

# Ayurvedic Management of Dengue Fever in Children: A Single Case Study

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## ABSTRACT

Dengue is considered globally as the most concerning mosquito borne arboviral disease in terms of morbidity and mortality that places a significant socioeconomic and disease burden on many tropical and subtropical regions of the world. Till date, there is no specific treatment which is accepted for dengue fever in Modern Medicine. In pediatric age group it is one of most common threats. In *Ayurveda*, dengue fever can be correlated with *Visham Jwara*. Various formulations have been mentioned in *Jwara Prakaran* and also tried, scientifically validated and documented by modern researchers, showing evidence of efficacy. A case study is been conducted on dengue fever in children and successfully managed with ayurvedic medications. Patient showed marked improvement through symptomatically as well as in hematological profile.

**KEYWORDS:** Dengue, Visham Jwara, Ayurveda

**How to cite this paper:** Dr. Nishant Gawande | Dr. Shilpa Madan | Dr. Kishor Pacharne | Dr. Saguna Thakre | Dr. Mosin Shaikh "Ayurvedic Management of Dengue Fever in Children: A Single Case Study" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-6 | Issue-4, June 2022, pp.1760-1764, URL: www.ijtsrd.com/papers/ijtsrd50386.pdf



IJTSRD50386

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## INTRODUCTION

Dengue is considered globally as the most concerning mosquito borne arboviral disease in terms of morbidity and mortality which is caused by one of four closely related virus serotypes of the genus flavivirus. It is the most widely distributed viral haemorrhagic fever in the world (Pinheiro, 2017), that places a significant socioeconomic and disease burden on many tropical and subtropical regions of the world. Although nearly half of the world's population is at risk for Dengue infection and as many as 50 to 100 million new cases are estimated to occur annually (Gubler, 2006). During the past five decades, the incidence of dengue has increased 30 folds (Lalla, 2014). Although the full global burden of disease is uncertain, the initiation of activities to record all dengue cases partly explains the sharp increase in the number of cases. Increase human population density, global climate change, urbanization, poor sanitation (creating breeding sites

for larval mosquitoes), reinfestation (in 1970) of South America by *A. aegypti* after a successful eradication campaign and the movement of infected persons by airplanes have contributed to a substantial increase in dengue incidence during the past 50 years (Kuhn, 2002). Before 1970, only 9 countries had experienced severe dengue epidemics. The disease is now epidemic in more than 100 countries in WHO regions. Not only is the number of cases increasing as the disease spreads to new areas but explosive outbreaks are occurring. Year 2016 was characterized by large dengue outbreaks worldwide. In India, Delhi recorded its worst outbreak since 2006 with over 15000 cases in 2015 (<http://www.who.int/mediacentre/factsheets/fs117/en/>). Today the world is looking up to complimentary system of medicine like *Ayurveda* for the treatment of disorders including dengue as this challenging disease is currently unmet

by licenced vaccines or specific therapeutic agents in Modern Medicine.

### Case Report

A 13 yrs old male child came the OPD of Kaumarbhritya department of PMT's Ayurved Mahavidyalay Evum Shree Eknath Rugnalay, Shevgaon with chief complaint of fever and myalgia. History revealed that object was healthy and fine before 3 days; 3 days before object complained for sore throat, loss of appetite and bodyache. On the next day he complains about high grade fever with chills, severe headache and severe bodyache. For that patient has taken medication from a local medical store, but symptoms did not get settle. So patient came to OPD for further management.

As object was a school going child dependent on

### Management

He was admitted in IPD of the same department and was put on *Ayurvedic* line of treatment along with light diet and plenty of fluid intake. Hemogram was advised to repeat every day. After 5 days, there was remarkable improvement in the haematological profile of the patient which was also evident symptomatically without any complication.

parents. His father is a labour and mother is housewife. So his socioeconomic status is been poor. On admission he was mild febrile with a fever spike of 100.1°f, he had pulse rate of 98 / mins with good volume and regularity in pulse, capillary refill (CRT) time < 3 seconds and blood pressure of 106/76 mm of Hg. As there was no shock component present in patient. In systemic examination, there was tenderness in epigastric region only. No hepatosplenomegaly present. No any sign of fluid third spacing in abdomen. He was subjected to various routine laboratory investigations and was diagnosed as a case of dengue fever (Positive NS1 antigen and Ig test). Other Blood investigations revealed leucopenia (3300 cells/cumm), no haemoconcentration (PCV 38.9 %, Hb 10.8%) and thrombocytopenia (platelet count 68000 cells/cumm).

