



## Review Article

# Ayurvedic Remedies of Bacterial Meningitis

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### ABSTRACT

Bacterial meningitis is a cataclysmal contagious malady associated with high risk of permanent disability & special deformation in survivors and substantial mortality.[1] Characterization of bacterial meningitis is carried out by the two ways, either by the growth of bacteria in the compartment where inflammation has been occurred within the CSF and the adjacent brain tissue or by the entrance of bacteria into the cerebrospinal fluid. Allopathic treatment for meningitis is based on clinical subgroups and causative micro-organisms. Mainly meningitis is treated by antibiotics, steroids, and oxygen therapy as supportive care. Ayurvedic treatment for meningitis is based on strengthening the immune system with the help of various herbs which have specific medicinal properties. Ayurvedic treatment can be continued along with modern treatment to prevent complications.

## INTRODUCTION

Bacterial meningitis is one of the severe life-threatening inflammation of the meninges and subarachnoid space caused by bacteria. This type of inflammation can also spinal cord owing to their anatomic proximity & the brain cortex. The condition requires immediate medical attention and management. Vasospasm and possible thrombosis of cerebral arterioles and arteries as well as meningeal inflammation is also a reason for possible Cerebral vein occlusions. Cold hands

or feet and mottled skin, confusion, headache and a stiff neck, muscle pain, sensitivity to light, fever & Nausea, and vomiting are the early symptoms found in meningitis. While coma & seizures are the late symptoms.[2] Bacterial meningitis can be treated by allopathic treatment as well as ayurvedic treatment, The review gives the information related to ayurvedic treatment for meningitis with lesser side effects.

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## **PATHOPHYSIOLOGY OF BACTERIAL MENINGITIS:**

Characterization of Bacterial Meningitis is carried out by the growth of bacteria in this compartment leading to inflammation within the CSF and the adjacent brain tissue & entry of bacteria into the cerebrospinal fluid (CSF).

Factors affected to death & long term neurological sequelae are-

1. The systemic inflammatory response of the host leads to leukocyte extravasation into the subarachnoid space and increased CSF outflow resistance, and brain edema. The important cause of death is elevated intracranial pressure. The systemic inflammation leads to secondary ischemia, vasculitis & cerebral venous thrombosis.
2. Proinflammatory bacterial compounds stimulate Immune cells within the brain parenchyma, in particular microglia which can directly cause neuronal injury.
3. Direct neuronal toxicity can be possessed by various bacterial compounds like pneumolysin. Due to the release of reactive oxygen intermediates, proteases, cytokines, and excitatory amino acids, the activation of transcription factors, caspases, matrix metalloproteases, and other proteases neuronal injury may cause. Sterilization of CSF and reduces mortality of bacterial meningitis carried out by rapid initiation of effective antibiotic therapy. Streptococcus pneumoniae meningitis can be treated by dexamethasone in some industrialized countries & it improves the outcome of bacterial meningitis. Dexamethasone as an adjunct to antibiotic treatment causes an increase of neuronal injury in the dentate gyrus of the hippocampal formation in some experimental meningitis.[3]

## **Types of Meningitis:-**

- Pneumococcal meningitis
- Meningococcal meningitis
- Listeria monocytogenes meningitis
- Neonatal meningitis
- Hemophilus (Hib) meningitis[4]

