaṇṭhāsyaśoṣāratiparvabhedāḥ ।
unnidratātṛḍbhrmaromaharṣā
jṛmbhātivāktvam ca calātsapittāt ।। 24 ।।
Tāpahānyaruciparvaśiroruk
pīnasaśvasanakāsavibandhāḥ ।
śītajāḍyatimirabhramatandrāḥ
śḷeṣmavātajanitajvaraliṅgam ।। 25 ।।
Śītastambhasvedadāhāvyavasthā
tṛṣṇākāsaśḷeṣmapittapravṛtti: ।
mohastandrāliptatiktāsyatā ca
jñeyam rūpam śḷeṣmapittajvarasya ।। 26 ।।)

Features of samsargaja jvara

Vātadoṣa with pittadoṣa, causes fever associated with headache, syncope, vomiting, sense of heat, illusion, dryness of the throat and whole mouth, restlessness, joint pain, sleeplessness, dipsesis, giddiness, horripilation, over-yawning and delirium.

The signs and symptoms of vātakaphajvara are decreased body temperature, anorexia, joint pain, headache, coryza, dyspnoea, cough, constipation, a cold feeling all over the body, inactiveness, blackout, giddiness and lassitude.

Fever caused by the combination of pitta and kapha can be assessed by the signs and symptoms i.e. feeling of cold and stiffness all over the body, over perspiration, sense of heat, all the symptoms are in an irregular nature, dipsesis, cough, spitting of mucus and bile, syncope, over lassitude and feeling of bitterness as if something is smeared inside the mouth.

सर्वजो लक्षणैः सर्वैर्दाहोऽत्र च मुहुर्मुहुः।
तद्वच्छीतं महानिद्रा दिवा जागरणं निशि।।२७।।
सदा वा नैव वा निद्रा मेहास्वेदोऽति नैव वा।
गीतनर्तनहास्यादिविकृतेहाप्रवर्तनम् ।।२८ ।।
साश्रुणी कलुषे रक्ते भुग्ने लुळितपक्ष्मणी ।
अक्षिणी पिण्डिकापार्श्वमूर्द्धपर्वास्थिरुग्भ्रमः।।२९।।
सस्वनौ सरुजौ कर्णौ कण्ठः शूकैरिवाचितः ।
परिदग्धा खरा जिह्वा गुरुः स्रस्ताङ्गसन्धिता ।।३०।।
रक्तपित्तकफष्ठीवो लोळनं शिरसोऽतिरुक् ।
कोठानां श्यावरक्तानां मण्डलानां च दर्शनम् ।।३१।।
हृद्व्यथा मलसंसङ्गः प्रवृत्तिर्वाऽल्पशोऽति वा ।
स्निग्धास्यता बलभ्रंशः स्वरसादः प्रलापिता ।।३२।।
दोषपाकश्चिरात्तन्द्रा प्रततं कण्ठकूजनम् ।
सन्निपातमभिन्यासं तं ब्रूयाच्च हृतौजसम् ।।३३ ।।
दोषे विबद्धे नष्टेऽग्नौ सर्वसम्पूर्णलक्षणः ।
असाध्यः सोऽन्यथा कृच्छ्रो भवेद्वैकल्यदोऽपि वा ।।३४ ।।

(Sarvajo lakṣaṇai: sarvair-
dāhoऽtra ca muhurmuhu: ।
tadvacchītam mahānidrā

divā jāgaraṇam niśi ॥ 27 ॥
Sadā vā naiva vā nidrā
mehāsvedoऽti naiva vā ।
gītanartanahāsyādi-
vikṛtehāpravartanam ॥ 28 ॥
Sāśruṇī kaluṣe rakte
bhugne luḷitapakṣmaṇī ।
akṣiṇī piṇḍikāpārśva-
mūrddhaparvāsthirugbhrama: ॥ 29 ॥
Sasvanau sarujau karṇau
kaṇṭha: śūkairivācita: ।
paridagdhā kharā jihvā
guru: srastāṅgasandhitā ॥ 30 ॥
Raktapittakaphaṣṭhīvo
loḷanam śiraso ऽtiruk ।
koṭhānām śyāvaraktānām
maṇḍalānām ca darśanam ॥ 31 ॥
Hṛdvyathā malasamsaṅga:
pravṛttirvāऽlpaśoऽti vā ।
snigdhāsyatā balabhramśa:
svarasāda: pralāpitā ॥ 32 ॥
doṣapākaścirāttandrā
pratatam kaṇṭhakūjanam ।
sannipātamabhinyāsam
tam brūyācca hṛtaujasam ॥ 33 ॥
Doṣe vibaddhe naṣṭeऽgnau
sarvasampūrṇalakṣaṇa: ।
asādhya: soऽnyathā kṛcchro
bhavedvaikalyadoऽpi vā ॥ 34 ॥)

Features of sannipātajvara

Sannipātajvara (occurring due the vitiation of 3 doṣas together) appears with all the symptoms and signs of individual doṣa jvaras besides showing the special features like the following characters:

Frequent burning sensation of the body or frequent cold feeling all over the body, either prolonged sleep in day time or vigil in night hours, over perspiration or complete absence of it, abnormal untimely physical activities like singing, dancing and laughing; tearful eyes, turbid reddish look with and oblique falling eyelashes. Pain appears in the calf area, costal areas, head, joints and inside the bones, along with giddiness; a feeling of heaviness and pain in the ears; irritation in the throat (that of a pierced paddy husk); a rough or heavy burnt tongue and lose joints are experienced. The patient may spit out blood with mucus and bile**,** he may tilt his head without particular reasons. Severe headache, appearance of blackish red urticarial spots or round shaped dis-colourations, pain in the mediastinum, constipation or loose motion or defaecation are also seen. Mouth unctuousness, debility, sore throat and delirium will also occur in this sannipātajvara cases.

Here doṣapāka occurs very slowly, severe lassitude and continuous irritating sound in the throat result.

These are the peculiar characters of sannipāta which is also known by the terms abhinyāsa and hṛtaujasa.

Sannipāta becomes non-manageable when it appears with all the prescribed signs and symptoms or when the doṣa elimination is obstructed resulting in a severe loss of digestive fire. In these conditions sannipāta becomes non-manageable or is converted into kṛcchra type (type of disease difficult to treat) or does causing some deformity in the physique.

[It is the peculiarity of sannipāta that here the symptoms having opposite nature may appear as the cardinal features. Either burning sensation or cold sensation all over the body, intensive

sleep or vigil, profuse perspiration or its complete absence appear in different conditions with respect to the characteristic features of the disease.

Tilting of head is a peculiar character of sannipāta which is well mentioned in other contexts i.e., particular only to sannipāta and not specific to eka and dvidoṣaja types. Here the doṣa is to be denoted as the abnormal secretions by the influence of deterioration of a particular doṣa. The secretion will be either well digested or evacuated naturally or by the stimulation of ingested medicines. If an obstruction is caused for this natural process, then the disease becomes serious.]

अन्यच्च सन्निपातोत्थो यत्र पित्तं पृथक् स्थितम्।
त्वचि कोष्ठेऽथवा दाहं विदधाति पुरोऽनु वा ।।३५।।
तद्वद्वातकफौ शीतं, दाहादिर्दुस्तरस्तयोः।
शीतादौ तत्र पित्तेन कफे स्यन्दितशोषिते ।।३६।।
शीते शान्तेऽम्लको मूर्च्छा मदस्तृष्णा च जायते।
दाहादौ पुनरन्ते स्युस्तन्द्राष्ठीववमिक्लमाः ।।३७।।

(Anyacca sannipātottho
yatra pittam pṛthak sthitam ।
tvaci koṣṭheऽthavā dāham
vidadhāti puroऽnu vā ।। 35 ।।
tadvadvātakaphau śītam,
dāhādirdustarastayoḥ ।
śītādau tatra pittena
kaphe syanditaśoṣite ।। 36 ।।
Śīte śānteऽmlako mūrcchā
madastṛṣṇā ca jāyate ।
dāhādau punarante syu-
standrāṣṭhīvavamiklamāḥ ।। 37 ।।)

There is another type of sannipātajvara, where pittadoṣa will appear separate either in the skin or inside the koṣṭha and produces burning sensation just before the attack of fever or followed by the end of attack. Likewise, vāta and kapha doṣas also appear together and do cause a sensation of cold (as in the case of pittadoṣa described previously). Among these two phenomena dāhādijvara (previous condition influenced by the separated pitta-doṣa) is more difficult to manage.

In śītādijvara, there is a cold sensation which is due to the influence of vāta and kapha where this kapha becomes liquefied and is dried up by pitta later, and thus causes acidity in the digestive tract, syncope, intoxicated condition and severe thirst. Similarly, there is a burning sensation in the dāhādijvara, which later causes severe lassitude, spitting of mucus, vomiting and tiredness.

आगन्तुरभिघाताभिषङ्गशापाभिचारतः।
चतुर्धात्र क्षतच्छेददाहाद्यैरभिघातजः ।।३८।।
श्रमाच्च तस्मिन्पवनः प्रायो रक्तं प्रदूषयन्।
सव्यथाशोफवैवर्ण्यं, सरुजं कुरुते ज्वरम् ।।३९।।
ग्रहावेशौषधिविषक्रोधभीशोककामजः।
अभिषङ्गात् ग्रहेणास्मिन्नकस्माद्धासरोदने ।।४०।।
ओषधीगन्धजे मूर्च्छा शिरोरुग्वमथुः क्षवः।
विषान्मूर्च्छातिसारास्यश्यावतादाहहृद्रदाः ।।४१।।
क्रोधात्कम्पः शिरोरुक् च प्रलापो भयशोकजे।
कामाद्भ्रमोऽरुचिर्दाहो ह्रीनिद्राधीधृतिक्षयः ।।४२।।
ग्रहादौ सन्निपातस्य भयादौ मरुतस्त्रये।
कोपः कोपेऽपि पित्तस्य यो तु शापाभिचारजौ ।।४३।।
सन्निपातज्वरौ घोरौ तावसह्यतमौ मतौ।
तत्राभिचारिकैर्मन्त्रैर्हूयमानस्य तप्यते ।।४४।।
पूर्वं चेतस्ततो देहस्ततो विस्फोटतृड्भ्रमैः।
सदाहमूर्च्छैर्ग्रस्तस्य प्रत्यहं वर्द्धते ज्वरः ।।४५।।

(Āganturabhighātābhi-
ṣaṅgaśāpābhicārataḥ ।

caturdhātra kṣataccheda-
dāhādyairabhighātaja: ॥ 38 ॥
Śramācca tasminpavana:
prāyo raktam pradūṣayan ।
savyathāśophavaivarṇyam,
sarujam kurute jvaram ॥ 39 ॥
Grahāveśauṣadhiviṣa-
krodhabhīśokakāmaja: ।
abhiṣaṅgāt graheṇāsmi-
nnakasmāddhāsarodane ॥ 40 ॥
Oṣadhīgandhaje mūrcchā
śirorugvamathu: kṣava: ।
viṣānmūrcchātisārāsya-
śyāvatādāhahṛdgadā: ॥ 41 ॥
Krodhātkampa: śiroruk ca
pralāpo bhayaśokaje ।
kāmādbhrmoऽrucirdāho
hrīnidrādhīdhṛtikṣaya: ॥ 42 ॥
Grahādau sannipātasya
bhayādau marutastraye ।
kopa: kopeऽpi pittasya
yo tu śāpābhicārajau ॥ 43 ॥
Sannipātajvarau ghorau
tāvasahyatamau matau ।
tatrābhicārikairmantrair-
hūyamānasya tapyate ॥ 44 ॥
Pūrvam cetastato deha-
stato visphoṭatṛḍbhrmai: ।
sadāhamūrcchairgrastasya
pratyaham varddhate jvara: ॥ 45 ॥)

Āgantu jvara - varieties

Āgantu jvara is classified into four viz. abhighātaja, abhiṣaṅgaja, śāpaja and abhicāraja. Out of these, abhighātaja (one occurring by trauma) happens with the affluence of sharpened instruments as cut, incision, etc. or by burning the body parts. By overstrain also abhighātaja type of jvara appears in which vitiated vātadoṣa influences the blood first and vitiates it also. This then causes pyrexia associated with different types of aches, edema and pallor all over the body especially with body pain.

Abhiṣaṅga is an affliction and the affliction of grahāveśa, intense herbs, toxic agents, emotions like anger, fear, sorrow and desire, cause fever as the second category of extrinsic type.

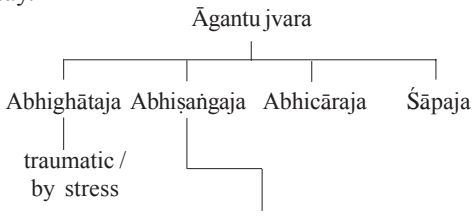
Cardinal features of fever by grahāveśa (obsession of external bodies over the patient) are untimely laughter or sorrow. Syncope, headache, tremor and severe sneezing are seen in the fever due to the snuffing of intense herbs. Syncope, loose motion, blackish colouration of face, sense of heat and discomfort in the heart area are the features of affliction of toxic agents in common.

By the over influence of hatred, jvara may appear with tremor and headache. Delirium may occur in the fever caused by the infliction of sorrow. Vertigo, anorexia and burning sensation are seen in fever caused by lust; and there will not be shame, sleep, intelligence and boldness.

Sannipāta vitiation occurs in the jvaras caused by grahāveśa, oṣadhīgandha and viṣa. Pitta vitiation occurs in krodhaja jvara. Vāta gets deteriorated in bhayaja, śokaja and kāmaja varieties of abhiṣaṅga category of extrinsic fevers. The last two categories of extrinsic fever i.e. śāpaja and abhicāraja are dangerous as well as unbearable.

In abhicāraja category, the mind of the patient is influenced first by the effect of ābhicārika hymns (used by his enemies) and later the disease is transferred to the body and then the patient will be disturbed by the formation of a particular kind of bullae all over the body.

Dipsesis, giddiness, burning sensation and syncope may torture the inflicted. Besides he may suffer from pyrexia which worsens day by day.



इति ज्वरोऽष्टधा दृष्टः समासाद्द्विविधस्तु सः।
शरीरो मानसः सौम्यस्तीक्ष्णोऽन्तर्बहिराश्रयः ।।४६ ।।
प्राकृतो वैकृतः साध्योऽसाध्यः सामो निरामकः।
पूर्वं शरीरे शारीरे तापो, मनसि मानसे ।।४७ ।।
पवने योगवाहित्वाच्छीतं श्लेष्मयुते भवेत्।
दाहः पित्तयुते, मिश्रं मिश्रेऽन्तःसंश्रये पुनः ।।४८ ।।
ज्वरेऽधिकं विकाराः स्युरन्तः क्षोभो मलग्रहः।
बहिरेव बहिर्वेगे तापोऽपि च सुसाध्यता ।।४९।।

(Iti jvaro'ṣṭadhā dṛṣṭa:
samāsāddvividhastu sa: ।
śarīro mānasa: saumya-
stīkṣṇo'ntarbahirāśraya: ।। 46 ।।
Prākṛto vaikṛta: sādhyo'-
sādhya: sāmo nirāmaka: ।
pūrvam śarīre śārīre
tāpo, manasi mānase ।। 47 ।।
Pavane yogavāhitvā-
cchītam śleṣmayute bhavet ।
dāha: pittayute, miśram
miśre'nta:samśraye puna: ।। 48 ।।
Jvare'dhikam vikārā: syu-
ranta: kṣobho malagraha: ।
bahireva bahirvege
tāpo'pi ca susādhyatā ।। 49 ।।)

Dual nature of various fevers

Thus the eight fold classification of jvara is seen. It includes seven nija types and one āgantu type. But generally jvara is two-fold in many ways viz. afflicting either body or mind; mild or powerful by nature; inside or outside the body by location; naturally afflicting or opposite in various seasons; manageable or not as per its treatment purview and sāma or nirāma according the diseased condition (Table 1).

TABLE 1
Dual nature of fevers

Factor	Types
1. Manifestation	Physical and mental
2. Nature	Mild and strong
3. Substratum	Internal and external
4. Season	Seasonal and abnormal
5. Management	Easy and difficult
6. Condition	With and without fear

[Two-fold nature of jvara is specified here and six types of such varieties are noted. Now explanation of such varieties is given in the following verses.]

The first variety is the division of jvara into śarīra and mānasa. In the former, temperature is seen first in the body and is transferred into mind later. In mānasa jvara the phenomenon is just the opposite.

Second variety is the two-fold classification of jvara into saumya and tīkṣṇa. Saumya (mild) type is due to vāta and kapha in which the patient experiences a cold condition. The reason for such experience is attributed to kapha which produces its own vīrya i.e. cold though associated with vāta. Vāta has the peculiar property of yogavāhitva (capacity to mingle with qualities of combined doṣa without loosing its own qualities) towards kapha. Likewise, in

tīkṣṇa (powerful) type, pitta is having a major involvement associated with vāta and thus the patient does experience the sense of heat. If vāta is followed by other two doṣas, then the patient might experience cold and heat intermittently.

Anta and bahirāśraya types come under the third variety. In the antarāśraya jvara, there are more complications such as severe burning sensation inside and constipation; whereas discomforts will be outside the body in bahirāśraya which is easy to cure.

वर्षाशरद्वसन्तेषु वाताद्यै: प्राकृत: क्रमात् ।
वैकृतोऽन्य: स दु:साध्य प्रायश्च प्राकृतोऽनिलात् ।।५०।।
वर्षासु मारुतो दुष्ट: पित्तश्लेष्मान्वितो ज्वरम् ।
कुर्यात् पित्तं च शरदि तस्य चानुबलं कफ: ।।५१।।
तत्प्रकृत्या विसर्गाच्च तत्र नानशनाद्भयम् ।
कफो वसन्ते तमपि वातपित्तं भवेदनु ।।५२।।
बलवत्स्वल्पदोषेषु ज्वर: साध्योऽनुपद्रव: ।
सर्वथा विकृतिज्ञाने प्रागसाध्य उदाहृत: ।।५३ ।।

(Varṣāśaradvasanteṣu
vātādyai: prākṛta: kramāt ।
vaikṛto'nya: sa du:sādhya
prāyaśca prākṛto'nilāt ।। 50 ।।
Varṣāsu māruto duṣṭa:
pittaśleṣmānvito jvaram ।
kuryāt pittam ca śaradi
tasya cānubalam kapha: ।। 51 ।।
Tatprakṛtyā visargācca
tatra nānaśanādbhayam ।
kapho vasante tamapi
vātapittam bhavedanu ।। 52 ।।
Balavatsvalpadoṣeṣu
jvara: sādhyo'nupadrava: ।
sarvathā vikṛtijñāne
prāgasādhya udāhṛta: ।। 53 ।।)

The fourth variety or two-fold classification is dealt with natural and abnormal fevers with respect to particular seasons. In rainy season natural type of jvara occurs due to vātadoṣa, in autumn season by pittadoṣa and in spring by kapha (if this type of jvara does not occur in this manner, it may then be difficult to manage).