**Table 1 Line of treatment given to the patient**

Drugs	Dose	How many times a day
Churna <i>Nimba</i>	2 gm.	
<i>Mustak</i>	2 gm	2
<i>Guduchi Satva</i>	1 gm. Total 5 gm	
Swarasa <i>Tulsi</i>	10 ml. each- Total 30 ml.	4
<i>Erandakarkati patra (Papaya leaves)</i> <i>Ghritkumari</i> Tablet <i>Tribhuvan kirti Rasa</i>	250 mg.	3

**Table 2 Daywise symptoms with haematological profile of the patient**

Day of Admission	Symptoms	Total Leucocyte Count	Platlet Count	PCV
Day 1	Fever, headache, generalized bodyaches, loss of appetite	3330 cells/cumm	68000 cells/cumm	40.7%
Day 2	Diminution in the intensity of fever along with headache, Rest of the symptoms remained same	2950 cells/cumm	52000 cells/cumm	44.3%
Day 3	Reduced intensity of fever, rest all symtoms remains same.	4100 cells/cumm	48000 cells/cumm	42.2%
Day 4	Marked Reduction in frequency as well as intensity of fever, no headache	5100 cells/cumm	91000 cells/cumm	40.4%
Day 5	No fever with no headache, bodyaches markedly improved, appetite improved	6300 cells/cumm	1,40,000 cells/cumm	41.2%