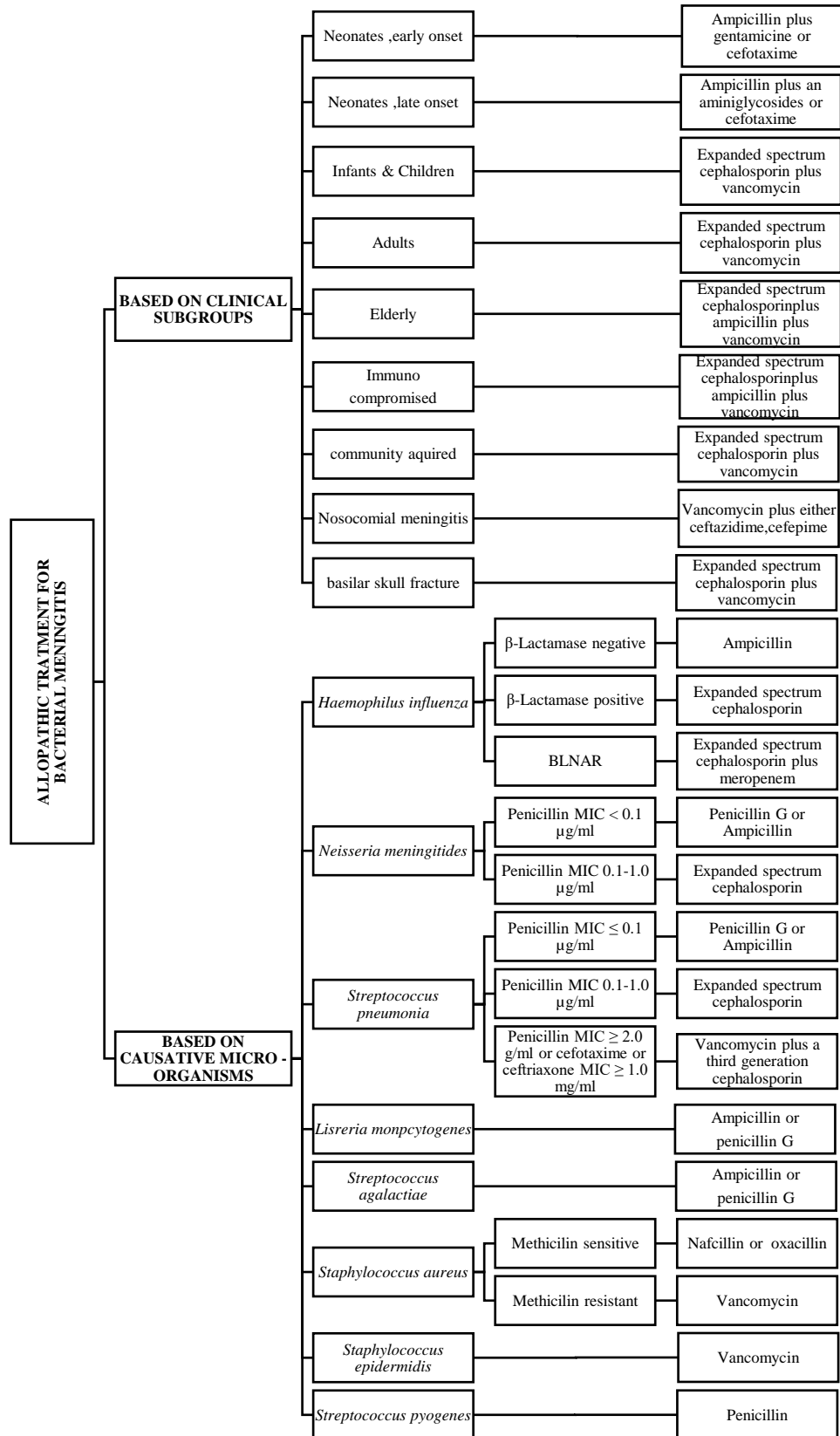
## **Signs & Symptoms :-**

- Headache with nausea or vomiting
- Sudden high fever
- Stiff neck
- Sensitivity to light
- Muscle pain
- Confusion or difficulty concentrating
- Seizures
- Sleepiness or difficulty waking
- Skin rash
- No appetite or thirst
- Severe headache
- Stomach cramps
- Fatigue and drowsiness
- Extremely cold hands and feet
- Rapid breathing and chills

## **Symptoms in infants are as follows :**

- Constant crying
- High fever
- Stiffness in an exceedingly baby's body and neck
- Excessive sleepiness or irritability
- Poor feeding
- Inactivity or sluggishness
- A bulge within the soft spot on top of a baby's head