All the abnormal types of jvara are difficult to manage and the natural types are easy to cure except the vātika type occurring in the rainy season.

The reason for vātajvara's severity is explained now.

In rainy season vāta will deteriorate naturally and it may cause fever associated with pitta and kapha, whereas in autumn, pitta has an upper hand and the associate is kapha. This combination can be checked by fasting, as it is the major treatment method in fever especially in its first stage; is easily applicable in this season as it is a visarga kind where body strength is not harmed.

Thus in spring season kapha is the major doṣa to produce jvara associated with the other two doṣas. Here also fasting can be implemented as the properties of it and those of kapha are counteracting.

The fifth variety contains curable and incurable jvaras, where the former occurs with less degree of doṣakopa in strong persons and jvara would not have any complications. Incurable type is already explained in the previous sthāna (Śārīra sthāna, 5/71-73) .

ज्वरोपद्रवतीक्ष्णत्वमग्ळानिर्बहुमूत्रता ।
न प्रवृत्तिर्न विड् जीर्णा न क्षुत्सामज्वराकृति: ।।५४ ।।
ज्वरवेगोऽधिकं तृष्णा प्रलाप: श्वसनं भ्रम: ।
मलप्रवृत्तिरुत्क्लेश: पच्यमानस्य लक्षणम् ।।५५ ।।
जीर्णताऽऽमविपर्यासात्सप्तरात्रं च लङ्घनात् ।

(Jvaropadravatīkṣṇatva-
magḷānirbahumūtratā ।
na pravṛttirna viḍ jīrṇā
na kṣutsāmajvarākṛti: ॥ 54 ॥
Jvaravegoऽdhikaṃtṛṣṇā
pralāpa: śvasanam bhrama: ।
malapravṛttirutkḷeśa:
pacyamānasya lakṣaṇam ॥ 55 ॥
Jīrṇatāऽऽmaviparyāsāt-
saptarātram ca laṅghanāt ।)

The last variety in this classification is the division of jvara into sāma and nirāma. A middle stage is also detailed here.

In sāmajvara the complications of jvara are more, the patient does not feel tired, though the urine out put is more. Natural elimination of fecal matter does not occur and is not formed. Loss of appetite is also observed as a cardinal symptom of sāmajvara.

After sāmajvara condition, the disease will gradually turn into pakva(nirāma)jvara. This turning stage is termed pacyamāna (though it is not a clear cut stage as sāma but it is given equal importance of sāma and nirāma stages as it is a turning point especially) as it has more importance, regarding the treatment

In pacyamāna stage of jvara the severity of affliction of temperature will be more, patient may feel severe thirst, may develop delirium, dyspnoea and giddiness. Defecation occurs but with utkḷeśa (presence of doṣa secretion inside the gut without being evacuated).

The features of nirāma jvara are the opposite characters of sāmajvara, which can be yielded by laṅghana for seven days .

[Here the characteristic features of nirāmajvara are mentioned in two ways, either the āma features should get pakva condition or 7 days of laṅghana is to be completed. Opposite features may be considered as mild with complications of fever, tiredness, less quantity of urine and defecation of pakva stools. According to some commentators opposite characters of pacyamāna jvara are also to be counted as āma condition persists in that stage too. Need 7 days' fasting to avail time for the malas of each dhātu to reach pakva condition.]

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EFFECT OF *HYGROPHILA SCHULLI* ON THE GROWTH AND DEVELOPMENT OF TESTES IN WISTAR RAT

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Abstract: Effect of *Hygrophila schulli* (*Asteracantha longifolia*) on the growth and development of testes in Wistar rat was studied by dividing thirty male weanling Wistar rats equally into three groups. The efficiency of *H. schulli* was evaluated on the basis of testes weight, histostructural observations and micrometry. Testes weight and micrometry measurements were observed. These were significantly higher in all the testicular tissues of rats belonging to group II. The thickness of capsule and the diameter of all germ cells, except spermatids, were seen to be significantly greater in group II compared to that of group I.

Introduction

Hygrophila schulli popularly known as kokilākṣa (Fig. Ia) is claimed to have aphrodisiac, tonic, hypnotic and diuretic actions (Kirtikar & Basu-1935, Chopra *et al* 1956, Sawant,1974 and Deshpande *et al* 1989). However there are no reports on experimental evaluation of *H. schulli* to substantiate the recorded medicinal uses in the literature. Therefore, the present investigations were conducted to know its effect on the growth, development and functional activity of the testes of male Wistar rats by feeding them daily with the seed powders.

Materials and methods

The seeds of *H. schulli* were collected and ground to a fine powder with the help of domestic mixer (Fig. Ib). The seed powder was then mixed with the rat feed at the concentration of 0.5 g per kg (500 ppm). Thirty male weaning Wistar rats were randomly divided into three groups, each containing 10 rats. Group I rats were fed with the normal diet and they served as Control group. The group II and group III served as Treatment groups and were fed with the diet containing 500 ppm seed powder of *H. schulli* and a proprietary āyurvedic drug respectively. The treatment was continued for 21 consecutive days. After completion of the trial, all the rats were sacrificed on 22nd day (Fig Ic). The testes were dissected and the gross weights were recorded (Fig. II). The testes were also subjected to histostructural studies (Singh and Sulochana, 1997, Smith and Bruton, 1977 and Sinha1978). The data of testes weight and micrometry were analyzed by using students "t" test (Snedecor and Cochran, 1968)

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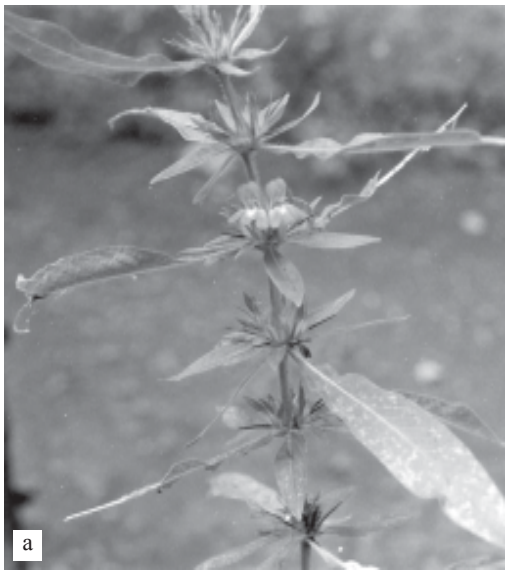
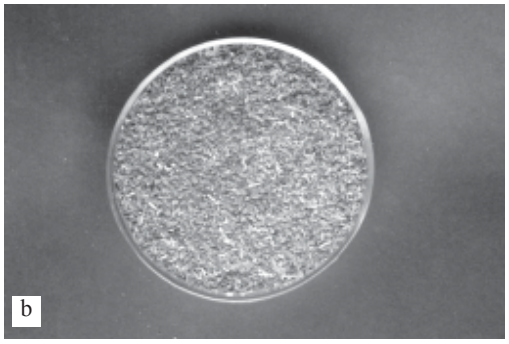




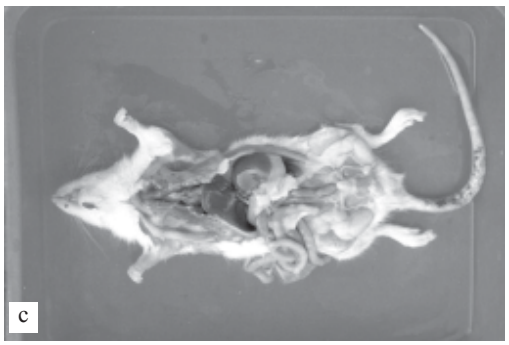


Fig. I a-c
a *Hygrophila schulli;* **b** Seeds of *Hygrophila schulli* **c** Dissection of experimental rat

Results and discussion

No changes were observed in the behaviour of rats in both the groups. The rats in both the treatment groups did not exhibit any treatment related visible adverse reaction.

Morphological studies

The mean weights of testes of the rats in the three groups are recorded in Table 1. The weight of testes of the control group rats was observed to be 1.53 + 0.14 g. The weights of testes among the *H. schulli* and proprietary drug treated rats were observed to be 1.92 + 0.023g and 1.88 +

TABLE 1
Effect of *H. schulli* seed powder and an ayurvedic drug on weights of the testes of male Wistar rats

Group/Treatment	Weights of organ (g) testes		
	Mean +	Range	(n)
I. Control (normal feed)	1.53 + 0.145	0.526 - 2.029	(10)
II. *H. schulli* @ 500ppm in feed	1.92 + 0.023*	1.8 - 2.0	(10)
III. Ayurvedic drug @ 500ppm in feed	1.88 + 0.022*	1.75 - 2.0	(10)

*Significantly higher than control group ($p<0.05$)

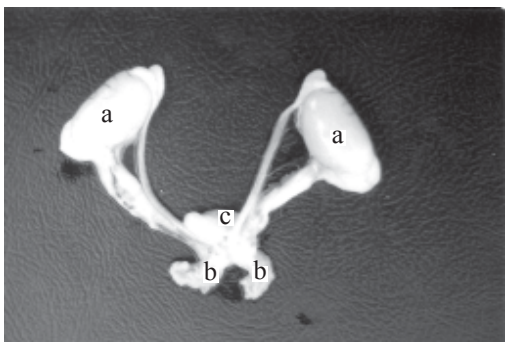
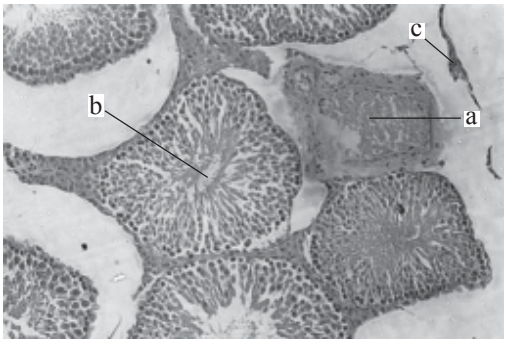


Fig. II
Reproductive tract of experimental rat
a - Testes; **b** - Seminal vesicle; **c** - Bulbourethral

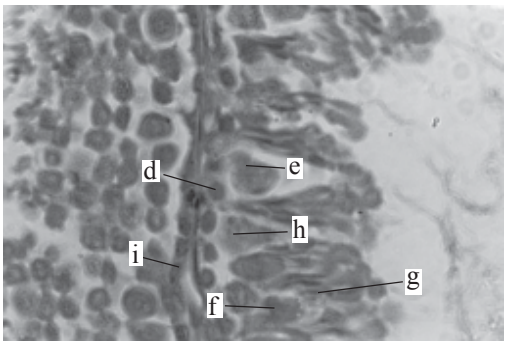
0.021 g respectively. The mean weights of the testes were significantly higher among the rats in *H. schulli* and proprietary drug group as compared to control group rats.

Histological and histochemical changes

The histological structure of testes of control group rats (Group-I) is shown in Fig. IIIa&b. The outermost layer of testes i.e. capsule consisted of connective tissue with blood vessels and muscle fibers having fibroblasts. The testicular parenchyma showed densely packed seminiferous tubules which are elongated, oval and convoluted in shape. The leydig cells are located in the interstitial space of the seminiferous tubules. The basement membrane of the seminiferous tubules is comprised of germinal epithelium and fibroblasts. The spermatogonia are arranged along the basement membranes. The primary spermatocytes, secondary spermatocytes and spermatids are serially arranged above the spermatogonia. The apical border of Sertoli cells is covered by cilia, which was mildly positive to glycogen (Fig. IV)



A



B

Fig. III A&B - Microphotograph showing cross section of tests of control group rat
A - H&E 100 X; B - H&E 400 X

a - Artery; **b** - Seminiferous tubule; **c** - Leydig cells **d** - Spermatogonia; **e** - Primary spermatocyte; **f** - Secondary spermatocyte; **g** - Elongated spermatides; **h** - Sertoli cells; **i** - Germinal epithelium

The histological structure of testes of rats fed on the diet containing *H. schulli* powder (Group-II) is shown in Fig. Va&b. The basic structure of the testes was similar to that of control group rats. The seminiferous tubules are arranged loosely with a wide interstitial space between the tubules. The apical border of the Sertoli cells was intensely positive to glycogen (Fig. VI).

The histology of testes of rats fed on diet containing the proprietary herbal drug (Group-

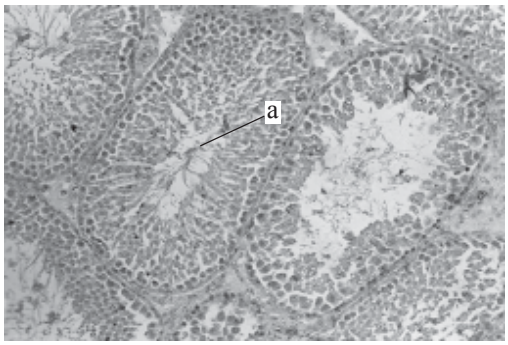
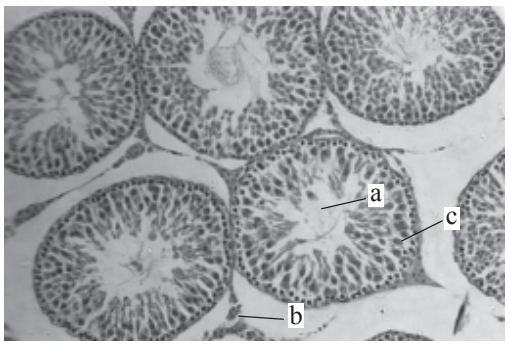


Fig. IV
Microphotograph showing cross section of tests of control group rat (Best's carmine 100 X)
a - Mild positive reaction for glycogen

III) is shown in Fig. VIIA&B. The basic structure of testes was similar to that of control group rats. The primary spermatogonia are large and the apical border of Sertoli cells showed intense secretary activity with elongated spermatids towards the lumen. The nuclear material is placed towards the periphery of the nuclei. Body of Sertoli cells was moderately positive to glycogen (Fig. VIII)

The micrometry of different anatomical structures of testes is given in Table 2. The mean



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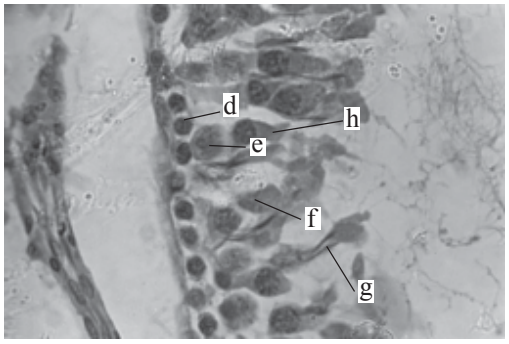


B

Fig. V A&B - Microphotograph showing cross section of tests of *Hygrophila schulli* group rat
A- H&E 100 X; B - H&E 400 X

a - Seminferous tubule; b - Leydig cells; c - Sertoli cells **d** - Spermatogonia; **e** - Primary spermatocyte; **f** - Secondary spermatocyte; **g** - Elongated spermatides; **h** - Sertoli cells

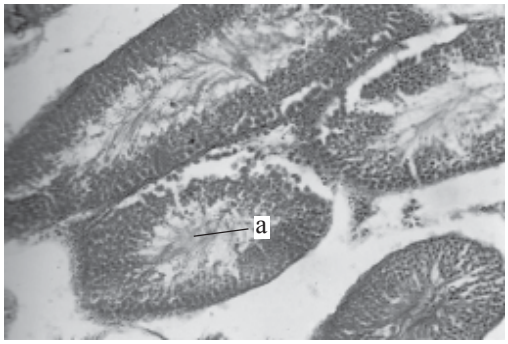
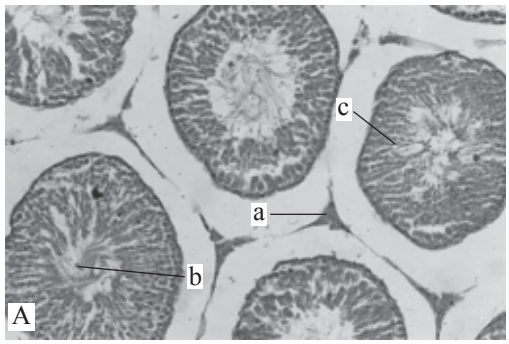


Fig. VI
Microphotograph showing cross section of tests of *Hygrophila schulli* group rat (Best's carmine 100 X)
a - Intensely positive reaction for glycogen



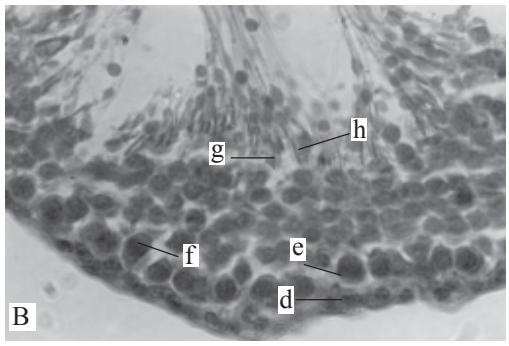


Fig. VII A&B - Microphotograph showing cross section of tests of Ayurvedic drug group rat
A - H&E 100 X; B - H&E 400 X
a - Leydig cells; **b** - Seminiferous tubules; **c** - Bleb at apical lobe of sertoli cell; **d** - Spermatogonia; **e** - Primary spermatocyte; **f** - Secondary spermatocyte; **g** - Spermatides; **h** - Elongated spermatides

TABLE 2

Effect of feeding of *H. schulli* seed powder and an ayurvedic drug on micrometry of the testes

Group/Treatment	Thickness of capsule	Dia. of seminiferous tubules	Thickness of interstitial space	Height of Sertoli cells
I. Control (normal feed)				
- Mean +	29.64 + 2.32	250.74 + 2.72	30.49 + 0.96	57.20 + 2.09
- Range	24.96 - 34.320	236.18 - 256.62	26.20 - 34.32	52.4 - 60.4
- (n)	(25)	(100)	(100)	(40)
II. *H. schulli* @ 500ppm in feed				
- Mean +	49.60 + 1.79[a]	270.89 + 2.86[a]	52.88 + 0.95[a]	68.30 + 1.27[a]
- Range	45.24 - 54.64	263.48 - 283.29	48.18 - 56.16	66.6 - 70.2
- (n)	(25)	(100)	(100)	(40)
III. Ayurvedic drug @ 500ppm in feed				
- Mean +	56.16 + 2.62[a,b]	313.98 + 2.32[a]	63.88 + 1.28[a]	69.70 + 1.56[a]
- Range	42.12 - 63.96	297.18 - 331.03	62.08 - 66.45	63.6 - 74.4
- (n)	(25)	(100)	(100)	(40)

[a] Significantly higher than control group ($p<0.001$); [b] Significantly higher than *H. schulli* group ($p<0.05$)

TABLE 3

Effect of feeding of *H. schulli* seed powder and ayurvedic drug on micrometry of micrometry of germ cells

Group/Treatment	Dia. of spermatogonia	Dia. of Primary spermatocytes	Dia. of Secon. spermatocytes	Spermatids
I. Control (normal feed)				
- Mean +	3.93 + 0.16	6.60 + 0.23	2.82 + 0.13	2.30 + 0.10
- Range	3.56 - 4.24	5.8 - 7.6	2.4 - 3.2	2.28 - 2.32
- (n)	(40)	(40)	(40)	(40)
II. *H. schulli* @ 500ppm in feed				
- Mean +	6.00 + 0.30[b]	9.10 + 0.30[b]	4.26 + 0.14[b]	2.74_+ 0.09[a]
- Range	5.6 - 6.2	8.8 - 9.4	3.96 - 4.48	2.48 - 3.12
- (n)	(40)	(40)	(40)	(40)
III. Ayurvedic drug @ 500ppm in feed				
- Mean +	7.20 + 0.24[b,c]	9.70 + 0.22[b]	4.22 + 0.12[b]	3.39 + 0.09[b]
- Range	7.00 - 7.4	9.2 - 10.02	4.08 - 4.36	3.24 - 3.48
- (n)	(40)	(40)	(40)	(40)

[a] Significantly higher than control group ($p<0.01$); [b] Significantly higher than control group ($p<0.001$); [c] Significantly higher than *H. schulli* group ($p<0.05$)

thickness of capsule in the three groups was 29.64_+2.32, 49.60_+1.79 and 56.16 + 2.62 microns, respectively. The thickness of interstitial space between the seminiferous tubules ranged from 30.49_+ 0.96 to 63.88 + 1.28 microns. The height of Sertoli cells in three groups was 57.20 + 2.09, 68.30 + 1.27 and 69.70 + 1.56 microns, respectively

The micrometry measurements of all the testicular tissues of rats fed on diet contained *H. schulli* (Group-II) or the proprietary drug (Group- III) were significantly higher than those of rats in control group. The thickness of capsule, interstitial space and diameter of seminiferous tubules were significantly greater in group III than in group II. The height of Sertoli cell was highly significant in *H. schulli* (Group II) and proprietary drug (Group III) than their values in control group rats.

