



Review Paper

**A REVIEW ON SYMPTOMATOLOGY OF NEERKULUVAN AMMAI
(CHICKEN POX) AND IT'S MANAGEMENT THROUGH SIDDHA MEDICINE**

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Abstract

Chickenpox (Varicella) is an acute, highly contagious disease caused by a virus belonging to the herpes family called Varicella-zoster virus. The infection is characterized by centripetal rashes accompanied by fever and malaise. It is worldwide in distribution and occurs in both epidemic and endemic forms. Siddha medicine, the traditional medical system of south India coins the pathological features of all pox varieties or eruptive fevers under one classification called '*Vaisoori Noi* or *Ammal Noi*. The diseases are classified into 14 types on the basis of the nature of the vesicular eruptions, and its prodromal symptoms, its presentations, and appearance in the body part, associated clinical features, scabbing and period of recovery. *Neerkuluvan* (NK) a terminology under the pox classification may be more or less correlated with the modern approach of chicken pox (CPX). Understanding the symptom presentation helps the Siddha clinician to plan the treatment regimen more efficiently according to the traditional concepts. To study the review literature of NK through Siddha & Modern works of literature. Literature evidence of NK is collected from Siddha textbooks and elaborated with the help of Tamil Medical dictionary and comparison done with CPX. Preventive measures as per Siddha and modern aspects are also described in this study. After the study of literature, it is evident that Siddha measures can be adopted in treatment as well as prevention of NK (CPX).

Key words: Siddha medicine, Pox eruptions, Neerkuluvan, Chickenpox, Symptomatology.

INTRODUCTION

Chickenpox (Varicella) is an acute, highly contagious disease caused by a virus belonging to the herpes family called Varicella-zoster (V-Z) virus. The infection is characterized by centripetal rashes accompanied by fever and malaise. It is worldwide in distribution and occurs in both epidemic and endemic forms [1, 2]. Annual epidemics

were found to be more common in temperate climates particularly during late winter and spring seasons. [3] In India during the year 2013, about 28,090 cases of chickenpox were reported with 61 deaths. Kerala reported the highest number of cases (12,618). [3] Even though children are most susceptible, it is now more common in immunocompromised subjects and in adults with varying degree of severity, complications, and mortality. [3]The diagnosis is based mainly on clinical presentations.

Siddha medicine, the traditional medical system of south India coins the pathological features of all pox varieties or eruptive fevers under one classification called '*Vaisoori Noi* or *Ammai Noi*. [4] The diseases are classified into 14 types on the basis of the nature of the vesicular eruptions, and its prodromal symptoms, its presentations, and appearance in the body part, associated clinical features, scabbing and period of recovery. (Table 1). '*Agathiyar Vaisoori Nool*' 64 is the classical textual reference which mentions the classification of the epidemic with or without presenting pox eruptions and its medical management. [4, 5]

Neerkuluvan (NK) [6] a terminology under the pox classification may be more or less correlated with the modern approach of chicken pox (CPX). Understanding the symptom presentation helps the Siddha clinician to plan the treatment regimen more efficiently according to the traditional concepts. In this paper, the Siddha diagnostic term 'Nk' were reviewed with its equivalent diagnostic findings of CPX including its management part.

MATERIALS AND METHODS

Inputs from various classical literature of Siddha medicine about the NK were collected and interpreted with the modern findings.

Siddha View on Eruptive Fevers

1. Traditional concepts

The fundamental law of nature, Trihumors and its influence on Human health

The human body is the exact replica of nature. All the principles of creation, preservation, and destruction that occurs in nature are applicable to the human system also. In Siddha medical science, the three main physical elements, ie, Air, Fire, and Water are selected mainly to infer the influence of these elements on the human body. Their manifestation so-called three humours (*Vali*, *Azhal*, and *Iyyam*) from these predominant elements is the key vital principles which control all the mechanisms within the body. In Siddha medicine, they are called the supporting dhathus, because they support the human frame just like the pillars in a building. When the ordinary functions of these three become upset, it is called *Kutra* stage or *thodam*. The normal rhythm of trihumors is imbalanced or disturbed due to various factors including dietary, lifestyle and seasonal variations. In regard to various seasons, the humours express changes that are purely physiological. But the state of inadaptability within the system accordingly with