### Assessment Criteria and Observations

#### Fever Grade]

High (102-104 degree F) :4

Moderate (100-102 degree F): 3

Low (99- 100 degree F): 2

Very low (up to 99 degree F): 1

No fever: 0

### Headache Grade

Severe, requires medicine: 4

Moderate: 3

Mild: 2

Occasional; 1

No headache: 0

### Bodyaches Grade

Severe, hamper routine work: 4

Moderate: 3

Mild: 2

Occasional: 1

No body aches: 0

### Hematological Profile:

#### TLC Grade

3000-3500 cells/cumm: 4

3500-4000 cells/cumm: 3

4000-4500 cells/cumm: 2

4500-5000 cells/cumm: 1

More than 5000 cells/cumm: 0

#### Platelet CountGrade

Less than 50,000 cells/cumm: 4

50,000-65000 cells/cumm: 3

65000-80000 cells/cumm: 2

80000-95,000 cells/cumm: 1

More than 95,000 cells/cumm: 0

**Table 3 Effect of therapy (Based on grading)**

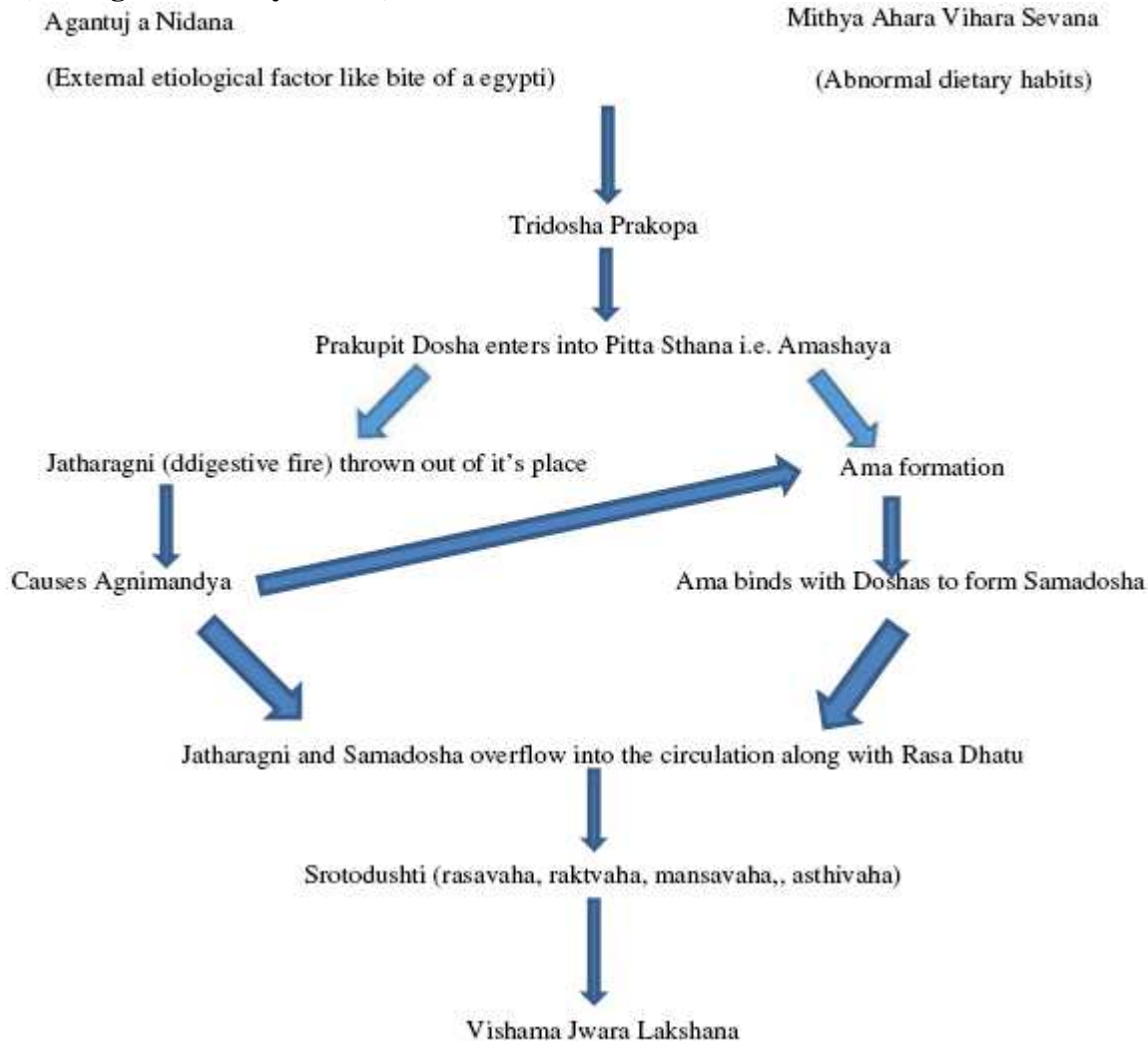
S. No.	Characteristic	B.T.*	AT**
1.	Fever	4	1
2.	Headache	4	0
3.	Bodyaches	4	2
4.	TLC	3	0
5.	Platelet Count	3	0

(\*- Before treatment, \*\*-After treatment)

## DISCUSSION

*Ayurveda* refers fever as *Jwara* in which body temperature goes beyond the normal temperature and is characterised by disturbance in normal functioning of the body as well as mind, mentioned in the texts as “*Manaso-Deha Santapa*”. Due to its *Bhootaabhishanga Nidana* (viral infestation) as well as *Visham Aarambh* (Fever- sudden onset or onset after nonspecific symptoms), *Visham Kriya* (fever with or without chills and rigors) and *Visham Kala* (irregular duration or interval of fever), it can be correlated with *Visham Jwara*.