The mean diameter of different stages of germ cells is depicted in Table 3. Among the control group rats the mean diameter values of spermatogonia, primary spermatocytes, secondary spermatocytes and spermatids were

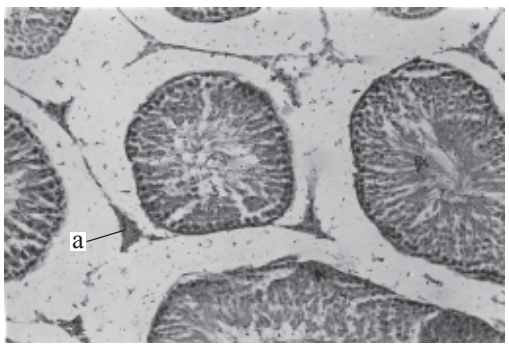


Fig. VIII - Microphotograph showing cross section of tests of Ayurvedic drug group rat (Best's carmine 100 X)
a - Moderate positive reaction for glycogen at apical border of Sertoli cells, Leydig cells and blood vessels

3.93 + 0.16, 6.60 + 0.23, 2.82 + 0.13 and 2.30 + 0.10 micron, respectively. These values in Group II and Group III varied from 6.00 + 0.34 to 7.20 + 0.24, 9.10 + 0.30 to 9.70 + 0.22, 4.26 + 14, 1.22 + 0.12 and 2.74 + 0.09 to 3.39 + 0.09 microns, respectively.

The diameter of all the stages of germ cells was significantly greater among the rats fed on diet containing *H. schulli* seed powder as compared to the values in control group. The rats fed on diet containing the proprietary drug showed higher diameter for all the stages of germ cells as compared to those of the rats in *H. schulli* group.

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EFFICACY OF BRAHMYĀDI YOGA IN THE MANAGEMENT OF UNMĀDA (SCHIZOPHRENIA)

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Abstract: Unmāda (schizophrenia) is one of the major psychiatric disorders, usually resulting from a peculiar destruction of internal connections of the psychic personality. Genetic, biochemical, developmental, familial, social and immunological (vital) factors have been implicated in the course of development of the disease. A clinical trial was conducted at Advanced Centre for Ayurveda in Mental Health and Neurosciences, NIMHANS, Bangalore to evaluate the efficacy of Brahmyādi yoga in unmāda (schizophrenia) patients and the study proved the efficacy of the formulation.

Introduction

In āyurveda, psychosis has been classified from different viewpoints for its better management. Unmāda is a major type of mental disorder considered as ubhayāśraya or ubhayādhiṣṭha vikāra. According to Carakasamhita, unmāda is caused due to the vitiated śārīrika and mānasika doṣa mounting with upward pressure and manifesting as the unsettled state of manas, buddhi, samjña jñāna, smṛti, bhakti, śīla, ceṣṭa and ācāra[1].

Caraka, while describing the etio-pathogenesis of unmāda, emphasizes the role of genetic predisposition (alpasatva) and the impact of theory of karmaphala, besides wide range of environmental factors[2]. This condition can be compared with schizophrenia, a psychotic condition where there are specific abnormal symptoms relating to patient's thinking, emotion, conation and psychomotor behavior.

According to modern concept, schizophrenia is a severe mental disorder. The word 'schizophrenia' is derived from the Greek roots *schizein* (to split) and *phren* (mind). It most commonly manifests as auditory hallucinations, paranoid or bizarre delusions, disorganized speech and thinking with significant social or occupational dysfunction. Onset is usually in young adulthood[3] and about 0.4-0.6%[4a,b] of the population are affected. Diagnosis is based on the patient's self-reported experiences and observed behavior. No laboratory test for schizophrenia currently exists[5].

Studies suggest that genetics, early environment, neurobiology, psychological and social processes are important contributory factors; some recreational and prescription drugs appear to cause or worsen symptoms. Current psychiatric research is focused on the role of neurobiology, but no single organic

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cause has been found. Due to the many possible combinations of symptoms, there is debate about whether it is a single disorder or a number of discrete syndromes. For this reason, Eugen Bleuler termed the disease *the schizophrenias* (plural). Despite its etymology, schizophrenia is not the same as dissociative identity disorder, previously known as multiple personality disorder or split personality; though the two are often confused.

Increased dopamine activity in the mesolimbic pathway of the brain is consistently found in schizophrenia. The mainstay of treatment is antipsychotic medication; and the drug primarily suppresses dopamine activity. Comparatively dosages of antipsychotics are low now. Psychotherapy, vocational and social rehabilitation are also important. In more serious cases - where there is risk to self and others - involuntary hospitalization may be necessary, although hospital stays are less frequent and for shorter periods now[6].

The disorder is thought to mainly affect cognition, but it also contributes to chronic problems with behavior and emotion. People with schizophrenia are likely to have additional (comorbid) conditions, including major depression and anxiety disorders[7]; the lifetime occurrence of substance abuse is around 40%. Social problems such as long-term unemployment, poverty and homelessness, are common. Furthermore, the average life expectancy of people with the disorder is 10 to 12 years less due to physical health problems and a higher suicide rate[8].

Schizophrenia at a glance

- Schizophrenia is an extremely puzzling condition, the most chronic and disabling of the major mental illnesses. Approximately 1% of the population develop schizophrenia during their lives.
- With the sudden onset of psychosis, the individual is said to be experiencing acute schizophrenia. Psychosis means out of touch with reality, or unable to separate real from unreal experiences.
- There is no known single cause of schizophrenia. Genetic factors produce a vulnerability and environmental factors contributes to different degrees in different individuals.
- There are various treatments for schizophrenia. The public should beware of those offering "a cure" for (or "the cause" of) schizophrenia, because the complexity is such that it cannot be cured.

The Indian classics mention various indigenous preparations for the treatment of different manasika vikaras[9]. Brahmyādiyoga is one such formulation of medicinal plants[10] in the form of capsule, developed by the CCRAS. The present study was carried out to evaluate the efficacy of the Brahmyādiyoga in unmāda.

Materials and methods

It was a single group study carried out at the OPD level on 27 cases.

Selection criteria

Patients who were ambulatory and co-operative of either sex, between the age group of 16 and 45 with the presence of cardinal symptoms of the disease and the chronicity of illness between 1 month to 10 years.

Exclusion criteria

The unmada patients suffering with other diseases like epilepsy, mental retardation,

organic brain syndrome, sexually transmitted diseases and who were having the history of alcohol or any other drug dependency. The schizophrenics aged below 16 above 45 years, and/or if the duration of the illness is <1 month or >10 years were also excluded.

Diagnostic criteria

Psychiatric diagnosis was done on the basis of Brief Psychiatric Rating Scale (BPRS), Scale for the Assessment of Negative Symptoms (SANS) and Scale for the Assessment of Positive Symptoms (SAPS). Āyurvedic diagnosis was carried out on the basis of signs and symptoms of unmāda mentioned in āyurvedic classics.

Assessment criteria

Psychiatric assessment was done by using the scales, which include BPRS, SAPS and SANS.

The Brief Psychiatric Rating Scale (BPRS) is the oldest rating scale. It was developed in the 1960's and used factor analysis to sift through a broad array of symptoms of psychiatric patients thus generating a relatively smaller number of factors. These include conceptual disorganization, hostility, and social withdrawal. The BPRS is still widely used, although most of the items rated are relatively abstract when compared to the specific symptoms currently used.

The Scale for Assessment of Negative Symptoms (SANS) and the Scale for the Assessment of Positive Symptoms (SAPS) were designated to provide a complete coverage of the symptoms of psychosis than that of the BPRS. The SANS is the only scale that is widely used to assess negative symptoms. These scales rate symptoms such as delusions, hallucinations, and positive formal thought disorder.

Āyurvedic assessment: - A qualitative assessment was carried out on the basis of lakṣaṇas mentioned in āyurvedic classics. Psychiatric and āyurvedic assessments were carried out before starting the treatment and at every two months interval, till the completion of the treatment and one final assessment (after six months) on completion of treatment.

Drug, dose and vehicle

Brahmyādiyoga is a combination formulated by the senior scientific team of the CCRAS. Brahmyādiyoga capsules (500mg) has been administered at a dose of two capsules thrice daily with hot water for six months.

The trail drug was supplied by the Council's pharmacy at CRI, Kolkatta. The study drug, consisting of brahmi (*Centella asiatica*), vaca (*Acorus calamus*), sarpagandha (*Rauwolfia serpentina*), kuṣṭha (*Saussurea lappa*) tagara (*Valeriana jatamansi*) and jaṭamānsi (*Nardostachys grandiflora*) in equal ratio, was prepared and supplied in capsule form.

The interpretations of results in evaluating the effect of Brahmyādi yoga on patients suffering from unmāda (schizophrenia) were done under the following categories: If the overall response (improvement) is: >5% - Good response; >50% but <75% - Fair response; >25% but <50% - Poor response; 25% (or) less - No response.

Observations and results

Majority of unmāda patients fell in the age group between 26 and 35 (Table 1). The observations done on sex wise distribution infer that the incidence of unmāda is slightly high in males (53.8%) when compared to females (46.2%). The analysis done on prakṛti-wise distribution showed that majority i.e. 18 (69.2%) of unmāda patients belong to vāta-pitta prakṛti and 8 (30.8%) vāta-kapha prakṛti.

TABLE 1
Age and sex wise distribution of patients

Age (in years)	Male		Female	
	No.	%	No.	%
16-25	02	7.7	03	11.5
26-35	10	38.5	05	19.2
36-45	02	7.7	04	15.4

After a period of six-months the vātajonmāda lakṣaṇas decreased by 59.5%, pittajonmāda lakṣaṇas by 62.3% and kaphajonmāda lakṣaṇas by 48.5%. There was 67.5% improvement in BPRS, 67.1% in SANS and 66.7% in SAPS. The overall improvement in all clinical parameters was highly significant statistically (Table 2). Six patients showed good response, sixteen patients fair response and four patients responded poorly. One patient discontinued the treatment. It was also found that patients belonging to the vātaja and pittaja unmāda responded better (94.4%) when compared to the patients suffering from kaphaja unmāda (62.5%) (Table 3)

Discussion

A glance on the general pathogenesis of unmāda reveals that the excited doṣa of an individual with alpasatva (weak psyche) mounting upward through manovahasrotas vitiate hṛdaya which is the seat of buddhi and disturb manas which is located between sira and talu and occlude manovahasrotas. As a result, citta is disturbed. This in turn causes loss of buddhi. Due to this, the power of discrimination is depleted and thereby indulges in faulty activities. This disturbed state is referred to as unmāda.

TABLE 3
Result of the treatment in vataja, pittaja and kaphaja types of unmada

Type of unmada	Response				LMA	Total
	Good	Fair	Poor	No		
Vataja	04	6	00	00	01	11
Pittaja	01	6	01	00	00	08
Kaphaja	01	4	03	00	00	08
Total	06	16	04	00	01	27

Rasāyana therapy

Ācārya Suśruta has mentioned the aim of rasāyana as a four-fold viz. i) longevity, ii) maintenance of positive health, iii) improvement

TABLE 2
Effect of the therapy on symptoms of unmāda (schizophrenia)

Parameters (n=26)	Mean score		Mean diff.	% of diff.	SD (+)	SE (+)	't' value	p value
	BT	AT						
1. Vātajonmāda lakṣaṇa	39.8	16.1	23.7	59.5	11.3	2.2	10.8	<0.001
2. Pittajonmāda lakṣaṇa	30.8	11.6	19.2	62.3	10.4	2.1	9.2	<0.001
3. Kaphajonmāda lakṣṇa	29.5	15.2	14.3	48.5	11.9	2.3	7.9	<0.001
4. Brief Psychiatric Rating Scale (BPRS)	41.0	13.3	27.7	67.5	8.4	1.6	18.5	<0.001
5. Scale for Assessment of Negative Symptoms (SANS)	54.4	17.9	36.5	67.1	15.4	3.0	12.3	<0.001
6. Scale for Assessment of Positive Symptoms (SAPS)	62.0	20.6	41.4	66.7	17.6	3.4	12.2	<0.001

of three mental faculties of intelligence, perseverance and memory and iv) resistance against diseases. Rasāyana therapy in general has a relevance to both the healthy (kāmya rasāyana) and the ailing (naimittika rasāyana), the emphasis on these two aspects are varying.

Pharmacodynamics of rasayana

Rasāyana drugs have varied phrmacodynamic properties. Probably there is not much relation with their properties of rasa, guṇa, vīrya and vipāka.

1. Rasāyana may act at the level of rasa - by improving the nutritional status of rasa and in turn by improving tissue nourishment. Rasāyana drugs having madhura, guru, snigdha and śīta guṇa may acts at this level by promoting the nutritional value of poṣaka rasa, which in turn helps in obtaining the best qualities of dhatus: e.g. śatāvari, karjura, milk and ghṛta.
2. Rasāyana drugs act at the level of agni - The rasāyana drugs possessing the uṣṇa, laghu, rūkṣa guṇa and kaṭu, tikta, kaṣāya rasa may be acting at the level of agni (digestion and metabolism) by improving the digestive capacity and by vitalizing the metabolic activities (improving jaṭharāgni and dhātvāgnis) of the body: e.g. āmalaki, pippali, harītaki, viḍaṅga, citraka.
3. Rasāyana drugs act at the level of srotas - Similarly the drugs with kaṭu, tikta and kaṣāya rasa, uṣṇa vīrya, kaṭu vipāka, visida, rūkṣa and laghu guṇas may produce the rasayana effect at the level of srotos by improving microcirculation and the rate of digestion and metabolism. These drugs cause srotośodhana (cleansing of channels) and thus allow efficient blood circulation and improve tissue nourishment and there by maintaining its structural integrity and functional capacity: e.g. guggulu, rasona, kastūri.

Pharmacodynamics of Brahmyādiyoga

The Brahmyādi yoga is able to pacify śārīrika and mānasika doṣas due to its properties like madhura, kaṭu rasa, tridoṣa śamaka and srotośodhana (Table 4) as it removes the occlusion in manovahasrotas on the one side and it helps in bringing the normalcy of satva of the affected person due to its medhya property on the other; hence Brahmyādi yoga helps in breaking pathogenesis (samprāpti ghaṭakas) which are involved in pathogenesis of unmāda.

Due to their medhya rasāyana property, Brahmyādi drugs act at the level of rasa and agni by enriching the nutritional value of the medha and thereby increasing the stress tolerance (not only brings the normalcy of satva and also helps in improving its functional capability and bringing the dopamine level to the normal state respectively in patients suffering from unmāda (schizophrenia).

On the other hand, the drugs that increase dopamine activity (like amphetamines), induce or exacerbate schizophrenia, have given rise to the 'Dopamine theory of Schizophrenia' envisaging dopamine over-activity in limbic area which is responsible for the condition. As an adaptive change to the blockade of dopamine receptors the firing of dopamine neurons and turnover of dopamine increase initially. However, over a period of time this subsides and gives way to diminished activity.

The antipsychotic drugs, which is having dopamine receptor blocking action shows good

therapeutic efficacy in schizophrenia. Blockage of dopaminergic projections to the temporal and prefrontal areas constituting the limbic system and mesocortical areas is probably responsible for the antipsychotic action.

Conclusion

On the basis of this clinical observation and the discussion made, it may be concluded that the Brahmyādi yoga is basically a medhya rasāyana and is able to pacify the vitiated doṣas which are contributing to the pathogenesis of unmāda. So this can be administered as an adjuvant therapy to the unmāda patients because it is a safe, effective and useful āyurvedic drug.

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TABLE 4
Pharmacodynamics of Brahmyādi yoga

Drug name	Rasa	Guṇa	Vīrya	Vipāka	Prabhāva	Karma
Brahmi	Tikta Sara	Laghu	Śīta	Madhura	Medhya	Tridoṣaghna, śodhahara, vedanāsthāpana, viṣaghna, medhya, ākṣepahara, dīpana, pācana, anulomana, raktaśodhaka, kaphaghna, mūtraḷa, ārtavajanana, svedajanana, kuṣṭhaghna, kaṇḍughna and āma pacana.
Vaca	Kaṭu Tikta	Laghu Tīkṣṇa Sara	Uṣṇa	Kaṭu	Medhya	Kaphavātaśāmaka, kaṇṭhya, medhya, sañjāsthāpana, vedanāsthāpana, krimighna, arśoghna, anulomaka, kāsa-śvāsahara, śūlaghna, vāmaka, dīpana, mūtrajanana, ākṣepaśamana, svedajanana and jvaraghna.
Sarpagandha	Tikta	Rūkṣa	Uṣṇa	Kaṭu	Nidrājanana	Kaphavātahara, nidrājanana, jvaraghna, viṣaghna, krimighna; useful in nāḍīvikāra, apasmāra, unmāda, agnimāndya, udaraśūla and raktavikāra
Kuṣṭha	Tikta Kaṭu Madhura	Laghu Rūkṣa Tīkṣṇa	Uṣṇa	Kaṭu	-	Vātakaphahara, śukraḷa; useful in kuṣṭha, visarpa, vātarakta.
Tagara	Tikta Kaṭu Madhura Kaśāya	Laghu, Snigdha Sara	Uṣṇa	Kaṭu	-	Viṣāpasmāra, śūla, akṣiroga, doṣatrayāpaha
Jaṭāmānsi	Tikta Kaṣāya Madhura	Laghu Tīkṣṇa Snigdha	Śīta	Kaṭu	Bhūtagna (manasa doṣahara)	Tridoṣaghna, dāhapraśamana, kuṣṭha-visarpaghna; useful in rakta vikāras.