the climatic variations lead to easy susceptibility to disease attack. This may happen particularly during sudden changes of weather, and if the system vitality is compromised. The preventive aspects of Siddha medicine advice seasonal regimens, foreseeing the above deficiency. It is well described that in unseasonal showers, especially during the peak of summer season or the sudden shift of warm weather to coldness particularly during the months of April half to July half (South Indian climate shift), the body becomes extremely intolerant to the climate change. As per the science, there is a conglomeration of *Azhal Iyyam* (Vital fire and water principle) which makes the body extremely weak to resist contagious diseases. [5] During the period, Pox diseases is the major epidemic break documented in Siddha medical science. The epidemic during the vulnerable seasons is classified under the general term called *Vaisoori* or *Masoorikai*. *Mari* meaning those that occur during the time of unseasonal rains or the name attributing to the goddess of smallpox called *Mariamman*. The name *Kuru noi* came from the typical pustular eruptions in pox disease. [7, 8, 9]

2. Types of Pox fever

The 14 Types of eruptive fevers mentioned in the Siddha texts are illustrated in Table 1. As a general picture, the diseases present pox pattern of eruptions, with prodromal symptoms like fever. The day of occurrence of eruptions, the site of first appearance, the nature of the vesicle and the mode of its progress into a pustule, the day of scab formation and the period of recovery, day in which one should take a head bath has been described under each type in poetic Tamil verses.

Other types of pox presentations like *Periammai* (Smallpox), '*Konangi Ammai*', smallpox complicating to distortion of limbs, *thattammai* (Measles), *Poottuthaal Ammai* (Mumps) are also mentioned in classical Siddha texts. [4]

Table 1 Classification of Pox Diseases mentioned in Siddha medicine

	Type of Epidemic disease (Ammal Noi)	Vesicle appear on the body	Location & Nature of the vesicle	Scabbing & Recovery period	Leading Complications	Head bath to be taken on
1.	<i>Panaimugari Ammai</i> Clinical Conditions <ul style="list-style-type: none"> ▪ Moderate fever ▪ Tremors ▪ Blabbering of speech ▪ Redness of eyes ▪ Swelling of the neck ▪ Menorrhagia ▪ Bilious vomiting ▪ A feeling of heaviness of the body 	-	-	-	Features of delirium	-

	▪ Emaciation					
2.	<i>Palammai</i> (Milk Pox) Clinical Conditions ▪ High fever ▪ Tremors ▪ Body pain	3 rd day	Head region then may spread to other parts. Fluid-filled vesicles	9 th day	Extreme weakness and reduced vitality	11 th day
3.	<i>Varaguthari Ammai</i> Clinical Conditions ▪ High fever ▪ Clenching of Tooth ▪ Insomnia	3 rd day	Head region then may spread to other parts. Fluid-filled vesicles ripen on the 7 th day	11 th day	Hematemesis Urinary tract ulcerations and Haematuria	
4.	<i>Kollamamai</i> Clinical Conditions ▪ Persistent fever ▪ Tremors ▪ Blabbering of speech ▪ Frequent emesis	3 rd day	Whole body. Like mustard size	-	Delirium Convulsions	13 th day
5.	<i>Kalluthari Ammai</i> Clinical Conditions ▪ Persistent fever for 3 days then subsides. ▪ Emesis ▪ Extreme diarrhea with tenesmus ▪ Body pain	3 rd day	Ripens on the 7 th day	10 th day	Persistent Diarrhoea may result in extreme exhaustion, mental confusion, thirst, and syncope.	11 th day
6.	<i>Milagammai</i> (<i>Milakan/Mozhukann</i>) Clinical Conditions ▪ Moderate fever ▪ Whole body pain and swelling ▪ Swelling of the hip region and knee joints ▪ Curable with proper medications.	7 th day	-		Leads to fatal conditions, syncope, and death on the 7 th day if left untreated.	
7.	<i>Kadugammai</i> Clinical Conditions ▪ High fever ▪ Inflammations are seen all over the whole body. ▪ Giddiness ▪ Diarrhea and dysentery ▪ Oliguria	3 rd day	Head region then may spread to other parts. Mustard like	13 th day	Haematuria	