**ALLOPATHIC TREATMENT:**



**Figure 1: Allopathic Treatment for Bacterial Meningitis**

## THE TREATMENT OF MENINGITIS WITH THE HELP OF AYURVEDA.

- The reason behind meningitis is weak immunity and vitiation of pitta and Kapha selectively TarpakKapha. TarpakKapha acts by helping the nerve impulses to move at a rate by which nourishment and protection of the axons of the nerves are maintained. Vitiation of Tarpakkapha obstructs the nerve impulses.
  - Psycho-Dynamics for indriya manas buddhi co-ordination are rajas, Vata, pitta, Kapha, tamas, and satva.
  - Indriyasthanas which have been collected from Charaka Samhita is ayurvedic literature, which includes 'Ayurveda Dipika commentary by chakrapani. It also describes meningitis could be a reason behind altered neurological conditions.
  - Meningitis could be a postnatal etiological factor behind cerebral palsy.
  - Acute bacterial meningitis could be a life-threatening neurological emergency.
  - Ayurvedic treatment can be continued along with modern treatments to prevent complications.
- [ 5,6,7,8,9]

## THE TREATMENT OF MENINGITIS WITH THE HELP OF PLANET AYURVEDA.

Ayurveda gives herbal supplements that act as Rasayanas for strengthening the immunity of the person. Other herbs also act by providing strength and nourishment to the brain and nervous system.[14,15,16]

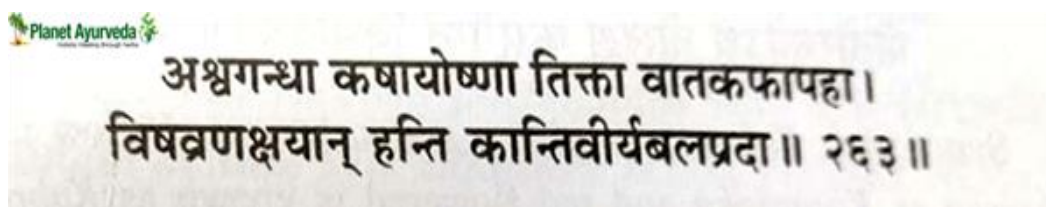
### CARE PACK OF PLANET AYURVEDA FOR MENINGITIS INCLUDES:

- Ashwagandha Capsules
- Kaishore Guggul
- Boswellia Curcumin Capsules
- Medhya Churna
- Brahmi Capsules
- Seprin Tablets[10]

#### 1. ASHWAGANDHA CAPSULES

Ayurveda includes the use of ashwagandha for a long time for several health conditions. Ayurveda considers ashwagandha as a Rasayana. Ayurveda's Ashwagandha Capsules contain the standardized extract of the plant *Withaniasomnifera*. It shows anti-inflammatory properties hence used as antimeningitis. This herb protects the brain from deterioration and lunacy.

**Dose:** Take 1 capsule two times a day with water after taking meals.



[11,13]

With the help of this shloka actions and therapeutic uses of ashwagandha are explained.

Ashwagandha is hot astringent and bitter. This herb cures Vata as well as Kaphadosha cures poisoning. It also helps to reduce sore formation

and plays an important role as body tonic that helps to maintain the health of an individual.

**Reference: Dhanvantrinighantu (GuguchiyadiVarg) Shloka-263)**

## 2. KAISHORE GUGGUL

This is a classical herbal formulation that is effective in providing symptomatic relief related with meningitis. The formulation of guggul is a wonderful blend of some effective herbs that are known to be as good natural remedies of meningitis. It also contains herbs like vellija, magadhi, walnut, vibheetaki, Amala, gugal, ginger, tandul, jalap, and wild sultan seeds. These herbs shows excellent medicinal properties in Ayurveda which are very usefull for reduction of inflammation. Aardrak present in it specifically cures the aggravated Vatadosha and maintains the level of Pitta and Kapha.