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ETHNO-MEDICINAL PLANTS USED BY BODO TRIBES OF KOKRAJHAR DISTRICT OF ASSAM - A COMPARATIVE REVIEW WITH ĀYURVEDIC TEXTUAL INFORMATION

Bharali*, D. Baruah**, T.Borah**, S.N. Murthy**

Abstract: This paper deals with the ethno-medicinal survey and study with relation to Bodo tribes in Kokrajhar district of Assam. 32 plants species of Angiosperms and Pteridophytes belonging to 29 families, which are widely available, were chosen for the study. It was found that the Herbalism of Angiosperms and Pteridophytes i.e. herbs, shrubs and trees used by the Bodo tribes of this region for meeting their health care needs deserve special attention as it plays a significant role largely in the health care system of the populace. The study revealed the Ethno-medicinal information regarding the remedies of some disease of national concern viz. jaundice, malaria, dysentery, worm infestation, stomach trouble, etc.

Introduction

The Bodos being one of the earliest groups of settlers in this part of the globe, their evolution has directly or indirectly been associated and influenced with the surrounding environment. Their dependence on plants in their close vicinity made them acquire the knowledge of medicinal properties of many plants by method of trial and error. Traditionally, the Bodo people are very knowledgeable about plants on which they are dependant for their health requirements. The richness and diversity of the tropical flora of this part have the largest concentration of medicinal plants of angiosperms and pteridosperms. Altogether 32 medicinal plants of angiosperms and pteridosperms have been ethno-botanically studied and documented after thorough interaction with the vaidyas, kabiraj, ojhas, medicine men of the Kokrajhar district, particularly Haltugaon, Balajangaon, Salakatigaon, Simbargaon, Bagansali, etc. and is tabulated (Table 1)

Study site

Kokrajhar district is located on the north bank of the river Brahmaputra that slices the state of Assam into two well known as north and south bank. The district roughly lies between 89.46'E to 90.38' E longitudes and 26.19''N to 26.54''N latitudes. Himalayan kingdom of Bhutan lies to the north, the Dhubri district to the south, the Bongaigaon district to the east and the state of West Bengal to the west. Thus broadly it can be described as the gate way to the north-eastern states of India. It is easily accessible by road and rail. Ecologically the district is situated in a humid sub-tropical climate i.e. characteristic

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TABLE 1

List of the plants used as ethno-medicine in Bodo community

Name			Parts used	Healers claim	Textual views
Scientific	Sanskrit	Local			
1. *Plumbago zeylanica*	Citraka	Agorochita	Leaf Root	20 ml fresh leaf juice is administered orally twice a day in jaundice. The root paste is applied locally on dog bite area.	Root is indicated in dyspepsia, piles, diarrhoea and skin diseases.
2. *Jatropha gossypifolia*	-	Andagaija	Leaf	Extracted fresh leaf juice - 2-3 drops is given twice daily to stop nasal bleeding	Leaf paste is applied to boils, carbuncles, eczema, itches, and also used as purgative.
3. *Terminalia arjuna*	Arjuna	Arjun	Leaf Bark	Leaf juice and decoction of bark (20 ml) twice daily is administered orally in blood dysentery and urinary troubles.	Bark powder is used as a cardiac tonic and relieves hypertension. Leaf juice is used as ear drop for ear-ache.
4. *Ficus glomerata*	Udumbara	Audumbera	Fruit Gum or oleo-resin	Fruits are used in dysentery and to enhance the breast milk; gum resin is applied locally to subside boils.	Fruits are given in menorrhagia and haemoptysis; and gum resin in piles and diarrhoea.
5. *Mimusops elengi*	Bakuḷa	Bakul	Bark Leaf	20 ml crushed leaf juice is given twice daily in worm infestation, and bark juice is applied on gum swelling.	Bark juice is used for fever and leaf juice or paste is applied for snake bite.
6. *Annona squamosa*	Gaṇḍagātra	Balam	Fruit	In take of fruits subside boils and stomach disorders.	Fruits are used in insecticide/fish poisons, and to remove lice from head.
7. *Terminalia bellirica*	Vibhītakī	Baora	Fruit	Fruit juice used in soar throat and in stomach problems.	Fruits are laxative and antipyretic; used in piles, dropsy, diarrhoea, etc.
8. *Brassica campestris*	Kālasarṣapa	Besor		Leaf juice (20 ml thrice daily) is administered in cold, cough and leprosy.	Leaf is indicated in stomach ache.
9. *Musa paradisica*	Rambhā	Bhimtalit	Root Stem	Ash juice (20ml twice) is used for allergic throat trouble	Used in blood and venereal diseases.
10. *Zizyphus jujuba*	Badari	Bigri	Leaf Branch	A branch with leaf kept hanging in the entrance of house to cure cracked lips and mouth ulcer.	Leaf in strangury

Cont....

Name			Parts used	Healers claim	Textual views
Scientific	Sanskrit	Local			
11. *Acorus calamus*	Vacā	Bis bifang	Leaf Rhizome	Paste is applied on the forehead for immediate relief from unconcious condition.	Rhizome in dyspepsia, remittent fever and snake bite.
12. *Costus speciosus*	Kuṣṭha	Budhi thakan	Whole-plant	Paste is applied on the forehead in high fever for immediate relief.	Used as purgative, tonic and stimulant; also used in snake bite.
13. *Gentiana chirayita*	Kairāta	Cirata	Whole-plant	Extracted juice is given in chronic fever and skin diseases.	Used as tonic, stomachic, febrifuge, and laxative.
14. *Polygonum chinense*	-	Dalashri	Leaf Root	20 ml juice thrice daily is given in jaundice till relief.	Plant is used as a tonic.
15. *Bidens pilosa*	-	Daomei	Leaf	20 ml extracted juice twice daily is given to increase breast milk and paste is applied to cure bone fracture.	Used in cough, ulcer and swollen glands.
16. *Mimosa pudica*	Lajjālu	Daosa Mekhereb	Leaf/seed Root	Paste with milk is applied in ulcer; root juice given for tooth ache.	Leaf juice and root paste are used in piles and fistula. Leaf paste is rubbed on hydrocele.
17. *Oldenlandia corymbosa*	Parpaṭa	Daoshri Aitharcy	Whole-plant	Juice is given to rinse in case of mouth ulcer.	Decoction is given in remittent fever with gastric irritation and nervous depression.
18. *Oroxylum indicum*	Śyonāka	Kharau Khandai	Bark/leaf	20 ml decoction twice daily is given in jaundice till relief.	Root bark is useful in diarrhoea and dysentery.
19. *Lygodium japonicum*	-	Dinkia bendang	Leaf Root	Extract juice (20ml) twice daily is given to enhance breast milk; paste is applied on ulcer, fracture, and dislocation.	Plant is used as an expectorant.
20. *Canarium bengalense*	-	Dhuna	Gum-resin	Two pins administered in loose motion and blood dysentery.	Leaf and bark are used externally for rheumatic swelling.
21. *Coccinia indica*	Bimbī	Gumbri / Thainasi	Leaf	Leaf is taken as curry to enhance strength and vigour.	Used in diabetes, and gonorrhoea and externally applied in skin eruptions.
22. *Portulaca oleracea*	Lonika	Hangso garamai fisajat	Leaf Stem Root	Extracted juice (20ml) twice daily is given in headache, hoarseness of voice and pox (easily manifestation).	Used as a diuretic and in scurvy and liver diseases.

Cont....

Name			Parts used	Healers claim	Textual views
Scientific	Sanskrit	Local			
23. *Enhydra fluctuans*	Hilamochi	Helenchi	Leaf	20 ml extracted juice twice daily in insomnia and edible.	Useful in skin and nervous affections and laxative.
24. *Zanthoxylum budrunga*	Tikta	Jabrang gidit	Root Seed Leaf	Root paste (5g) twice daily in typhoid fever; leaf and seed paste (5g) twice daily for cold and cough; and seed juice (10ml) twice daily for spleen and liver enlargement.	Purgative of the kidneys.
25. *Drymaria cordata*	-	Jabshri	Leaf	Leaf juice (2-3 drops) in nostrils for sinusitis and juice (20ml) twice daily for cold and cough.	Juice of plant laxative and febrile.
26. *Carthamus tinctorius*	Kuśumbha	Jalangabaltu	Leaf	20 ml crushed juice of leaf given twice daily in cold, typhoid, stomach problems, and taken as a soup.	Seeds used in rheumatism, oil used for healing sores and used in jaundice.
27. *Sesbania grandiflora*	Agasti	Jasabifang	Leaf Flower	Leaf juice (1 cup) twice daily in cold, cough and malaria. Flower edible in same diseases.	Juice used as a remedy for nasal catarrh and headache.
28. *Maranta arundinacea*	Tugākṣīrī	Khaita alu	Rhizome	1 piece (20-30g approx) thrice daily for painful micturation for immediate cure.	Acrid and rubefacient.
29. *Rauvolfia serpentina*	Sarpagandha	Kharuka	Root	20 ml crushed juice orally administered twice daily in worm infestation, abdominal pain, typhoid fever, jaundice, and impotency for immediate cure.	Used as a hypnotic, sedative, in insanity and reduces blood pressure.
30. *Scirpus grossus*	Kaśeruka	Khaya kheshra	Rhizome Tuber	5ml crushed juice 2-3 times in a day in stomach trouble for immediate relief.	Given in diarrhoea and vomiting.
31. *Mesua ferrea*	Nāgakesara	Nasser	Flower Fruit	20 ml crushed juice twice daily in cold, fever, rheumatic pain and difficulty in urination.	Flower - dysentery, snake bite, and scorpion sting. Fruit - aromatic, sudorific.
32. *Corchorus capsularis*	Kāḷaśāka	Patha gakha	Leaf Stem	20 ml crushed juice orally administered thrice daily in a day for the cure of malaria.	Leaf used as appetizer, stomachic, carminative and dysentery.

of the lower Brahmaputra valley of Assam. There is high rainfall and humidity. The soil throughout the district is a mixture of sand and clay in varying proportions making it the most fertile district of Assam. This district has the largest concentration of forests in the state. As per records about 55% of the total area of 3,169.22 sq. km. of the district is under reserve forests, but now it is not so because of the relentless felling of trees by unscrupulous elements and by the encroachment of reserve forests. The present estimated area under reserve forests is roughly 1,719 sq. km. that include parts of Aie Valley forests division of Bongaigaon district, Guma range of Dhubri forests division, Holtugaon and Kachugaon.

The total population of the district is approximately 9, 30404 according to the census - 2001, of which, the majority belong to the Bodo community and a sizable number to Rajbonshi and santhalis. The Bodo villages of the district are self-sufficient. They dwell in houses of bamboos and straw and have a big campus of areca nut, beetle leaf and bamboos. Agriculture is the main stay of the village economy and mainly does the wet cultivation. They have an ancient heritage of practising folk medicine and as such in Assam they were decidedly the pioneers of herbalism i.e. traditional medicine or folk medicine is practised based on the use of plants and plant extracts. Now-a-days, many changes have come up in their life style and much more changes are expected in the days to come. However, since the younger generation of this tribe is being influenced by modern days, social and living standard there is in the threat of disappearance. So is the case with tribal health knowledge. Ethno-botanists can play a very vital role in rescuing their disappearing knowledge and returning it to the main stream for its wide use. Through this paper the authors have tried to achieve this and urge the scientific community for further study in this respect.

Methodology

The field study was based on field works conducted in the area during the month of June - 03 in the Balajangaon, Holtugaon, Salakati Bodo medicinal plant garden, Simbargaon, Bagansali and Kokrajhar vegetable market of the Kokrajhar sub-division. Various ethno-botanical information were collected regarding plants and plant parts used local names and purposes, and method of administration of drugs, etc. The authors also met and discussed in detail with Gaonbhuras, Vaidyas, elderly men and women and had firsthand information about the plant remedies and also personally observed the actual applications of the therapies and drugs. The plant specimens were identified by consulting various botanical references and a scientific herbarium method has been practised in preparing specimens and are deposited in the Regional Research Institute (Ay) Herbaria, Guwahati.

Enumeration

The plants have been listed in alphabetical order of their Botanical names, Sanskrit name, Local name, parts used, Healers' claims were reviewed with those of the textual views.

Result

The Bodo populace uses a wide variety of species of angiosperms and pteridosperms from the forests as well as village crop field and their own campus of the study area. It is observed that some of the prevalent diseases of this part of the globe viz. jaundice, malaria, dysentery, worm infestation, stomach trouble, cold, cough,

ulcer, and fever were freely cured by the use of this folk medicine from generations.

Conclusion

The field of folk medicine has a rich heritage in Assam which is mainly based on plants of the close vicinity. In the studied area, plants belonging to angiosperms and pteridosperms have contributed many medicinal species to the local populace. We have tried to document and present them in this paper for further references.

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EFFICACY OF ŚAŚĀṄKALEKHAYOGA ON PSORIASIS

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Abstract: According to modern science there is no known cure in the treatment of psoriasis. All the treatments are aimed at the suppressing the disease. It is seen that Śaśāṅkalekhayoga prescribed in Aṣṭāṅgahṛdaya, Kuṣṭha cikitsa, is very much effective in skin disorders.

Introduction

The passage of time has thrown new challenges to physicians in the form of new disease entities. Psoriasis is one such skin disorder that has become common at present. A recent survey states that 2% of the total population is affected by psoriasis. In India the number of psoriasis patients is believed to be sixteen million with an incidence rate of 1%. The incidence of skin disease is common in India especially in Kerala, having 10% population suffering from different types of skin diseases.

Though this disease may affect any age group it is most common between 15- 35 years. This is particularly distressing because this age group constitutes the most vibrant section of the population. Another aspect about psoriasis that requires attention is its psychosomatic nature. Skin disease in general, and psoriasis in particular, causes much unhappiness, mental depression and difficulty to interact with the public. Though this disease is not fatal, it kills his mental peace and social life.

Skin diseases have been mentioned in ancient Indian literary works like Vedas, Purāṇas and Samhitas. There is a description of kuṣṭha in Ṛgveda which says that Aśvanīdevas treated a woman named Khosha who was suffering from kuṣṭha.

Psoriasis can be studied under the eighteen types of kuṣṭha mentioned in āyurveda. Caraka, Suśruta and Vāgbhaṭa emphasize on śodhana therapy as the general line of the treatment to be adopted in kuṣṭha. But kuṣṭha, being a disease with tiryak-gati of doṣas, śodhana therapy cannot be easily done, because the śodhna mārga lies away from the koṣṭha. Śodhana cannot be applied in very young, old and weak patients. In order to bring the deep seated doṣas to koṣṭha, pūrvakarma is essential and this requires hospitalisation and much expenditure. Among the pūrvakarma, svedana is contraindicated in kuṣṭha. Moreover transgression of pañcakarma will lead to kuṣṭha. Hence even though śodhana is the apt mode of intervention in kuṣṭha, śamana therapy can be

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utilized to overcome this. At present, modern medicines cannot provide adequate relief in this case. Medicines like methotrexate and steroids may cause many mal-effects in the long run. Therefore, a combination of drugs mentioned in Aṣṭāṅgahṛdaya (Kuṣṭha cikitsa) viz. Śaśāṅkalekhayoga, was selected. Here Śaśāṅkalekha yoga was potentiated by titration with khadirakvātha seven times.

Śaśāṅkalekha is a cūrṇa yoga. It consists of six drugs: Śaśāṅkalekhā [*Cullen corylifolium* (*Psoralea corylifolia*)], viḍaṅgasāra (*Embelia ribes*), pippali (*Piper longum*), hutāśamūla (*Plumbago zeylanica*), ayomala (ferric oxide) and āmalaka (*Emblica officinalis*). Āmalaka has the property of tridoṣaśamana, predominantly kaphapitta. According to modern science, dietary management of psoriasis is with a protein predominant diet. Āmalaka contains vitamin C, B and calcium, iron, protein, etc. which may correct the hypocalcemia and protein deficiency. Āmalaka, pippali and ayomala have anti oxidant property.

The śaśāṅkalekha powder has other advantages. The smaller particle size of powder produces more rapid dissolution in the body fluids. The rapid dissolution increases the blood concentration in a shorter time. This kalpana can be easily administered by mixing with anupānas. They are more economical because they do not require any special technique or machinery.

Objectives:- To evaluate the action of Śaśāṅkalekhayoga - i) histopathologically, ii) clinically and iii) its efficacy in the management of psoriasis.

Materials and methods

A survey cum experimental method was adopted using two group designs i.e. pre-test and post-test. Randomized clinical trial technique was used for collecting the samples. Thirty diagnosed cases of psoriasis were admitted in the Department of Kāyacikitsa. The subjects were divided into two groups i.e. control and study; each consisted of 15 patients. All of them were subjected to śodhana therapy and were assessed clinically and histopathologically.

Lab investigation: - Blood examination i.e. S. cholesterol-lipid profile, liver function test, renal function test, were done before and after the treatment. FBS, R.A. factor, VDRL and routine examination of urine and motion were also done before the treatment to rule out other diseases.

Selection criteria: - Patients with the age limit of 15-55 years were included in the study group and those having psoriasis associated with other systemic diseases, pregnant females and lactating women were excluded.

Duration of the study: - 18 months.

Treatment

1. Control group - i) snehapāna, ii) vamana, iii) virecana and iv) samsarjana karma
2. Study Group - i) snehapāna, ii) virecana, iii) samsarjana karma and iv) Śaśāṅkalekha yoga

Assessment criteria: - The following parameters were used for clinically assessing the response to the treatment: i) erythema, ii) scaling, iii) induration and iv) area. These signs and symptoms were graded using simple descriptive scales as: absent (0), mild (1), moderate (2), severe (3) and very severe (4).

Histological parameters:- a) Parakeratosis, b) Accanthosis, c) Munromicro abscesses, d) Cylindrical Reteridge papillae and e) Presence of inflammatory cells. These parameters were also graded as: absent (0), mild (1), moderate (2), severe (3) and very severe (4).

Biopsy was taken from a fully developed

primary lesion after injecting local anaesthetic (1% xylocane) around the lesson. Type of biopsy used was scalped biopsy. Once the specimen was removed and kept in a small bottle containing 10% neutral formalin, it was clearly labelled and sent to the laboratory.

Data analysis and interpretation

By interrogation, physical examination and detailed examination of the integumentary system, required data were collected from the patients before and after the treatment. Further confirmation and degree of affliction were assessed histopathologically.

Data related to clinical features: - Considering the clinical features of erythema before and after the treatment, the test was found statistically significant in the study group. Considering the location, erythema on the head was almost cured. Reduction was less in lower limb. In the control group, the changes were seen but were not statistically significant. Regarding the intensity of scaling, the test was found statically significant at .01 level in the study group. Regarding the area, appreciable changes of scaling was seen on the head and less changes were seen on lower limb.