	▪ Throat congestion					
8.	<i>Upputhari Ammai</i> Clinical Conditions ▪ High fever ▪ Frequent diaphoresis makes the presence of salty precipitates over the whole body	3 rd day	Ripens on the 5 th day	7 th day	Some persons present dyspnoea and syncope or giddiness, exhaustion during the recovery period.	11 th day.
9.	<i>Karumpanichai Ammai</i> Clinical Conditions ▪ High fever ▪ Whole body pricking pain ▪ Yellowish watery stools ▪ Blackish discoloration of the whole body.	4 th day	Head region then may spread to other parts. The vesicle ripens to pustules and there will severe itching and pricking on the area.	13 th day	Uncontrolled Diarrhoea may lead to syncope Urinary retentions. In occasions, secondary infections may occur in the vesicles, along with other symptoms like heavy breathlessness.	21 st day
10.	<i>Neerkuluvan Ammai</i> Clinical Conditions ▪ High fever	3 rd day	Reddish vesicles which ripen and appear like the fruit of <i>Azima tetraacantha</i> .	7 th /10 th day		9 th /15 th day
11.	<i>Thavalai Ammai</i> Clinical Conditions ▪ High fever ▪ Extreme weakness and immobility ▪ Excruciating pain ▪ Food Aversions ▪ Very difficult to cure	3 rd day		9 th day	The vesicles may rupture and ulcerates leading to secondary infections associated with pruritis. Severe d7 th day ysnopnea, deafness other leading complications. In such condition Head bath is taken on 21 st day	11 th day
12.	<i>Venthaya Ammai</i> Clinical Conditions ▪ High fever	3 rd day	Ripens on the 7 th day,	9 th day		15 th day
13.	<i>Vichirippu Ammai</i> Clinical Conditions	4 th day	Head region then may	7 th day	Sudden recovery	7 th day

	<ul style="list-style-type: none"> ▪ High fever ▪ Emesis ▪ Diarrhea ▪ Redness of eyes ▪ The disease retains in Gastric tract. 		spread to other parts. Appear the whole body like spread charred paddy husk.			
14.	<p><i>Pasipayatrammai</i> Clinical Conditions</p> <ul style="list-style-type: none"> ▪ High fever ▪ Mental confusion and blabbering ▪ Symptoms of delirium ▪ Redness of eyes 	3 rd day	Ripens on 7 th day and ruptures.	9 th day		17 th day

3. Symptomatology of *Neerkuluvan*

Synonym: *Neerkolluvan*.

Definition: A kind of *vaisoori* (Pox eruption), which is defined as an acute contagious disease primarily affecting young children, marked by slight fever and typical fluid filled superficial vesicular eruptions.

The subject presents fever for three days and the eruptions appear in crops on the third day. It is uncommon to see pustular forms. The vesicles quickly dry up and are occasionally followed by scars. The duration of the disease is about a week during which time, it runs a very mild course. In the case of affections in adults, the symptoms may be much severe. There will be a high fever for more than three days with the occurrence of fluid-filled vesicles in different parts of the body. The vesicles pustulate and scabs within a week and on each time of fresh occurrence of vesicle crop, fever rises.

There will be other symptoms like a burning sensation, extreme itching, and body pain. Some may present nausea, headache, vomiting and loose stools. The eruptions rarely leave a scar. NK is a kind of epidemic pox disease, which presents a clinical picture equivalent to varicella infections. The symptomatology archived from the Tamil medical verses (Fig A) as mentioned below is illustrated in Table 2, 3 & 4.

Neerkuluvan Symptomatology [6]

*“Aakumenra neerkkuluvan gunathai kelu
Azhagaaga kaaichal kanda moonram naalil
Aagumenra sangankani polae kaanum
valamaaga yezhaam naalil irangi pogum
thaagumenra vonbathiley snanan seithu
Thayavaaka thegathaik kulirchi seithu
Paakumentra paramanaiyum potri seithu
Panpaaka vaipatham potri seiyyae.”*

--Agathiyar vaisoori nool

*“Paareythan kaaichalathu miga vundaagi
Paruthumey sangan kaniyin koozh polaagum
Kooreythan moonram naal kuruthan thonri
Kudilamudan dasanaalil irangum kandeer
Seerethan annalil kalakkam kolveer
Seeriyathor vaisoori thaninthu pokum
Therethan yugimuni sikicha saaram
Thelivaaka paadi vaithaar thiramai yaamae”*

-- Yugi vaidya chinthamani

Fig A Symptomatology of NK as mentioned in the classical text

Table 2 The symptomatology descriptions of NK with modern view

S.no	Lines from poem	Breakup symptomatology
1.	“Azhagaaga kaaichal kanda moonram naalil.”	Prodromal fever for three days
2.	“Aagumenra sangankani polae kaanum”	Lesions appear like <i>Azima tetracantha</i> fruit
3.	“valamaaga yezhaam naalil irangi pogum”	Scabbing begins on seventh day
4.	“thaagumenra vonbathiley snanan seithu ”	Can take bath on ninth day

Table 3 The symptomatology descriptions of NK with modern view [8]