**Dose:** 1 or 2 tablets twice or thrice a day with water after meals.

## 3. BOSWELLIA CURCUMIN CAPSULES

Boswellia Curcumin Capsules is a unique product of Planet Ayurveda that contains *Boswellia serrata*

and *Curcuma longa* as the ingredients of the blend. These two ingredients show anti-inflammatory action and work in a synergistic manner to minimize infection and inflammation. Curcumin shows anti-inflammatory action that has potent effects. The effect of curcumin is same as that of effect of corticosteroids. Turmeric has antibiotic, anti-oxidant, anti-inflammatory, properties that help in the treatment of meningitis. **Dose:** 1 capsule two times daily with water after taking meals[12]

## 4. MEDHYA CHURNA

Planet Ayurveda's Medhya Churna is a wonderful blend of dried extracts of plants that act as the best brain tonic. each herb used in this powder is used many times for several brain disorders. Therefore, this churn is also used for the treatment of meningitis.

### INGREDIENTS OF MEDHYA CHURNA ARE:

**Table 1: Ingredients of Medhya Churna**

Sr. No.	Botanical Name	Common Name	Parts	Quantity
1.	Acorus calamus	Vacha	Roots	50 gm
2.	Withaniasomnifera	Ashwagandha	Roots	5 gm.
3.	Carum roxburghianum	Ajmoda	Seeds	5 gm.
4.	Cuminum cyminum	ShwetJeerak	Seeds	5 gm.
5.	Carum carvi	Krishna Jeerak	Seeds	5 gm.
6.	Zingiber officianle	Sonth	Rhizome	5 gm.
7.	Piper nigrum	Marich	Fruits	5 gm.
8.	Piper longum	Pippali	Fruits	5 gm.
9.	Cissampelos pareira	Patha	Whole	5 gm.
10.	Convulvuluspluricaulis	Shankhpushpi	Whole	5 gm.
11.	Bacopa monnieri	Brahmi	Whole	5 gm.

**Dose:** Take 1/4 spoon powder two times a day with water after taking meals.

## 5. SEPTRIN TABLETS:

The Ayurveda's Septrin Tablets are help to reducess infections as well as pain and

inflammation. All the plants used in this formulation are anti-inflammatory which are very useful in the treatment of meningitis.



**INGREDIENTS OF SEPTRIN TABLETS ARE:****Table 2 : Ingredients of Septrin Tablets**

Sr. No.	Herb Used	Botanical Name	Parts Used	Quantity
1.	Guggul	Commiphoramukul	Resin	200 mg
2.	Haldi	Curcuma longa	Root extract	150 mg
3.	Tulsi	Ocimum sanctum	Leaves extract	100 mg
4.	Sonth	Zingiber officinale	Root extract	20 mg
5.	Marich	Piper nigrum	Seed extract	20 mg
6.	Pippali	Piper longum	Fruit extract	10 mg

**Dose:** 2 tablets ,two times daily with plain water after taking meal.[13]

**(Reference: Charak Samhita Chikitsasthanam, Chapter no. 12, Shlok no. 20)**

**BRAMHI**

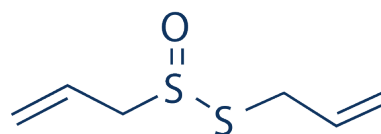
Brahmi has been used in Ayurveda for long times that provide strength to the brain and it has very effective results on the brain. It is a brain tonic, it has a calming effect on the brain that relaxes the brain. All three doshas of the body are balanced by bramhi and It is formulated with the unadulterated extract of Brahmi. Brahmi is an anti-stress and it also posses rejuvenating properties. daily use of these capsules relaxes the brain tissues and gives symptomatic relief to meningitis such as headache, confusion, seizures, etc.

**Dose:** 1 or 2 capsules twice a day with water after meals.[12]

**SOME MEDICINAL PLANTS USED THE TREATMENT OF THE INFECTIOUS DISEASE.****GARLIC**

Garlic is effective against multiple diseases including meningitis, due to its active constituent allicin.