In the control group, immediately after the sodhana therapy, the reduction of scaling was more prominent than after the placebo therapy. This may be due to the increase of vāta doṣa by lack of treatment. Assessment of both groups was made 60 days after the śodhana therapy. The changes were not significant in the control group.

In study group, induration showed statistically significant changes, but in the control group there were no marked changes. This may be due to the kaphavāta śamana property of Śaśāṅka-lekhayoga. The assessment of the area by grading showed that in both groups more changes were seen on the head and less changes were seen on lower limb. This may be due to alleviation of kapha and residual vāta.

The data related to histological changes is shown in Table 1. Parakeratosis, Accanthosis, Reteridge papillae, and inflammatory cells seen in study group before and after the treatment showed significance at .01 level. Munromicro abscess, only seen in ageing of chronic plaque, was changed, but the test was not statistically significant. It may change after a longer follow up. In the control group, changes were seen but when compared to the study group, changes were not marked. It may be due to the lack of treatment - when doṣa is located in 'tvak' after the śodhana therapy. Parakeratosis in control

TABLE 1
Mean and SD of treatment on histological parameters

Sample	Control group						Study group					
	Mean		SD		't' value	p value	Mean		SD		't' value	p value
	BT	AT	BT	AT			BT	AT	BT	AT		
Parakeratosis	3.25	2.38	0.68	0.96	2.88	<0.01	3.36	0.43	0.63	0.76	10.7	<0.01
Accanthosis	2.69	2.19	0.6	0.75	2.01	>0.05	2.64	1	0.74	0.78	5.47	<0.01
Inflammatory cells	2.25	2.19	0.68	0.66	0.25	>0.05	3.21	0.71	0.58	0.7	9.64	<0.01
Reteridge papillae	1.69	1.56	0.87	0.81	0.4	>0.05	2.36	1	0.63	0.39	6.56	<0.01
Munromicro abscess	0.44	0.5	0.63	0.73	0.25	>0.05	0.93	0.29	1.07	0.61	1.87	>0.05

group after the trial showed statistical significance at the .01 level.

Data related to response to the treatment:- Both the groups received śodhana and Śaśāṅka-lekhayoga and those who received śodhana therapy and placebo showed significant reduction in itching, scaling, etc. At the time of snehana and svedana, itching was prominent. After vamanakarma, itching was reduced. After samsarjana karma, vicāraṇa snehapāna was done. Svedana was done for three days followed by virecana.

Utkḷiṣṭa kapha, which cause srotodusṭi, was removed by vamana, and by virecana, vitiated pitta was eliminated. Snehapāna, which is done before the śodhana process, prevents vitiation of vāta. After śodhana therapy itching and scaling were reduced. In chronic condition, there were no significant changes in symptoms. Patient having less chronicity found marked improvement. But most of the cases were chronic. After śodhana, the predominantly vitiated doṣa was vāta and lack of treatment may aggravate the symptoms.

In kuṣṭha, after the śodhana therapy, the residual doṣa, which gets lodged in the skin, were pacified by the śamana therapy. Hence even though śodhana therapy is very important in kuṣṭhacikitsa same importance must be given for śamana therapy. Śaśāṅkalekhayoga was applied in this condition.

Conclusion

Śaśāṅkalekhayoga used after the śodhana process helped to remove the residual doṣa (utkḷeśana) by kapha śamana property. It is easily absorbed by the nature of medicine. The sūkṣma, vyavāyi, and lekhana properties of taila increases digestion and absorption. Ācārya advises to take this medicine as leha. ("satailā kṛcchrāṇi kuṣṭhāni nihanti līḍhā").

Śaśāṅkalekhayoga can be applied without śodhana process. It is highly effective in kuṣṭha. The relapse and remission was not detected within the study time. Since renal function and liver function tests showed no changes, it was clear that Śaśāṅkalehayoga has no toxic effect.

Śaśāṅkalekhayoga reduced the psoriasis symptoms histologically and clinically. It can be concluded that the management of psoriasis by Śaśāṅkalekhayoga is very effective.

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ASSESSMENT OF THE SYMPTOMATOLOGY OF HṚDROGA IN CORONARY ARTERY DISEASE - AN OBSERVATIONAL STUDY

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Abstract: This study is an attempt to assess the presence of symptoms of both general and doṣa-specific hṛdroga and assess the state of doṣas, dhātus and srotas in acute CAD patients. It was a hospital based cross sectional study design in 250 diagnosed patients of acute Coronary Artery Disease.

Introduction

During recent years, incidence of Coronary Artery Disease (CAD) has shown an increasing trend in India. Over the past 30 years, the CAD rates have doubled. The number of death from CAD is expected to almost 2.03 million by 2010[1]. CAD manifests almost 10 years earlier on average in this region compared with the rest of the world[2] resulting in a substantial number of CAD deaths occurring in the working age group. The last 30 years has seen a remarkable transition in Kerala also. Cardiovascular death is 50% of the total death and by 2020 it is predicted to go up to 2/3 of the total death[3].

It being a hṛdroga, was assumed that the principles of hṛdrogasamprāpti (etiopathogenesis) as well as cikitsa can be adopted in CAD with suitable modifications.

Methodology

The study was conducted in 250 freshly diagnosed cases of CAD presenting as at Sahakarana Hridayalaya, Pariyaram Medical College, Kannur. The patients who were shifted from intensive coronary care unit to the wards on attaining a stable state were interrogated.

Patients suffering from serious complications due to CAD like acute renal failure, those opted for CABG and those suffering from other major systemic diseases were excluded. The hospital case records were utilized for filling up the details regarding the demographic data, initial physical signs, diagnosis and the investigations done.

Results

Modern parameters

Among the 250 patients, 187 had ST elevation Myocardial Infarction, 26 had non ST elevation MI, whereas 37 presented as Unstable Angina. Various clinical characteristics of the subjects are shown in Table 1. 80% of patients were above 50 years. Maximum number of patients diagnosed as STEMI and NSTEMI/UA were of the age group 50-59. Average age of Myocardial

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TABLE 1
Various clinical characteristics of the study subjects

Variable	Frequency (%)
1. BMI	
- Under weight	4 (1.6)
- Over weight	75 (30)
- Obese	3 (1.2)
2. Physical activity	
- Poor	45 (18)
- Mild	103 (41.2)
- Moderate	80 (32)
- Severe	22 (8.8)
3. Known cases of -	
- Hypertension	110 (44)
- Diabetes Mellitus	88 (35.2)
- Dyslipedaemia	35 (14)
- Smoking	126 (50.4)
- Other tobacco use	31 (12.4)
4. Family History of -	
- CAD	68 (27.2)
- CVA	20 (8)
- Hypertension	75 (30)
- Diabetes Mellitus	72 (28.8)
5. Diagnosis	
- ST - Elevated MI	187 (74.8)
- Non ST - Elevated MI	26 (10.4)
- Unstable angina	37 (14.8)
6. Angiogram	
- SVD	102 (40.8)
- DVD	64 (25.6)
- TVD	40 (16)
- No abnormalities	7 (2.8)
- Not available	37 (14.8)
7. LV dysfunction	
- Normal	61 (22.4)
- Mild	81 (32.4
- Moderate	77 (30.8)
- Severe	20 (8)

Infarction among the subjects was 58.45. 73.6% of patients were male whereas 26.4 % were female. STEMI and NSTEMI/UA were more in males than in females.

10% of the patients were anaemic and 5.6 % had above normal levels of Hb. 10.8% patients had elevated urea levels whereas only 5.6% had elevated levels of serum creatinine. 46% of patients showed hyperglycemia. Distribution of lipid profile among the subjects is shown in Chart 1. The time of initial onset of symptoms is shown in Table 2.

Clinical observations

1. Clinical features of sāmānyahṛdroga i.e. ruja, śvāsa, tṛṣṇa, etc. are shown in Table 3.

TABLE 2
Time of initial onset of symptoms

Parameter	Time of onset	Max. frequency	Total no. of patients
STEMI	10am - 2pm	38 (20.3)	187
NSTEMI	10pm - 2am	7 (26.9)	26
UA	6am - 10 am	11 (29.7)	37

TABLE 3
Frequency of sāmānya hṛdroga lakṣaṇas

	Lakṣaṇas	No.	%
01.	Vaivarṇya	23	9.2
02.	Mūrccha	29	11.6
03.	Jvara	31	12.4
04.	Kāsa	41	16.4
05.	Hikka	7	2.8
06.	Śvasa	125	50
07.	Āsyavairasya	26	10.4
08.	Tṛṣṇa	116	46.4
09.	Pramoha	42	16.8
10.	Chardi	79	31.6
11.	Kaphotkḷeda	66	26.4
12.	Ruja	208	83.2
13.	Aruci	46	18.4

2. Associated features other than the sāmānya lakṣaṇas present during the time of onset indicate the doṣa predominance of vāta and pitta. Number of patients with other symptoms during the time of onset is shown in Table 4.
3. Clinical features of types of hṛdroga:- Patients with more than two symptoms were only considered under each type of hṛdroga. Among the different types of hṛdroga, paittikahṛdroga was in majority followed by vātikahṛdroga. Kaphajahṛdroga was considerably observed in 13.2% patients whereas krimijahṛdroga was even negligible. (Table 5)
4. Assessment of rasadhātu duṣṭi: - Since rasa is the prime dhātu described in the samprāpti of hṛdroga, it was studied separately. 50.4% patients showed two or more symptoms of rasadhātuvṛdhi, 61.2% patients had two or more rasakṣaya lakṣaṇas, 24% had only one symptom and 14.8% had none of the symptoms.

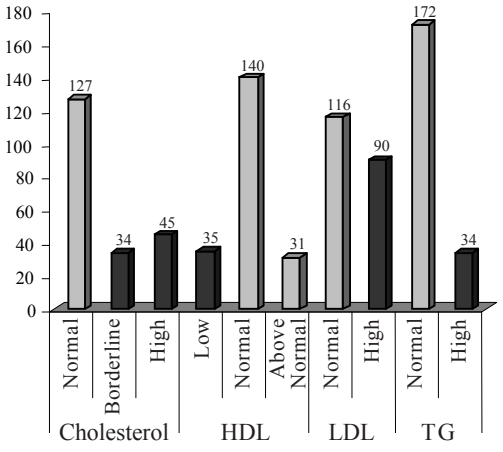

Chart 1
Distribution of Lipid Profile

5. General status of doṣas, dhūṣyas and srotases: - Presence of more than 2 symptoms was considered significant. Doṣaduṣṭi observed was mainly vṛdhi in the order of pitta, kapha and vāta (Table 6). Some subjects were presented with one or more symptoms of raktavṛdhi and had more than 1 symptom of medovahasrotoduṣṭi (Table 7).

Discussion

Smoking was found strongly associated with STEMI ($p < 0.005$). In males there were

TABLE 4
Other symptoms during the time of onset

	Symptoms	No. of patients
i.	Radiating pain	131
ii.	Radiating sites	
	- Hands	86
	- Neck and jaw	20
	- Shoulder	12
	- Abdomen	10
	- Back	3
iii.	Feeling of defaecation	39
iv.	Belching	22
v.	Numbness	14
vi.	Headache	11
vii.	Heartburn	9
viii.	Feeling of urination	9
ix.	Tinnitus	5
x.	Bad and frightening dreams	5
xi.	Tenderness over chest	3
xii.	Obstruction to belching	1
xiii.	Dysphagia	1

TABLE 5
Frequency of subtypes of hṛdroga

	Type of hṛdroga	Frequency	Percentage
1.	Vātika	184	73.6
2.	Paittika	194	77.6
3.	Kaphaja	33	13.2
4.	Krimija	2	0.8

statistically significant relation (p <0.05) between smoking and prāṇāvahasrotodusṭi. Though statistically insignificant, 63% of patients with medovahasrotodusṭi had poor to mild range of physical activity. 73.3% and 67% of patient who had respectively poor and mild physical activity had kaphavṛdhilakṣaṇas. 93.3% and 93.2% of patients who had respectively poor and mild physical activity had rasavahasrotodusṭi lakṣaṇas. BMI and medovṛdhi symptoms were statistically significant (p <0.01). 70.7% and 93.3% obese patients (BMI >25) had more than 2 lakṣaṇas of kaphavṛdhi and rasavaha srotodusṭi respectively. Total cholesterol showed statistically significant relation with rasavṛdhi (p <0.05) and medovṛdhi lakṣaṇas (p <0.05). From this it may be inferred that medovṛdhi, kaphavṛdhi and rasavahasrotodusṭi are indicators of risk for Coronary Artery Disease.

TABLE 6
Dushti state of doṣas

Doṣa	Vṛdhi (%)	Kṣaya (%)
1. Vāta	52.8	6.4
2. Pitta	74	0.8
3. Kapha	65.2	9.6

TABLE 7
Other symptoms observed in the subjects

Symptoms	%
1. One or more symptoms of raktavṛdhi	60
2. Śukrakṣaya	59.6
3. Medovṛdhi	52.4
4. Asthikṣaya	50.8
5. Purīṣavṛdhi	34.8
6. Mūtrakṣaya	17.2
7. Rasavahasrotodusṭi	93.2
8. Prāṇavahasrotodusṭi	73.6
9. Majjavahasrotodusṭi	57.2
10. Annavahasrotodusṭi	55.2
11. More than 1 symptom of Medovahasrotodusṭi	52.8

Among the sāmānyalakṣaṇas, mūrccha (p <0.05), chardi (p <0.01) showed statistically significant relation with ST elevated Myocardial Infarction. Śvāsa (p<0.001), tṛṣṇa (p <0.05), ruja (p<0.001) and pramoha (p <0.005) were present in patients with more than 2 symptoms of vātikahṛdroga at a highly significant level statistically. Vātikahṛdroga showed highly significant relation with vātavṛdhilakṣaṇas (p <0.001) and rasakṣayalakṣaṇas (p <0.001). Mūrccha (p <0.05), jvara (p <0.05), tṛṣṇa (p <0.001), pramoha (p <0.001) and chardi (p<0.01) were significantly present in patients with paityikahṛdroga. Paittikahṛdroga showed high level of statistical significant relation with vātavṛdhi (p <0.001) and pittavṛdhi symptoms (p <0.001) and also with rasakṣayalakṣaṇa (p <0.001) and medovaha srotodusṭi lakṣaṇas (p < 0.005).

Conclusion

Maximum number of subjects belonged to the age group 50 - 59; the average age of Myocardial Infarction was 58.45. Male preponderance was evident in all age groups; the margin reducing with advancing age. Considerable number of patients had mild to poor grade of physical activity. The study showed statistically significant association of medodusṭi with the presence of DM and body mass index (BMI). Hypercholesterolaemia was significantly associated with rasavṛdhi and medodusṭi.

Among the sāmānyalakṣaṇas of hṛdroga, ruja, śvāsa, tṛṣṇa, chardi and kaphotkḷeda were present in considerable number of patients. Among the various types of hṛdroga, considerable number of patients had lakṣaṇas

of paittikahṛdroga followed by vātika variety. Śvāsa, tṛṣṇa, ruja and pramoha among the sāmānyalakṣaṇas were significantly associated with vātikahṛdroga. Mūrccha, jvara, tṛṣṇa, pramoha and chardi were significantly present in patients with symptoms of paittikahṛdroga.

On assessing the general state of doṣas, it was observed that pittavṛdhi followed by kapha-vṛdhi and vātavṛdhi symptoms were present in the patients. Paittikahṛdroga showed highly significant relation with vātavṛdhi as well as pittavṛdhi symptoms. This proves the yogavahi property of vāta in the pathogenesis of paittikahṛdroga. The symptoms of both rasavṛdhi and rasakṣaya were present among the study subjects. Patients with rasakṣaya symptoms were more than those with raktavṛdhi, medovṛdhi and asthikṣaya in descending percentages were also present. A great majority of patients had rasavaha srotoduṣṭi, followed by prāṇavaha, majjāvaha, annavaha and medovaha srotoduṣṭi.

Inferences

- Acute Coronary Syndrome manifests as a pittaja and vātika condition
- The risk factor assessment proves CAD as a santarpaṇotha disease
- The primary prevention strategies aiming the high risk individuals should consider correction of kapha-pitta doṣas and rasa-medo dhātus.
- In acute cases, āyurvedic complementary measures that may be adopted after the initial life supporting measures should be pitta-vāta śamana.
- Secondary prevention in those who had an episode should aim towards mṛdu śodhana and non-contradictory śamana therapy considering the state of all the three doṣas and rasa-medo dhātus in particular
- The clinical spectrum of chronic forms of CAD was not included in the study. Hence, it has to be evaluated separately before forming a management protocol.

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PHAKKAROGA

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Abstract: Phakkaroga is a disease of infancy period. It is a special contribution of Kāśyapasamhita (Cikitsāsthānam). There are multifactorial origins of phakkaroga viz. kṣīraj (malnutrition, hypernatraemic milk and disaccharide intolerance), garbhaj (I.U.G.R., TORCH, C.P., teratogenic drugs, birth asphyxia and genetic problems) and vyādhija (PEM, kernicterus, poliomyelitis, rickets, septicemia and meningitis). There is limitation to modern medicine in curing of this disease. Samśodhana, samśamana physiotherapy (Tricycle), occupational therapy, speech therapy and parental counseling are beneficial in the treatment of phakkaroga.

Introduction

It is Kāśyapasamhita that referred to phakkaroga first. According to that developmental disability, especially walking, of an infant, may be due to phakkaroga. Developmental disability can be described as a severe disability attributed to physical and mental impairment that manifest in one before puberty. In phakkacikitsa, there are splendorous description of paṅgu (lame), jaḍa (idiot) and mūka (dumb); it shows that there are high probability of these disabilities with delayed milestone of walking (phakkaroga). According to Kaśyapa, dumbness and deafness disabilities are resulted simultaneously.

Definition: - According to Kāśyapasamhita, if a child does not walk on his feet at the age of one, is known as phakkaroga[1]. This definition shows a delayed milestone, especially walking disability of a child.

Classification: - There are three types of phakkaroga viz. garbhaja (antenatal), vyādhija (postnatal) and kṣīraja (neonatal and onwards). The reasons attributed to attaining these conditions are: i) breast milk (kṣīraja), ii) embryo or foetus (garbhaja) and iii) diseases and complications (vyādhija)[2]. There are multifactorial regions that result in this disease such as malnutrition (antenatal), rickets, hypernatraemic milk, I.U.G.R., teratogenic drugs, Polio myelitis, birth asphyxia, fetal distress, TORCH, Kernicterus Septicemia, meningitis, C.P. and genetic problems.

Kṣīraja phakka

Clinical features: - The breast milk (of wet-nurse) vitiated by kapha is known to cause phakkaroga. A child fed on such milk is prone to have many diseases and thereby due to emaciation, suffers a phakka condition[3].