S.no	Lines from poem	Breakup symptomatology
1.	“Paareythan kaaichalathu miga vundaagi”	Onset is sudden with fever
2.	“Paruthumey sangan kaniyin koozh polaagum”	Lesions appear like <i>Azima tetracantha</i> fruit
3.	“Kooreythan moonram naal kuruthan thonri”	Blister will start to appear on third day
4.	“Kudilamudan dasanaalil irangum kandeer”	Scab begin to form on tenth day

Table 4 Description of Symptoms of Nk [9, 10, 11]

S.No	Description as per Siddha Texts	Description as per Modern pathology
1.	Onset with the occurrence of fever	Early symptoms in adults include fever, headache backache, sore throat and malaise which lasts for 2-3 days
		Onset is sudden with mild or moderate fever, pain in back shivering and malaise.
2.	Clear fluid vesicles will start to appear on the third day which progresses to reddish blisters	After 1-2 days of fever and malaise, scarlatiniform or morbilliform erythema is seen.
		The vesicles are unilocular, superficial elliptical in shape and contain clear fluid at the beginning (teardrop vesicles).
		A rash appears on crops for three to four days
		The irregular perivascular erythema give the lesions a "dew drop on rose petal appearance"
3.	Scab begin to form on the tenth day	Scabbing begins 4-7 days after the rash appears.

DISCUSSION

Varicella is distributed worldwide but its age specific. In tropical countries in the absence of Varicella vaccination, Varicella is endemic with a regularly recurring seasonal prevalence in summer and spring, and periodic epidemics that depend upon

the accumulation of susceptible persons. For prevention of Chicken Pox, the vaccine is given two times as per modern literature. Based on conservative estimates, the global annual chickenpox disease burden includes 4.2 million severe complications leading to hospitalization and 4,200 deaths. [3] In the pre-vaccine era in high-income developed countries, case fatality rate was about 3 per lack cases compared to 1-3 per 1000 cases for measles. Factors which influence the severity of disease and outcome in populations to include the proportion of cases among infants, pregnant women and other adults, the prevalence of immunocompromising conditions including HIV infections and the extent of access to care and appropriate treatment in otherwise healthy children, the disease is usually self-limiting.

As in modern medicine approach, in the majority of cases, only symptomatic treatment is required, when the illness is mild. Paracetamol in a dose of 0.5g given thrice daily serves to relieve pain. To prevent secondary infection, local antiseptics like chlorhexidine will be used. Pruritis can be reduced by local application of peanut oil containing 1% phenol. Antiviral drugs such as acyclovir have to be given parenterally in complicated cases. For normal hosts acyclovir, 20 mg/kg bw orally as tablets up to a maximum of 800 mg 4-5 times a day for 5 days is effective. In immunocompromised hosts and in normal hosts with pneumonia or meningoencephalitis, the dose is 10mg/kg IV 8 hourly for 7-10 days or more. If started early the results are excellent. The spread of infection can be prevented by isolation of the patient and heat sterilization of contaminated articles. Immunosuppressed children who are exposed to chickenpox should be given protective immunoglobulin. Varicella zoster immunoglobulin (VZIG) prepared from pooled human plasma contains antibodies against varicella, and when given in a dose of 12.5 units/kg body weight within 72 hours of exposure it gives passive immunity. Secondary bacterial infection should be treated with antibacterial agents. [9,10,11]

The pox diseases as per the Tamil medicine were generally divided into four namely *Periammai* (Smallpox), *thattammai* (Measles), *poottuthaal Ammai* (Mumps) and *vilayattu Ammai* (Chickenpox). In another part of Siddha pathology texts, the contagious diseases with or without pox eruptions were classified into 14 based on the clinical presentations, duration of scabbing and recovery. *Neerkuluvan* is one among the variant of pox as mentioned in Siddha texts.

In olden days, the epidemiological part of Siddha medicine in preventing seasonal and contagious infections is purely based on the stringent measures followed as a cultural and religious practice especially during various seasonal drifts. The awareness of disease outbreaks is better understood by them in a religious way of following rituals, celebrating festivals (Goddess *Amman*), diet and lifestyle regimen which improves one's strength, and resistance. The practices were orderly focused to prevent most of the epidemic outbreak particularly belonging to pox varieties. Pox eruptions were so common in that period. The systematic measures that were generally

followed to prevent the outbreak and to enable its successful management are as follows. [4, 6]

a. **Notification:** Neem leaf and turmeric will be hanged in front of the house in which the affected person stays, notifications should be sent to responsible village officers. This is a notice to other people not to visit or enter their home to prevent the contagious attack.