**Samprapti (Pathogenesis in Ayurveda)**



**Table 4 Properties of Drugs used**

Properties	<i>Nimba</i> (Azadirachta indica)	<i>Mustak</i> (Cyperus rotundus)	<i>Guduchi</i> (Tinospora cordifolia)	<i>Tulsi</i> (Ocimum sanctum)	<i>Ghritkumari</i> (Aloe barbendensis)	<i>Erandkarkati</i> (Carica papaya)
Rasa	Tikta	Katu Tikta	Tikta kashaya	Katu tikta	Tikta madhura	Katu tikta
Guna	Laghu		Laghu	Laghu ruksha	Guru	Laghu Ruksha
Virya	Sheeta	Sheeta	Ushna	Ushna	Sheeta	Ushna
Vipaka	Katu		Madhura			Katu
Karma	Agnikara,	Deepana pachana,	Agnivardhaka,	Deepana	Rasayana	Pachana,
	Pittakaphahara	jwarahara,	rasayana,			Kapha vata
		kaphapittahara	tridhoshahara			shamaka

The main aim of *Chikitsa*, in *Ayurveda* is aimed towards *Vighatana* of *Vyadhi Samprapti* or *dosha dushya sammurchhana*. In general principle of *Ayurveda*, *nava jwara* (Acute fever) can be managed by-

- *Langhana* (fasting or taking light diet)- maintains the metabolic fire.
- *Swedana* (sudation)- it eliminates the toxins or metabolic wastes out of body
- *Kala* (time waiting/patience)- helps in correcting the metabolism

- *Yavagu Sevan* (eating gruel)- improves digestion
- *Tikta Rasa Beshajam* (use of herbs with bitter in taste)-Due to deepana guna, tikta rasa helps in ameliorating digestive fire.
- *Ama Pachana* (drugs which improve the abnormal metabolism).

As Dengue fever is an acute febrile illness so can be treated on the line of *Nava Jwara*.

These all drugs due to their *Tikta Rasa*, increases the digestive fire or *Agni* thereby corrects *Agnimandya*



and *Samadosha* condition. *Nimba*, *Guduchi*, *Tulsi* and *Erandkarkati* have *Laghu Guna* along with *Ruksha Guna* of *Tulsi* and *Erandkarkati* which is just opposite to *Guru* and *Picchila Guna* of *Ama* (formed product due to abnormal digestion and metabolism). Both *Laghu* and *Ruksha* guna helps in alleviate symptoms of *ama dosha*. Other than this, *Erandkarkati* has *Pachan Guna* which clears *Ama* from *Samadosha*, making all *Doshas* in *Nirama* state. *Ghrithkumari* and *Guduchi* both are termed as *Rasayana* in *Ayurveda* to combat the immunosuppressive condition. *Tribhuvan kirti rasa* (Vaidya Lakshmiapati Sastri, 1997), which has been mentioned particularly in *Jwara Chikitsa Prakaran*, has *Ushna Virya* so effectively used in *Amaj* condition of *Jwara*. These formulations have also been tried, scientifically validated and documented by Modern researchers, showing evidence of efficacy. In a study, crude aqueous extract of *Neem* leaves and compound *Azadirachtin* were evaluated against replication of dengue virus type-2. Extract from *Neem* leaves showed significant inhibitory activity against dengue virus while pure *Azadirachtin* did not depict any inhibitory effect in both in vitro and in vivo experiments (Parida, 2002). Similarly, *C.papaya* leaves have been traditionally used in the treatment of dengue fever. The aqueous extract of this plant exhibited potential activity against dengue fever by increasing platelet count, white blood cells and neutrophils (Ahmad, 2011). *Tulsi*, termed as *Ocimum sanctum* has suggested to possess antiviral, antimicrobial, diaphoretic and analgesic activity<sup>10</sup> thereby reducing the febrile condition along with symptoms of dengue fever.

### Conclusion

It can be concluded from the case that the formulations exhibited marked therapeutic effect on febrile condition of dengue along with other associated symptoms like hemoconcentration etc. Other than this, the drugs also corrected leucopenia as well as thrombocytopenia within 5 days. No side effects were seen during the course. But further study is needed to observe the effect of above formulation in other febrile conditions also and secondarily; the study should be done on more no. of patients and for longer duration to remark other benefits.

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