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Kāśyapasamhita describes many diseases that are caused by vitiated milk. It says that pediatric problems like śakuni, skandha, ṣaṣṭi and pūtana bālagrahas are caused by vitiated milk[4]. In modern medicine also some of the pediatric ailments like, lactose intolerance diarrhoea and breast milk induced jaundice are attributed to vitiated breast milk. This again may be similar to phakkaroga. Caraka is of the opinion that a child who feeds on śḷaiṣmic milk has little chances of survival. If survived, he would be mentally retarded[5]. According to Kaśyapa, consumption of impure breast milk causes diseases, and these can be alleviated by taking pure milk[6]. Caraka mentions that the child will be mentally retarded if the pregnant mother sleeps excessively[7].

Body constitution: - The constitution of a human being also plays a vital role in the growth and development of a baby. Āyurveda considers that paittik and vātik constitution of a man as highly susceptible to develop manic depressive psychosis (MDP). Various descriptions on human prakṛti, satva and sāra that affect the mental and physical status of a man, are referred to in āyurvedic texts. This may cause phakkaroga. According to Kāśyapasamhita, a child consuming the milk of a wet-nurse who have pitta and vāta constitution (prakṛti), salty breast milk and are multiparous, or consuming the milk vitiated by all the three doṣas, becomes lame, idiot and dumb[8].

Garbhaja phakka

If the mother of a child conceives at an early stage that causes early cessation of breast milk, which in turn, causes emaciation or even death of the child. This is known as garbhaja phakka (phakka due to the effect of embryo or foetus)[9].

During pregnancy period, there are many physiological phenomenons take place inside the body like embryogenesis, organogenesis, IUGR and fetal distress. Adverse affect of teratogenic drugs also cause phakkaroga. Life style and diet, intrauterine infection, vitiated sperm or ova, time of conception and action of soul - all these are the causative factors of paediatric disorders. Carakasamhita describes that the vitiated doṣas produce various abnormalities in shape, complexion and sense organs due to defects of genes, the self, past deeds, uterus, time and mother's food and behaviour[10].

Dauhṛda and phakkaroga: - Āyurveda believes in the theory of rebirth. The desire of the pregnant mother is seldom unfulfilled because it is believed to harm the foetus. The mother's desire is said to be that of the foetus. This is called dauhṛda (craving pregnancy). Ācāryas like Caraka, Suśruta, Kaśyapa and Vāgbhaṭa believed in this theory[11].

Teratogenic drugs and phakkaroga: - The period of organogenesis is most vulnerable to teratogenic effects of drugs. During embryogeneis, each and every system is formed within a specific time. It takes 8 to 10 weeks for organogenesis. Both the modern medicine and āyurveda do not recommend the use of drugs during the first trimester. According to Kāśyapasamhita, considering the duration of pregnancy and association of doṣas, the physician should use medicament from the fourth month onwards[12].

IUGR and phakkaroga:- Ācārya Suśruta has advised kṣīrabasti and brain stimulants in cases of intrauterine malnutrition (IUGR), otherwise known as garbhakṣya[13]. Upholding this, the āyurvedic physicians advise the use of balya

and medhya drugs in an intrauterine life especially during IUGR.

Vyādhija phakka

The child affected by Protein Energy Malnutrition (PEM) is more prone to infection due to low immunity status and may develop vyādhija phakka (phakka due to diseases)[14]. The PEM range of pathological conditions arising from coincidental lack of varying proportions of protein and calories that occur more frequently in infants and young children can be commonly associated with infection, so defines WHO.

Clinical features: - PEM is most common among children under five, with peak incidence between 6 months and 3 years. Artificially fed babies from the lower socio-economic status develop PEM below 6 months of age. About two-third of the children with PEM do not present any clinical signs; so the diagnosis is done by anthropometry. However, children with long-standing nutritional deprivation fail to develop normally. They may develop any of the following manifestations: depigmented lusterless hair - easily pluckable and skull circumference get arrested. Other features of chronic PEM may be glossitis, stomatitis, gingivitis, vitamin A deficiency, ricket and parotid enlargement. These children may manifest pre-kwashiorkor, kwashiorkor, marasums and nutritional dwarfism.

Marasmus:- This normally develops in the initial months of life when the baby is not fed breast milk, instead diluted buffalo milk, cow's milk, goat's milk or sometimes tin milk are made use of; and very little or no other food is given. Hence this affects children below 2 years of age. But it can occur at a later age also. Marasmus is diagnosed by gross loss of subcutaneous fat and muscle, and the infant is skin and bone. There is conspicuous absence of oedema. Growth retardation is severe and obvious. The head appears disproportionately large with very little hair and when cut, does not grow easily; and the weight is less than 60% of expected weight, the ribs are visible and costchondral junction is prominent because of loss of subcutaneous tissue.

Rickets: - Vyādhija phakka is similar to marasmus and rickets. Rickets is the result of deficiency of Vitamin D. Children between 4 and 18 months are the victims. Skeletal deformities are the most striking feature of rickets. Craniotabes, delayed closing of anterior fontanel, rachitic rosary, bossing skull, pigeon chest, widening of wrist bone, genu varum, genu valgum and delayed eruption of teeth are the specific signs of rickets.

Infection and vyādhija phakka: - Various infections like septicemia, meningitis, poliomyelitis occur during neonatal and infancy period, and the result is that the child is unable to walk (phakka). Infections due to various bacteria and other fatal organisms cause vyādhija phakka.

Poliomyelitis: - Dangling of lower extremities, incontinence of urine and faeces, paralysis to the lower body and crippling are the symptoms of vyādhijaphakka[15]. The polio virus is an enterovirus. There are three serotypes types-1, 2 and 3. All the three can cause paralysis, although type 1 is most common. Type 3 is less frequently seen and type 2 rare. The most common route of transmission is face-oral. Man is the only source of infection. Clinically, poliomyelitis is differentiated into abortive, non paralytic, paralytic, bulbar and encephalitic forms. Paralysis usually appears during fever,

rarely afterwards and this may be the first sign of poliomyelitis in infants or very young children. The pattern of paralysis is variable, typically asymmetrical and usually affects the lower limbs more seriously than other muscles.

Cerebral palsy and phakkaroga

Delayed developmental millstones, especially standing without support and walking before the age of one year, are considered to be peculiar features of cerebral palsy (CP) which is very close to phakkaroga. Although CP is non progressive, non fatal, non curable, non familiar, it is the most crippling disorder of neuro motor origin in children. Prevalence of CP varies from 1.5 to 2.5 per 1000 live births. CP is a condition with multiple etiologies which may be antenatal, natal or postnatal. In majority of the cases of CP, the cause is unknown.

Clinical features: - Cerebral palsy can be subdivided into several types based on predominant motor pattern. Classification based on physiological characteristics (qualitative) and extent of involvement or topography of motor deficit (quantitative) is shown in Table 1.

Kaśyapa has mentioned that hearing and speech problems may be associated with phakkaroga[16] like in cerebral palsy. Mental retardation is also observed in about 50-75% cases of CP. Many nervine tonic and medhya drugs are indicated in phakkaroga in Kāśyapasamhita.

TABLE 1
Classification of cerebral palsy

	Physiological	Topographic
1.	Spastic	Tetraplegia
2.	Dyskinetic	Diplegia
3.	Dystonic	Hemiplegia
4.	Ataxic	Monoplegia
5.	Hypotonic	
6.	Mixed	

Management

According to Kaśyapa, management of phakkaroga is multidimensional. He has indicated drugs that alleviate mental as well as physical illness for the treatment of phakka. Physiotherapy along with internal medicines has equal importance for the management of this disease. Precaution from conception to neonatal period is highly measurable. Teratogenic drugs should be avoided during pregnancy especially in the first trimester, which is more responsible for congenital anomalies in foetus.

According to Kaśyapa, proper management of phakkaroga seems to require a detailed assessment to find out the functional capacity of the child and the nature and extent of the motor as well as associated deficit. Kaśyapa has advised physiotherapy (Tricycle) along with samśamana and samśodhana cikitsa. He states that a three wheeled chariot made by a wise carpenter is known as phakka chariot; holding it gently, the child should practice walking[17]. Kāśyapasamhita indicates Kalyāṇaka, Brāhmī and Amṛta ghṛtas for the treatment of phakka. Also, māmsarasa, milk medicated with appetizing drugs and Rājataila are indicated in this disease. Physiotherapy, occupation therapy, speech therapy and parental counseling will be beneficial in the treatment of phakkaroga.

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2. क्षीरजं गर्भजं चैव तृतीयं व्याधिसंभवम्
फक्कत्वं त्रिविधं प्रोक्तं क्षीरजं तत्र वर्णितम्।
(का.सं. फ.चि.)
3. धात्री श्लेष्मिक दुग्धा तु फक्क दुग्धेति संज्ञिता।

तत्क्षीरपो बहुव्याधिः कार्श्यात् फक्कत्वमाप्नुयात्।।
(का.सं. फ. चि.)

4. .....शकुनी कटुतिक्तके।
स्कन्दषष्ठी ग्रहौ ज्ञेयौ व्यापन्ने सन्निपातिके ।
पूतना स्वादु कटुके शेषा: संसृष्ट दोषजा (का.सं.)

5. लालालुः शून वक्त्राक्षिर्जडः
स्यात्तत् पिबच्छिशुः । (च. चि. ३०)

6. संभवन्ति महारोगाः अशुद्धक्षीर सेवनात्।
तेषामेवोपशान्तिस्तु शुद्धक्षीर निषेवणात्।।
(का. सं. सू.)

7. स्वप्ननित्या तन्द्रालुमबुधमल्पाग्निं वा । (च.शा.८)

8. पित्तानिलप्रकृतिकी पटुक्षीरा बहुप्रजा।
कुतः पङ्गु जड़ा मूका त्रिदोषक्षीरभोजिनः।।
(का. सं. फ.चि.)

9. गर्भिणीमातृकः क्षिप्रं स्तन्यस्य विनिवर्तनात्।
क्षीयते म्रियते वाऽपि स फक्को गर्भपीड़ितः।।
(का.सं. फ.चि. १०)

10. बीजात्म कर्माशयकालदोषै-
र्मार्तुस्तथाऽऽहारविहार दोषैः।
कुर्वन्ति दोषा विविधानि दुष्टाः
संस्थानवर्णेन्द्रियवैकृतानि।। (च. शा.२)

11. दौहृद विमननात् कुब्जं कुणिं खजं जडं वामनं
विकृताक्षमनक्षं वा नारी सुतं जनयति। (सु. शा.)

12. अनुबन्धे तु दोषस्य गर्भकालमपेक्ष्य च।
मासाच्चतुर्थात् प्रभृति भिषग्भेषजमाचरेत्।।
(का. खि.१०)

13. तत्र प्राप्त बस्तिकालायाः
क्षीरबस्तिप्रयोगोमेध्यन्नोपयोगश्चेति
(सु. सू. १५/१६)

14. निजैरागन्तु.....विद्याद्वयाधिजां फक्कतां शिशोः।

15. प्रम्ळानाधरकायश्च नित्यमूत्रपुरीषकृत्।
निश्चेष्टाधरकायो वा पाणिजानुगमोऽपि वा।।
(का.सं. फ.चि.)

16. तत्र वागिन्द्रियं त्वेकं द्विधा भिन्नं यथा करौ।
अर्धेन शब्दं वदति गृहात्यर्धेन तं पुनः।।
(का.सं. फ.चि.)

17. त्रिचक्रंफक्करथकं प्राज्ञः शिल्पिकनिर्मितम्।
विदध्यात्तेन शनकैर्गृहीतो गतिमभ्यसेत्।।
(का.सं. फ.चि.)

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CONTROVERSIAL DRUGS IN RASAŚĀSTRA

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Abstract: Controversies are the unexplored aspect of a science. Āyurveda, the ancient system of medicine, was practiced traditionally (parampara) in the form of gurukula system from generation to generation. As the time advanced some relative aspects of drugs that were found in those days, were compared with the present available sources which created the controversy. This paper deals with some controversial aspects of drugs in Rasaśāstra.

Introduction

In āyurveda, drugs are classified into three i.e. sthāvara, jaṅgama and audbhida.[1] In each group of dravyas, there were always controversy regarding their origin, types, synonyms, different vernacular names, structure and therapeutical property. The word 'controversy' refers to a confusion or unauthenticity or unjustified versions of subjects. The controversies are the unexplored aspect of a science. These are mainly depended on factors like: i) non-availability, ii) rare-occurrence, iii) lack of research, iv) misinterpretation, v) lack of popularity and practice and vi) gap of knowledge between past and present.

Non-availability:- The properties and grāhyā-grāhya lakṣaṇas of the drugs explained by ācāryas of Rasaśāstra cannot be assessed in the present drugs of mineral origin. It is because of the non-availability or scarcity of native forms of mineral or ore-mineral.

Puṣpāñjana: - It is a controversial mineral. Some scholars say that it is a zinc oxide mineral, white in colour and useful in eye diseases like puṣpā-ñjana. Some others have mentioned that it is antimony oxide i.e. Sb_2O_3. But the controversy about it still persists.[2]

Rare occurrence: - Some of the drugs are rarely found in their native form; e.g. girisindūra, śilā-jatu and capala.

Girisindūra: - According to ācāryas, it is a drug collected from the fractures of mountain rock. Now we do not have detailed description about its use, availability, etc.

Śilājatu: - The source of śilājatu is mainly from furrows of mountain, so it is called as mineral resin. But now a days instead of mineral resin we are getting exudates of plant *Asphatallum punjabinum* along with lots of adulteration.[3]

Capala: - It is a drug mentioned in the eight group of mahārasa, which is in controversy because

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of lack of its identification and scarcity. The present day scholars of Rasaśāstra have different opinions regarding capala. Some of them try to specify it as Bismuth (*Bi*) and some others opine it as Selenium (*Se*). Mahārasa group contains the drugs that are mineral in origin or of metal. According to this, some scholars have also mentioned that it must be a mineral or metal; for this reason selenium or bismuth cannot be considered as capala. Although bismuth has many similar properties of capala, it is easily fusible, heavy and bright. But bismuth is mainly used in digestive troubles. Selenium has many amorphous forms and found admixture with chalcopyrite and mainly used in sexual disorder and also as the best anti-oxidant. Hence it can be considered as capala.[4]

Lack of research work: - There are some areas concerned to drug establishment, which requires thorough knowledge regarding characterisation of mineral drug; e.g. karpūraśilājatu, rasaka and rasāñjana.

Karpūraśilājatu: - It is said to be white colored exudates of mineral resin (śilājatu). But now a day it is compared with sora. Whereas, the origin and occurrence of sora is entirely different while compared with karpūraśilājatu.

Rasaka: - Now a day, rasaka, which is the ore mineral of yasada, is also out of use. It is because of difficulty in selection of the drug. In the classics, ācāryas have mentioned three varieties of rasaka. But in the present day it is very difficult to compare the available sources with the verses of ācāryas.

Rasāñjana: - Since ancient times rasāñjana is considered to be a controversial material. Ācāryas have mentioned that it is of two types, one is śailaja i.e. obtained from hills and mines hence it must be a mineral and on this basis Prof. D.A. Kulkarni has mentioned that Rasāñjana is yellow oxide of mercury, which is a mineral obtained in nature in small quantity. But the present day vaidyas are using the artificial variety of rasāñjana, which is prepared by solidification of dārvīkvātha and ajadugdha. It is also used in netrarogas since ancient times.

Misinterpretation: - Different scholars have interpreted some of the drugs and their properties differently. It created confusion with respect to use of that drug; e.g. kaṅkuṣṭa.

Kaṅkuṣṭa: - It is a controversial drug since ancient times. According to Bhaluki it is an ore of tin metal, i.e. it is probably Cassiterite. According to Rasārṇava, it is bright red in colour just like vidruma (coral). According to Rasaratnasamuccaya it is found in the base of high peaks of Himalaya mountains.[5] Some scholars say that it is a faecal matter of newly born elephant, which is yellowish-black in colour. Some other has mentioned it is a part of umbilicus of a newly born horse, which is yellowish-white in colour.

Lack of popularity and practice: - It is the major problem what we are observing now a day. It is because of lack of sufficient experimental data and also fewer descriptions of drugs and their utility; e.g. Rasakabhasma, Vimalabhasma, Capalabhasma and Haratāḷabhasma.

Gap of knowledge: - Confusion persists and all this mixed patriotic pride adds the depth of controversy. Everybody thinks that their plant/ drug is the real one because it is being used since time immemorial and cannot be set aside even though it does not tally with the scriptural reference.

Conclusion

"Controversy can not be set aside at once. It

will take more time. It requires constant hammering. It requires an open mind to give up our expected meaning whenever the right thing is shown and grasp what is sensible of course tentatively, when some other proofs are available".[6] We must be ready to let it go and accept the new one by applying standards of pharmaceutical, analytical, pharmacological and experimental trials.

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EFFECT OF PIPPALYĀDI VARTI ON ŚḶEṢMAḶA YONĪVYĀPAD WITH SPECIAL REFERENCE TO TRICHOMONAS VAGINALIS

Animesh Maiti*

Abstract: Numerous clinical trials have confirmed the effectiveness of suppository in the management of Leucorrhoea. This comparative clinical trial was conducted to evaluate the efficacy of Pippalyādi varti with special reference to Trichomonas vaginalis in śḷeṣmaḷa yonīvyāpad. The study observed a highly significant reduction in the mean scores of C/F and laboratory investigation.

Introduction

Trichomonas infection is one type of protozoal infection of vagina due to parasitic infestation by Trichomonas vaginalis. In āyurveda, there are 20 types of yonīvyāpads and śḷeṣmaḷayonīvyāpad is one of them. All the signs and symptoms of the śḷeṣmaḷa yonīvyāpad described in most of the āyurvedic literatures are more or less similar to Trichomonas vaginalis. In this study, Pippalyādi varti was selected for the treatment of śḷeṣmaḷa yonīvyāpad.

Aims and objectives: - To find out the efficacy of the Pippalyādi varti on śḷeṣmaḷa yonīvyāpad with special reference to Trichomonas vaginalis.

Study design: - Prospective, comparative and observational.

Materials and methods

Inclusion criteria:- 50 female patients, who attended the department of Stree Roga of G.A.M & Hospital, Utkal University, Orissa, with clinical signs and symptoms (profuse vaginal frothy discharge, offensive and pruritus) and did laboratory investigation (detection of Trichomonas vaginalis in wet smear of vaginal discharge) of śḷeṣmaḷa yonīvyāpad were selected for the study.

Exclusion criteria: - Patients who were suffering from positive V.D.R.L, presence of other infective organism and positive papsmear, were excluded from the study.

Selection and preparation of the drug: - A compound Pippalyādi varti mentioned in Carakasamhita (Cikitsāsthānam 30/72) was selected for the study. The ingredients of the formulation are: pippali (*Piper longum*), marica (*Piper nigrum*), māṣa (*Vigna mungo*), śatāhva (*Anethum graveolens*), kuṣṭha (*Saussurea lappa*) and saindhavalavaṇa (rock salt). All the above drugs were taken in equal parts and were made into a powder form, and the varti was prepared by adding water. The size of the varti was 2.5 cm in length, 3 cm in circumference and 10 g in weight.