b. **Isolation:** The affected person will be medically isolated and under complete rest.

c. **Quarantine:** If the disease spreads in a particular area, a festival will be conducted for 10- 15 days. There was the practice of libation to the goddess of pox and in return, they will receive millet gruel, buttermilk, tender coconut water from the temple sanctum. The practices are still following as a mark of religious worship moreover as an ideal regimen, which will prevent one from most of the contagious attacks. They were advised to follow the regimen until the completion of the festive or to the entire month. The practice will replenish extreme dehydration, exhaustion, weakness, and loss of vitality that is much common during summer onset followed by seasonal drift and sudden rains. During the festive season, for the entire ten days, people were not allowed to either leave the boundary of the village nor to travel outside.

d. **Disinfection:** The entire locality will be disinfected twice a day with medicated fumigation especially prepared from Indian frankincense, white dammar, and agarwood. The sprinkling of turmeric water was also in practice to prevent the spread of the disease. The patients were advised to lie in neem leaf bed, which was changed every day.

e. **Diet and regimen:** The diet were planned to reduce the associated symptoms like the sensation of heat, nausea and vomiting, diarrhea, aphthous ulcers, fever, and to foster immunity against secondary infections. (Table 4). The subject was not allowed to travel, to have oil bath or sun exposure till the prescribed period. After the scabbing, the entire body will be smeared with the paste prepared from the mixture of neem leaf (1part), turmeric (1/4 part), Cynodon root (Cynodon dactylon 1/8 part) and buttermilk and then a bath to be taken after half hour. The procedure has to be repeated in alternate days for three consecutive times. This will promote faster healing of the ulcers or prevent scar formation.

Table 4 Dietary advice for NK [13]

Advised	Non advisable
<p>Main diet: Rice gruel, millet gruel (<i>Ragi kanji</i>), porridge prepared from green gram and onion, and puffed rice (<i>Nerpori kanji</i>), After fever control: Curd rice, milk gruel</p> <p><i>Punarpakam</i> (Medicated gruel for pox): It is one of the healthy recipes from the Siddha literature reference "<i>Agathiyar Gunapadam</i>". The preparation is very simple to follow with numerous health benefits. Rice boiled twice to prepare the gruel which is added with the required quantity of palm jaggery and lemon juice. The serving is very relishing; easily digestible and energizing for all especially in post viral stages and after complete scabbing of the lesions</p>	<p>Hot and salty foods, oil based and fried items. Nonvegetarian has to be strictly avoided during the course.</p>
<p>Spices: Cumin, black pepper, cinnamon, cardamom, turmeric</p>	<p>Garlic, asafoetida, red chilly</p>
<p>Beverages: Tender coconut water, buttermilk with onion, Milk processed with turmeric and cumin seeds (<i>Manjal paal</i>),</p>	<p>Sour and fermented juices, sour buttermilk</p>
<p>Sweeteners: Palm candy, palm jaggery, sugar cane candy (unrefined), honey</p>	<p>Refined sugars</p>
<p>Vegetables: All watery content vegetables like cucumber, mushroom</p>	
<p>Fruits: Ash pumpkin, watermelon, red banana, gooseberry, palmyra fruit jelly (<i>Panai nungu</i>), fig</p>	<p>Mango unripe and ripened, citrus fruits</p>

f. Medications

Medications were given for preventing clinical aggression and other secondary complications. Only simple medicines were insisted for rapid recovery from the condition. Below are enlisted some of the common medications used for the management of Pox fevers. (Table 5)

Table 5 Internal Medicines for Chickenpox [14-17]

Chandana ooral Kudineer (Sandalwood infusions), *Nannari Manappagu*, *Chenchandana Manappagu*, *Maha ellathi Guligai*, *Thazhampoo theeneer*, *Moongil Uppathi Theeneer*, *Sringa parpam*, *Muthu parpam*, *Pavala parpam*, *Amayodu parpam*, *Padikara Parpam*, *Venkara Parpam*, *Mahabhoopathi Parpam*

CONCLUSION

The symptoms of *Neerkuluvan* mentioned by Sage Yugi confirmed to the majority of symptoms mentioned in the modern literature of Chickenpox (Varicella). Thus the study validated the symptomatology elucidated by Sage *Yugi* and matched it with the severity

of the disease. From this, the disease can be diagnosed easily and confidently with the help of the symptomatology described above. The author concludes that these symptomatic diagnostic parameters can be successfully implemented by the physician at the clinical level in the diagnosis of *Neerkuluvan* and preventive as well as treatment procedures can be performed.

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