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TABLE 1
Result of the treatment

Sign & symptoms	TRIAL GROUP				CONTROL GROUP			
	Mean ± S.D		Diff.	't' value	Mean ± S.D		Diff.	't' value
	BT	AT			BT	AT		
Vaginal discharge	2.64 ± 0.7	0.92 ± 0.8	24	9.66	2.40 ± 0.6	0.48 ± 0.7	24	16.84
Itching of vulva	2.40 ± 0.8	0.68 ± 0.7	24	12.83	1.90 ± 0.8	0.35 ± 0.4	19	11.55
Pain in the vagina	1.13 ± 0.3	0.17 ± 0.3	22	12.44	1.40 ± 0.5	0.27 ± 0.4	14	8.42
Dysuria	1.58 ± 0.7	0.58 ± 0.6	16	10.30	1.80 ± 0.6	0.40 ± 0.5	09	8.62
Vaginal smear (esp. T. vaginalis)	2.64 ± 0.5	0.80 ± 0.7	24	11.50	2.40 ± 0.5	0.52 ± 0.7	24	17.74

p = <0.001(Highly significant)

Study procedure: - The patients were equally divided into two groups i.e. i) trial group and ii) control group. The trial group was treated with vaginal application of Pippalyādi varti (10g) and the control group with vaginal application of Clotrimazole vaginal tablet (100g) for 6 consecutive days. Both the groups were similar with regard to the demographic data and baseline parameters. Total score was based on vaginal discharge, itching of vulva, pain in vagina, dysuria, vaginal smear especially Trichomonas vaginalis, in the same parameters.

Result and discussion

Statistical analysis: - Comparative study of the effectiveness between the trial and control group in different signs and symptoms with pathological investigation before and after the treatment (Table 1).

From the statistical point of view it was observed that out of 25 patients in the trial group, 10 (40%) patients were cured, 4 (16%) patients had maximum improvement, 9 (36%) patients were moderately improved and 2 (8%) were mildly improved. Whereas in the control group, out of 25 patients, 15 (60%) patients were cured, 4 (16%) had maximum improvement, 5 (20%) patients were moderately improved and 1 (4%) patient showed slight improvement.

Conclusion

The study observed a highly significant reduction in the mean of vaginal discharge, itching of vulva, pain in vagina, dysuria and the over all compliance to the treatment was excellent in both the groups and the 'p' value of <0.001 was considered highly significant. Hence, it can be concluded that the drug Pippalyādi varti can be recommended for satisfactory management of śḷeṣmaḷa yonīvyāpad due to its inhibitory effect on Trichomonas vaginalis and so also its antiinflammatory and anti protozoal properties. More so, it has no side effects and is very cheap.

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PREPARATION AND COMPARATIVE PHYSICO-CHEMICAL EVALUATION OF RASAPARPAṬI (SAMAGANDHI AND VIṢAMAGANDHI KAJJAḶI)

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Abstract: Instability of mercury and its liquid state is one of the main hurdles in preparing mercurial formulations. Since ancient time, procedures like kajjaḷi bandha have been tried to make it stable. Kajjaḷi is used commonly as a basic ingredient in various formulations, and itself it is a medicine separately. Different proportions of purified pārada and gandhaka are mentioned in the preparation of kajjaḷi. Rasaparpaṭi is prepared by using kajjaḷi along with herbal ingredients. The present work was conducted to prepare two different types of Rasaparpaṭi by using samagandhi and viṣamagandhi kajjaḷi and to evaluate their physico-chemical changes.

Introduction

Āyurvedic drugs are obtained from natural sources i.e. plants, animals and minerals. Āyurvedic compound formulations are divided into two groups: i) rasauṣadhis - predominately metals and minerals are used for the preparation and dealt in Rasaśātra and ii) kāṣṭhauṣadhis - predominately plant drugs are used for the preparation and dealt in Bhaiṣajyakalpana. Rasauṣadhis are categorised under different headings such as Kharalīya, Parpaṭi, Kūpīpakva, Poṭṭali, etc. Among these, parpaṭikalpana is important as it is indicated in various diseases and also acts as rasāyana.

Rasaparpaṭi is prepared by using kajjaḷi. When the proportion of purified pārada and gandhaka is equal, it is called samagandhi kajjaḷi, and when the proportion is different, the kajjaḷi is called viṣamagandhi. It is mentioned that Rasaparpaṭi prepared by kajjaḷi having different proportions of pārada and gandhaka have different therapeutic effects. In other words, as the proportion changes indications of the kajjaḷi as well as rasaparpaṭi change.

Objectives

i. Identification of hiṅguḷa and gandhaka according to grāhyalakṣaṇas
ii. Extraction of pārada from hiṅguḷa
iii. Śodhana of gandhaka
iv. Preparation of samagandhi and viṣama-gandhi kajjaḷi and Rasaparpaṭi
v. Physico-chemical analysis
   a) Raw drugs (hiṅguḷa and gandhaka)
   b) Śodhita gandhaka
   c) Hiṅguḷotha pārada

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d) Samagandhi and viṣamagandhi kajjaḷi
e) Rasaparpaṭi (samagandhi and viṣamagandhi kajjaḷi)

vi. Instrumental analysis: (XRD, SEM)
a) Samagandhi and viṣamagandhi kajjaḷi
b) Rasaparpaṭi

vii. Comparison between two varieties of Rasaparpaṭi

Methodology

The process of preparation of Rasaparpaṭi includes the following stages: i) collection of raw material, ii) extraction of pārada from hiṅguḷa, iii) purification of gandhaka and iv) preparation of kajjaḷi (samagandhi and viṣamagandhi).

Hiṅguḷa and gandhaka were collected from the market according to their grāhyalakṣaṇas. Nimbūsvarasabhāvana was given to hiṅguḷa for one day. Dried it and kept in the vidyādhara yantra and was subjected to heat. After svāṅgaśīta (self-cooled), the pārada was collected from the base of the upper pot. Purification of gandhaka was done in the bhṛṅgarāja svarasa. Kajjaḷi was prepared by using equal proportion of pārada and gandhaka. (1:1) and also in different proportions (1:3), and parpaṭi was prepared by using these two varieties of kajjaḷi.

Results

The results were obtained in the following stages: i) hiṅguḷa, ii) hiṅguḷotha pārada, iii) raw gandhaka, iv) śudhagandhaka, v) kajjaḷi (samagandhi and viṣamagandhi) and vi) Rasaparpaṭi prepared by samagandhi and viṣamagandhi kajjaḷi. (Tables 1-4)

XRD interpretations

Pattern of samagandhi kajjaḷi was matched with the standard mercuric sulphide and the value 2-theta occurs at 26.36. The pattern of viṣamagandhi kajjaḷi was matched with the standard mercuric sulphide that had the standard (100%) intensity at 26.36 and was comparable with all other 2-theta values and

TABLE 1
Organoleptic results of hiṅguḷa and gandhaka

Material	Characters		
	Colour	Touch	Odour
1. Raw hiṅguḷa	Japā-kusuma	Rough	Odourless
2. Bhāvita hiṅguḷa	Japā-kusuma*	Smooth	Nimbu svarasavat
3. Raw gandhaka	Yellow	Kaṭhina	Ugra-gandha
4. Śudha gandhaka	Greenish yellow	Mṛdu (brittle)	Gandhaka-vat (mild)

* more bright

TABLE 2
Organoleptic characters of samagandhi & viṣamagandhi kajjaḷi and Rasaparpaṭi

Characters	Observation
1. Kajjaḷi	
- Śabda	Niśabda
- Sparśa	Śḷakṣṇa
- Rūpa	Kajjaḷābha
- Gandha	Dravyagat
- Candrika	Niścandra
2. Rasaparpaṭi	
- Śabda	On breaking produces sound
- Sparśa	Smooth
- Rūpa	Black, thin flake-like
- Gandha	Goghṛta, gandhakavat

TABLE 3
Chemical analysis of raw and śudha gandhaka

Samples	% of sulpher	traces
1. Raw gandhaka	95.76	-
2. Śudha gandhaka	99.57	-

Changes during śodhana process:- Weight of gandhaka - 1000gms; Weight loss – 100 gms

TABLE 3
Chemical analysis of raw hiṅguḷa, hiṅguḷotha pārada, samagandhi kajjaḷi, viṣamagandhi kajjaḷi, samagandhi parpaṭi and viṣamagandhi parpaṭi

Samples	% of Hg	% of total S	% of S	% of Fe	% Arsenic	% of Lead
1. Raw hiṅguḷa	83.85		12.45	<O.lppm	167ppb	<Ippm
2. Hiṅguḷotha pārada	20.83		ND	<O.lppm	ND	ND
3. Samagandhi kajjaḷi	44.4	34.7	15.63			
4. Viṣamagandhi kajjaḷi	17.00	66.7	14.21			
5. Samagandhi parpaṭi	44.5	42.8	11.26			
6. Viṣamagandhi parpaṭi	14.1	58.3	22.84			

matched with the pattern. The XRD of the samagandhi parpaṭi was compared with the authentic pattern of mercuric sulphide. For the standard pattern, the system is cubic. There were several values in the standard pattern from the standard 2-theta value. But only 5 values were matched with the authentic pattern of mercuric sulphide. In the graph there were two unidentified peaks of lower intensity but they were not matched with the standard.

Viṣamagandhi parpaṭi sample showed 100% intensity peak, which was matched with the standard mercuric sulphide having cubic system in every pattern. In other words, a standard 2-theta value varies in between 0.2 to 0.4 which is acceptable to identify the compound i.e. for 100% intensity. In standard mercuric sulphide 2-theta value occurs at 26.361. But it varies in case of the sample pattern. (The acceptable limit for 2-theta values is 0.2 to 0.4)

SEM interpretation

The Scanning Electron Microscopy (SEM) images represent the magnifications ×1000, ×10,000, and × 20,000. From the SEM of different formulation it was seen that it formed the order of non-agglomerates. This agglomerates consisted of small spherical particles. From the SEM study it was also seen that the small particles are of approximately of 0.01µm.

Conclusion

As hiṅguḷa is not available naturally in the market, artificial hiṅgula was used for the extraction of pārada. The hiṅguḷa was prepared by using Hg + S, and while the extraction, the combination of Hg and S was separated. The chemical analysis shows a difference in the percentage of Hg and total free S. A comparative study shows that viṣamagandhi kajjaḷi and parpaṭi possess less percentage of Hg and more percentage of total S. As both the parpaṭi have the same dose, percentage of Hg enters the body by administration of viṣamagandhi kajjaḷi and parpaṭi is less than the samagandhi parapṭi. Also, sulphur acts as detoxicating agent in the body, which prevents toxic effects. A comparative XRD study shows very less difference in their 'd' values at 2@ angles. SEM images show much difference in their surface structure, but particle size is same for all the samples.

Time taken for preparation of viṣamagandhi kajjaḷi is less than that of samagandhi kajjaḷi. Also, while the preparation of viṣamagandhi kajjaḷi and parpaṭi is economical, gandhaka is very cost effective.

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EFFICACY OF AGNIKARMA IN THE MANAGEMENT OF CHRONIC ANAL FISSURE

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Abstract: Anal fissure is a common problem that causes substantial morbidity in persons who are otherwise healthy. It is one in which a patient experiences excruciating pain during and after defecation, burning sensation, bleeding, etc., and due to agony of pain patients avoid the act of defecation which leads to constipation. This study was conducted for a period of two years to evaluate the effectiveness of agnikarma as the surgical management of chronic anal fissure. The result was satisfactory.

Introduction

Anal fissure is second most common condition seen in a rectal clinic and by far the most common cause of anal ulceration. The anus is a ring-like sphincter or valve at the end of the rectum. It opens and closes on command to allow a bowel movement when convenient. Anal fissure is a small tear in the anal rim of the anus. On having bowel movement, the anus is stretched and the fissure can be reopened causing more symptoms. This makes some anal fissure chronic and difficult to heal. Frequently this problem (parikartika) may account for the patient seeking medical advice in order to get a relief.

Parikartika is mentioned in Suśrutasamhita (Cikitsāsthāna) as one of the complications of virecana therapy and improper usage of basti while in Carakasamhita (Siddhisthāna) as atisāra vyāpad and in Kāśyapasamhita, the condition is mentioned in pregnant women and classified as vātaja, pittaja and kaphaja on the basis of doṣa profile.

According to modern perspective, the standard treatment for anal fissure is local infiltration and topical application. Modern surgical techniques like anal dilatation, posterior or lateral sphincterotomy are also advocated but they weaken the internal sphincter and is associated with the risk of incontinence. Hence an effective therapy is required for the treatment of chronic anal fissure which is simple, safe and effective which might ultimately result in preventing the incontinence of stool. This is the agnikarma therapy. Patients were taken under spinal anaesthesia and treated with agnikarma, where partial sphincterotomy was done with thermal electric cautery, through the fissure bed, with excision of the sentinel pile (if present) followed by antiseptic dressing and sitz bath.

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Objectives

- To study the literature regarding parikartika and its modern parlance fissure- in- ano.
- To evaluate the role of agnikarma in chronic anal fissure.
- To evaluate agnikarma as apunarbhava cikitsa.
- To study different treatment modalities of anal fissure.

Material and methods

The study was conducted in the Department of Salyatantra, N.K.J.A.M.C. & P.G.C. Bidar and S.S.C.H. Teaching Hospital, Karnataka, in which 30 patients were selected on the basis of simple random sampling (SRS) procedure and were divided into 2 equal groups. Group I (trial) were treated with agnikarma, where partial sphincterotomy was done with electric cautery, through the fissure bed. Group II (control) were treated with Lord's procedure of anal dilatation. Both the groups were asked to follow the sitz bath twice daily and were given sterile antiseptic dressing twice daily till the ulcer healed.

Selection criteria: - Patients a) above 15 years, irrespective of sex, b) suffering from chronic anal fissure with or without sentinel pile and c) suffering from chronic anal fissure without piles.

Exclusion criteria: - Patients a) having anal carcinoma, papilloma, ulcerative colitis, Crohn's disease, syphilitic fissure, tubercular ulcer and fistula and b) having other systemic pathology (TB, DM, HIV, HBsAg, etc.).

The patients were admitted in the hospital one day before the surgery and were kept nil by mouth (NBM) from 10 pm on the previous day of the surgery with the single dose of laxative. On the morning of the day of operation part preparation with enema was given and the patients were asked to empty bladder and rectum before the operation.

Both groups were taken under spinal anaesthesia. In lithotomic position, painting was done to anal region; the sterile towel was draped, leaving only the anal triangle exposed. Group I (trial) were treated with agnikarma, where partial sphincterotomy was done with thermal electric cautery, through the fissure bed, with excision of the sentinel pile (if present). Group II (control) were treated with Lord's procedure of anal dilatation with excision of the sentinel pile (if present).

Post operative: - Foot end elevation for 6 hours and parenteral fluids were maintained. Oral liquid fluids were started after six hours of surgery. Normal diet was advised on the second day of surgery. Both the groups were asked to follow up on 7^{th}, 14^{th} and 21^{st} days.

Pathya and apathya (wholesome and un-wholesome):- During the treatment the patients were advised to follow the instructions carefully.

- Hot sitz bath with lukewarm water after defecation or at least 2 times per day.
- Bland diet, leafy vegetables and other light food and avoid non vegetarian food.
- Avoid prolonged sitting, standing, riding on hard substances till complete cure.
- Avoid constipated food as per individual compatibility.

Assessment scale: - The gradation of symptoms viz. pain on VAS, duration of pain, constipation, etc. is shown in Table 1. The healing index (rate of healing) is measured by total length of track healed divided by healing time in days and measured in millimetres and filled in digits.

Finally clinical assessment was done as: 100% free from cardinal signs and symptoms - cure;

TABLE 1
Gradation of symptoms

1. Pain on VAS
   - No pain during defecation: G_0 - Abscent (0 on scale)
   - Pain, but relieved after defecation: G_1- Mild (1-3 on scale)
   - Pain during and after defecation for few minutes: G_2 - Moderate (4-6 on scale)
   - Pain very often in day and normal routine is hampered: G_3 - Severe (7 onwards)
2. Duration of pain
   - No pain: G_0 - Absent
   - 0-20 minutes: G_1 - Mild
   - 20-40 minutes: G_2 - Moderate
   - More than 40 minutes: G_3- Severe
3. Constipation
   - No Constipation: G_0 - Absent
   - Constipation occurring occasionally and evacuation of bowel after straining: G_1 - Mild
   - Constipation and hard stool and irregularity of bowel on and off: G_2 - Moderate
   - Constant irregularity of bowel frequently and consistency of bowel after laxative: G_3- Severe
4. Pruritus ani
   - No pruritus: G_0- Absent
   - Itching sometimes but not interfering with activities and can be controlled voluntarily: G_{1-} Mild
   - Itching interferes with function, involuntary and uncontrolled associated with skin patches: G_2- Moderate
   - Itching that disturb sleep and demand treatment, associated with skin patches: G_3 - Severe
5. Burning sensation: G_0 - Absent; G_1 - Present
6. Bleeding: G_0 - Absent; G_1- In streaks; G_2- In drops; G_3- Profuse
7. Sphincteric spasm: G_0- Present; G_1- Absent
8. Discharge: - G_0- Present; G_1- Absent.
9. Healing of ulcer
   - Complete healing with formation of flat scar during treatment - G_0
   - Seperation of crust and appearance of granulation tissue during treatment - G_1
   - Formation of crust during treatment - G_2
   - Presence of raw surface of wound with treatment - G_3

75-99% improvement as maximum improvement; 50-74% as moderate improvement; 25-49% as mild improvement and less than 25% improvement as no improvement.

Observations and result

The patients were within the average age group of 34.6 years. All patients reported with pain, bleeding, burning sensation, discharge, pruritus ani and constipation. Due to spasm of internal anal sphincter, all patients were having pain during and after defecation. Maximum patients (43.29%) having duration of pain between 0-20 minutes during and after defecation. In chronic cases tag is present and pain varies mild to moderate. Incidence of other sign and symptoms is shown in Table 2.

In the trial group all the patients were having 100% relief from the sign and symptoms whereas in the control group, patients got relief 100% from sign and symptoms except pruritus ani which was 88.23% and at the time of discharge it was 73.33%. Again the result of trial and control was compared and found non significant with a p-value of >0.05 as the effectiveness of both the trial and control management were the same. (Tables 3 and 4)

The overall assessment of the therapy was analyzed clinically, where at the 1st follow up on

TABLE 2
Incidence of other sign and symptoms

Symptoms	% of patient
1. Bleeding (max.) during defecation	59.94
2. Streaks along stool	76.59
3. Bleeding in drops	23.31
4. Constipation	100
5. Irregular bowel habits	69.93
6. Passing hard stool	76.59
7. Flatulence	76.59

TABLE 3
Trial group result

Sign & Symptoms	Mean ± SE (BT)	Follow up	Mean ± SE	't' value	p value	Effectiveness
Pain on VAS	2.47 ± 0.17	AT1	1.27 ± 0.59	6	3.25478 E-05	48.65
		AT2	0.53 ± 0.13	10.64	4.30878 E-08	78.38
		AT3	0 ± 0	14.92	5.42144 E-10	100
Pain duration	1.8 ± 0.22	AT1	1.2 ± 0.107	3.67	0.002502	33.33
		AT2	0.47 ± 0.13	6.32	0.0000188	74.07
		AT3	0 ± 0	8.09	1.20464 E-06	100
Constipation	1.93 ± 0.20	AT1	0.4 ± 0.13	7.99	1.38894 E-06	79.31
		AT2	0.07 ± 0.07	9.72	1.3142 E-07	96.55
		AT3	0 ± 0	9.37	2.0687 E-07	100
Pruritus ani	1.2 ± 0.145	AT1	0.27 ± 0.12	6.29	2.79248 E-05	77.78
		AT2	0 ± 0	8.68	9.02316 E-07	100
		AT3	0 ± 0	8.68	9.02316 E-07	100
Burning sensation	1 ± 0	AT1	0.27 ± 0.12	6.21	0.000023	73.33
		AT2	0 ± 0			100
		AT3	0 ± 0			100
Bleeding	1.2 ± 0.11	AT1	027 ± 0.46	6.09	2.79248 E-05	77.78
		AT2	0 ± 0	11.22	2.19298 E-08	100
		AT3	0 ± 0	11.22	2.19298 E-08	100
Sphincteric spasm	0.87 ± 0.09	AT1	0.33 ± 0.13	4.16	0.001316049	61.54
		AT2	0 ± 0	10.73	1.66986 E-07	100
		AT3	0 ± 0	10.73	1.66986 E-07	100
Discharge	1 ± 0	AT1	0.13 ± 0.09	9.54	1.66986 E-07	86.67
		AT2	0 ± 0			100
		AT3	0 ± 0			100
Healing of ulcer	3 ± 0	AT1	1.53 ± 0.22	6.81	8.4253 E-06	48.88
		AT2	0.6 ± 0.13	18.33	3.49371 E-11	80
		AT3	0 ± 0			100

* df - 14; 'p' value - <0.001 (Highly Significant)

TABLE 4
Control group result

Sign & Symptoms	Mean ± SE (BT)	Follow up	Mean ± SE	't' value	p value		Effect-iveness
Pain on VAS	2.4 ± 0.16	AT1	1.2 ± 0.17	6.87	7.64 E - 06	<0.001	50
		AT2	0.47 ± 0.52	10.64	7.64 E - 06	<0.001	80.56
		AT3	0 ± 0	14.69	6.67 E - 10	<0.001	100
Pain duration	1.53 ± 0.17	AT1	1.06 ± 0.15	3.5	0.0035	<0.05	30.43
		AT2	0.53 ± 0.13	7.25	4.25 E - 06	<0.001	65.22
		AT3	0 ± 0	9.28	2.34 E - 07	<0.001	100
Constipation	1.87 ± 0.19	AT1	0.33 ± 0.13	9.28	2.34 E - 07	<0.001	82.14
		AT2	0 ± 0	9.72	1.31 E - 07	<0.001	100
		AT3	0 ± 0	9.72	1.31 E - 07	<0.001	100
Pruritus ani	1.133 ± 0.0.2	AT1	0.6 ± 0.13	3.32	0.006075	<0.05	47.06
		AT2	0.33 ± 0.13	5.89	7.46 E - 05	<0.001	70.59
		AT3	0.13 ± 0.90	7.9	4.25 E - 06	<0.001	88.23
Burning sensation	1 ± 0	AT1	0.73 ± 0.12	2.26	0.040569	<0.05	26.67
		AT2	0.4 ± 0.13	4.58	0.000426	<0.001	60
		AT3	0 ± 0				100
Bleeding	1.26 ± 0.12	AT1	0.4 ± 0.13	6.5	1.4 E - 05	<0.001	68.42
		AT2	0.13 ± 0.09	8.5	6.71 E - 07	<0.001	89.47
		AT3	0 ± 0	10.71	3.93 E - 08	<0.001	100
Sphincteric spasm	0.87 ± 0.091	AT1	0.2 ± 0.11	5.61	0.000114	<0.001	76.92
		AT2	0 ± 0	10.73	1.67 E - 07	<0.001	100
		AT3	0 ± 0	10.73	1.67 E - 07	<0.001	100
Discharge	1 ± 0	AT1	0.53 ± 0.133	3.5	0.003535	<0.05	46.67
		AT2	0.4 ± 0.13	4.58	0.000426	<0.001	60
		AT3	0.27 ± 0.12	6.2	2.3 E - 05	<0.001	73.33
Healing of ulcer	3 ± 0	AT1	1.8 ± 0.2	6	3.25 E - 05	<0.001	40
		AT2	0.8 ± 0.15	15.2	4.28 E - 10	<0.001	73.33
		AT3	0 ± 0				100

* d - 14; <0.001 - Highly Significant; <0.05 - Siginificant

7th day; 26.67% of patients got maximum improvement in the trial group while in control group all patients were below the maximum improved stage. On 14th day; 13.33% of patients were cured and 86.67% were maximum improved in the trial group while in the control group 60% patients got maximum improvement and 40% were at moderate improvement stage. At 3rd follow up on 21st day 100% got cured in the trial group while only 60% of patients got cured and 40% were at maximum improved stage. (Table 6)

Discussion

The wound formed after Lord's procedure was measured for each and every patient and the healing was also observed to calculate the healing index in both the groups. The mean healing index was found to be 1.9 in group-A and 1.56 in group-B. The greater healing index in group-A clarifies better healing by agnikarma rather than Lord's procedure; because Lord's procedure creates irregular and multiple wound in epithelium by stretching, in turn more raw and exposed anal mucosa increases the healing time. However agnikarma debrides the hypertrophied fissure bed and forms a linear ulcer producing local asepsis.

Conclusion

The study carried out on the clinical management of chronic anal fissure by evaluating the effect of agnikarma can be concluded by mentioning the following few points.

The application of agnikarma causes debridement with local asepsis of fissure bed without causing extensive damage to the anal sphincters promoting formation of healthy granulation tissue with relaxation in the sphincter spasm and thus causes healing. Agnikarma by thermal cautery is a controlled procedure where the chance of external sphincter damage is less as compared to other surgical procedure. Hence, the chances of post operative flatus or stool incontinence are negligible. After 4 months follow up (to note the recurrence of symptoms), it is concluded that the agnikarma is non-recurring treatment in the management of chronic anal fissure. Agnikarma was effective in the treatment of chronic anal fissure and the hypothesis behind the study was found to be correct. Since the clinical study was conducted on a limited number of patients, it may not be claimed as

TABLE 6
Overall clinical assessment of the therapy

Result	GROUP - I						GROUP - II					
	7th day		14th day		21st day		7th day		14th day		21st day	
	No	%	No	%	No	%	No	%	No	%	No	%
Cured (100%)	0	0	2	13.33	15	100	0	0	0	0	9	60
Maximum improved (75-99%)	4	26.67	13	86.67	0	0	0	0	9	60	6	40
Moderately improved (50-74%)	8	53.33	0	0	0	0	9	60	6	40	0	0
Mildly improved (25-49%)	2	13.33	0	0	0	0	6	40	0	0	0	0
Not improved (<25%)	1	6.67	0	0	0	0	0	0	0	0	0	0

final. A detailed study on a large sample size may be conducted in this regard to evaluate the efficacy of agnikarma so that it can be used as an effective approach in the management of chronic anal fissure.

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Clinical observation

NECROTISING VASCULITIS - A CASE STUDY

P.K. Warrier*

This is a case study of a 54 year old lady who was treated for Necrotising vasculitis under hospitalisation at Ayurvedic Hospital and Research Centre, Kottakkal. At the time of admission she was unable to walk without support due to necrotic ulcers. The ulcers were located in anterior and inner aspect of both the thighs and were oozing. She had loss of subcutaneous fat and muscles in thighs (certain portions of her femur bones were visible). The patient had associated complaints of severe pain in both the knee joints with stiffness.

History of the disease includes border line diabetes mellitus, hypertension, depression, hypothyroidism, pericardial effusion and osteoarthritis. She had a cutaneous TB and an endometrial TB in 1994.

Presenting complaints

In 1993, she suffered pain and had swelling in all the joints and it was diagnosed as rheumatoid arthritis. Next year she developed vasculitis on the left thigh and underwent allopathic treatment. In 2000 an abscess was seen on the left thigh with intermittent fever and was treated with antibiotics. Meanwhile she had an abscess on the right thigh also. She underwent Incision & Drainage from a local allopathic hospital but in vain. Later on she was admitted in Hinduja Hospital and underwent multiple debridement surgeries within a period of two years for recurrent abscesses in the same site. Skin grafting was also done over the raw area.

At the time of admission seropurulent discharge from necrotising ulcers and decreased functions of lower limb were seen.

Vitals

Appetite	: Moderate.
Bowel	: Satisfactory
Urine	: Out put was less
Sleep	: Less (under medication).
Menstrual cycle	: Normal Menopause at the age of 49 years

Habits: - She was a chronic smoker using almost 20 cigars a day.

Investigations

- USG Abdomen on 26.5.2000 showed a large bulky uterus with multiple hypoechoeic masses - fibroids

*Chief Physician, Arya Vaidya Sala, Kottakkal

- BIL lower limb venous Doppler study on 27.5.2005 within normal limit.
- On 1.7.2005, the HRCT report of the chest showed multiple ill-defined lesions in both the lung parenchyma, reaching the lateral pleural surface, suggesting segmental/subsegmental atelectatic lesions with a few of these in the left lower lobe and the lingual showing associated traction bronchectasis/fibrosis. Mild pericardial effusion was also noticed.
- Multi plantar multi echo MRI of left thigh on 18.10.2005.
  - The impression was focal collection involving the vastus intermedius and mediolis in the right thigh in the distal 3rd measuring 6.8 x 2.2 cm in size.
  - Loss of ant. subcutaneous fat plane in the proximal and mid third of the thigh BIL with ill-defined signal changes in the subcutaneous fat plane in the same region were noticed. These were inflammatory in nature. Focal sinus tract is seen along the antero lateral aspect of the mid thigh on the left leg with ill-defined signal abnormality involving the quadriceps muscle BIL this could be infective/inflammatory or result of vasculitis.
  - Tiny pockets of fluid collection in the quadriceps muscle along the midline in the mid ant. distal third of the left thigh may represent small tiny pocket of collections/necrosis.
- Histopathology report
  - 6.7.2005:- Excised wall of abscess left thigh - Abscess wall confirmed.
  - 18.10.2005:- 1. Sections show mildly hyperplastic epidermis with subcutaneous tissue. The dermis is densely infiltrated by neutrophills, eosinophills and lymphocytes. There are foci of necrosis and granulation tissue seen. 2. Sections show necrotic material only.
- X ray on 11.4.2006 of knee joint showed OA in both knee joints.
- USG of upper Abdomen on 11.4.2006 Mild hepatomegaly

Diet and medicines before admission

8.00 AM : Fruits
1.00 PM : Roti + sabji + egg/fish
5.00 PM : Tea
7.30 PM : Roti + sabji + meat/chicken/fish

She was using the following allopathic medicines:

- Spectra 75 mg 1 Hs
- Thyroxine 100 mg 1/day
- Rifampicin cap. 1/day
- Combiflam 1 SOS
- Atorva 1/day
- Shelcal 500 mg 2 / day
- Diazepam 1 hs
- Lasix 40 mg SOS
- Multivitamin tab 1/day

Treatment

First course (29.04.2009)

Blood test details (1.5.2009):- Hb 7.6, ESR 110, FBS 92. Lipid profile, Blood urea, serum creatinine, serum uric acid, liver function test, KFT were within normal limits.

Internal medicines:

i. *Aragwadhadi kwatham* tab. (3 Nos.) - Bd;
ii. *Cap. Kanmada bhasmam* (2 Nos.) - before lunch and dinner;
iii. *Cap. Rasasinduram* (2 Nos.) - after lunch and dinner

Modified diet: - 8.00 AM - fruits; 12.00 noon - lunch; 4.00 PM - tea; 7.00 PM - dinner

External treatment:- Dhara, with a combination of *Nyagrodhadi gana Kashaya,* was done on the wound for one hour followed by dhupana with *Aparajitha churnam* for 5 minutes. She was tied up with a bandage of *Parantyadi keratailam* after the foresaid treatment procedure.

Since the clinical conditions were status-quo, the medicines were modified after one week as follows:

i. *Sahadevyadi leham* (2g) followed by *Gugguluthiktakam kwatham* (3 Nos.) + *Agnikumararasam* (1 No.) - at 6.00 AM and 6.00 PM
ii. *Valiya Madhusnuhi rasayanam* (5g) + *Cap Rasasinduram* (2 Nos.) - before lunch and dinner
iii. *Punarnava mandooram* (5g) with buttermilk after lunch and dinner
iv. *Gugguluthiktaka gritham* (2 tsp) + Honey (1 tsp) - at bed time

Dhāra and Dhūpana were continued.

She was discharged on 28.5.2009 with the following results: Severity and oozing nature of necrotic ulcers were reduced substantially. Knee joint pain was also reduced to a great extent. The significant change observed was that she could walk freely without any support. She continued the medications for 3 months

Second course (27.8.2009)

The symptoms at the time of second admission were slight recurrence of oozing ulcers, severe mental stress with depression, pain and stiffness of both the knee joints. The allopathic medicines she used then were dalacin, shelcal, spectra, valium and thyroxine. The ESR at that time was 105 mm per hour. Otherwise all other hematological parameters were within normal limits.

She was advised to continue the same internal medicine. Treatment modalities were also the same. Considering her mental stress takradhāra was done for the head with prior application of *Ksheerabala tailam*. *Aswagandha extract* (2g) at bedtime was also given for the depression. She showed a remarkable improvement on her discharge (after a period of three weeks, 18.9.2009.)

The follow up medicines were revised considering her mental stress to maintain the result.

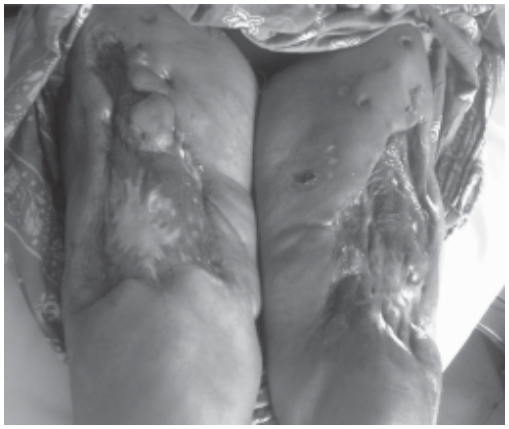
i. *Sahadevi Extract* (2g) followed by *Nimbamritadi Panchathiktam kwatham* (2 Nos.) with *Agnikumara rasam* (1 No.) - Bd
ii. *Valiya Madhusnuhirasayanam* (5g) with *Arushkaram Extract* (1g) and *Cap. Rasasinduram* (2 Nos.) - before lunch and dinner.

iii. *Punarnavamanduram* (5g) with buttermilk - after lunch and dinner
iv. *Thiktaka ghritam* (2 tsp) with *Manasamitra vatakam* (1 No.) and *Aswagandha Extract* (1g) - at bed time
v. *Parantyadi keratailam* for external application

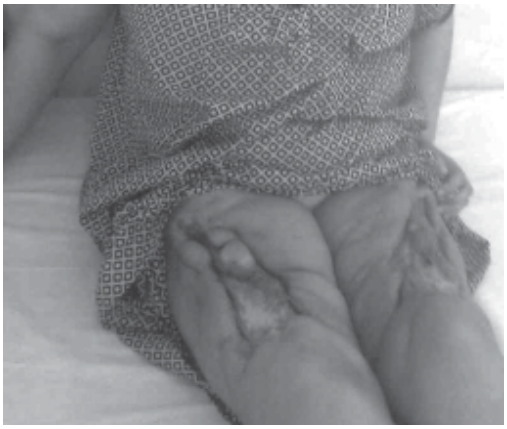
Seeing the drastic improvement the doctor at Hiduja hospital wrote thus to the chief physician.

"*All the wounds of the patient have healed completely. She however has severe swelling on her right leg causing compression of nerves leading to severe pain. She is advised to seek treatment at your centre, since it has helped her immensely in the past*".

Accordingly, the third time the patient was admitted mainly for knee joint pain.



Before Treatment



After Treatment

Modern perspective

Necrotizing vasculitis is a rare condition that involves inflammation of the blood vessel walls.

Causes

Necrotizing vasculitis is common with: i) Polyarteritis nodosapoly arteritis nodosa, ii) rheumatoid arthritis, iii) scleroderma, iv) SLE and v) Wegener's granulomatosis.

The cause of the inflammation is unknown. It is likely to be related to autoimmune factors. The wall of the blood vessel may scar and thicken, or die (become necroticnecrotic). The blood vessel may close, interrupting flow to the tissues. The lack of blood flow will cause the tissues to die.

Necrotizing vasculitis may affect any blood vessel in the body. Therefore, it can create problems in the skin or any other organ.

Ayurvedic perspective

This disease can be co-related with duṣṭavraṇa. The treatment principles are based on i) kṣāḷanam, ii) ropaṇam and iii) dhūpanam. *Parantyadi keratailam,* which has been mentioned in 'vraṇa' and 'viṣa',

was used for picu. The Aparājitadhūpa indicated in Jvaracikitsa has been used here for fumigation purpose keeping in view of its anti infectious property.

Considering the long standing nature, deep rooted invasion in almost all the body tissues in the affected area and due to the unresponsive nature of the disease, we considered the following medicines to be effective: *Sahadevi* Extract, *Nimamritadi panchathiktam kwatham*, *Valiya madhusnuhi-rasayanam*, *Arushkaram* Extract and *Rasasindooram* Cap. The associated symptoms like fever, anemia, etc. were appropriately managed. The rasāyana property of aruṣkara (*Semecarpus anacardium*) and amṛta (*Tinospora cordifolia*) also helped in the reversal of disease progress.

Diet restriction reformed the agni which in turn (helped the body to resist the disease pathology) enhanced the body resistance.

Conclusion

On observation, we found that the patient was of kapha-pitta constitution.

When considering her Aṣṭasthānaparīkṣa, nāḍi, mala, jihva, etc. were within normal limits. Mūtra was insufficient. Ākṛti - moderately built.

Her previous diet habits and chronic smoking could be the causative factors for the ailment, which led to srotodusṭi and hence dhātudusṭi. The associated complaints like diabetes mellitus and hypothyroidsm augment the severity of the ailment. Samprāptivighaṭana in this disease is absolutely essential for the healing process.

When we specifically look into the disease, Necrotising vasculitis can be compared with duṣṭavraṇa. It is a medical condition where the vrana is closely associated with one of the vitiated doṣas or all the three.

The conclusion is based on the details given in the text, Aṣṭāṅgahṛdaya. The important symptoms are: raw wound, reddish, whitish and blackish discolouration of the wound, pus formation, non-healing nature of the wound.