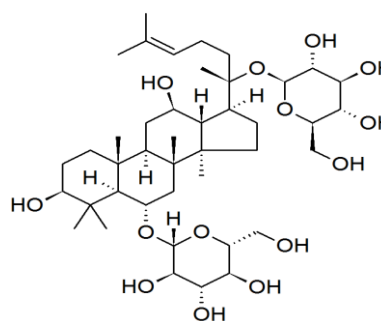
Allicin and its alternative organic compounds in garlic are embedded with antioxidant and Antiviral, medicinal drug capabilities.

**Figure 2: Structure of Allicin [17]****REISHI MUSHROOMS**

Reishi mushrooms have a red color. Triterpenes and polysaccharides in them strengthen the immune system and decrease inflammation.[21].The extract is derived from cap & stem of the mushroom.It is also known as medicinal mushroom.

**GINSENG:**

Ginsenoside is the active ingredient of ginseng which directly acts on infected membranes to eliminate the infection,and increases the speed of recovery from infectious diseases. Ginseng can be consumed directly or stewed in tea to get the pleasure to obtain regain.[22]

**Figure 3: Structure of Ginsenoside [18]**

### **OLIVE LEAF EXTRACT:**

These is available in the form of dried liquid or capsule type as a natural treatment for infectious diseases. It is loaded with illness-fighting antioxidants and vitamins, studies have shown their medicinal drug and healing properties.

The extract obtained from this has both antiviral & antioxidant properties because of the chemical constituents named as elenoic acid which is bacteriostatic.[23]

### **CAT'S CLAW:**

Cat's claw is an home remedy used as anti meningitis formerly. Cat's claw is helpful in reducing the infection because it contains most of the anti-inflammatory components.

The herb has immunity-booster property along with anti-inflammatory property which provide strength and immunity to your body against the attack from infectious bacteria.[24]

The standard dose - 20 mg/TID.

*Note: Consult a doctor before taking the herb.*

### **CHOLRELLA:**

Chlorella is the algae, which is rich in chlorophyll & also most effective home remedy for bacterial meningitis. It contains about 20 types of vitamins & minerals .It helps in boosting erythropoiesis process which inhance oxygenation & purification of blood. That leads to speeding up recovery.[25]

### **ASTRAGALUS HERB:**

Astragalus herb improves immune system & provide symptomatic relief in meningitis.It can be used as infused in the tea for curing the infection of bacterial meningitis.[26]

### **SOYABEAN MILK:**

Soyabean milk is consumed by mixing with honey. Honey is used as taste enhancer , continuation of this dose before going to bed upto 3-4 months cures the bacterial meningitis naturally. sobean milk have the naturally healing properties due to its active constituents.[27]

### **GOLDENSEAL:**

Goldenseal an ancient herb, is very effective and helpful for the treatment against bacterial meningitis. The roots of goldenseal herb possess antibacterial and antifungal agents.[28] Herbal blend of goldenseal and Echinacea works as immunobooster.

### **COCONUT OIL:**

Coconut oil posses antibacterial, antimicrobial,antiviral & antifungal properties. These properties are helpful in healing as well as help for managing the symptoms of meningitis.[29]

### **LIFESTYLE ADVICES:**

Some changes in daily routine lifestyle along with the natural remedies can help for reduction and treatment of bacterial meningitis.[30,31]

#### **1. Healthy diet:**

Healthy diet is always a primary need of any medical condition to be treated perfectly as food is the only energy source for body. One should take diet which is rich in carbohydrates, proteins, vitamins & minerals. Organic vegetables (spinach) & healthy fats (Eggs, Chees, Avocados, Nuts) & some amounts of grass-fed meat makes a perfect diet.

#### **2. Rest:**

Refreshment from your exertive lifestyle full of multiple day to day activities can be obtained by proper rest. As getting proper rest which is required for healty body will help to reboot your immune system.

#### **3. Neutral bath:**

A neutral bath is the immersion of body in a tub of water at a neutral temperature (34 - 37°C). It is used for sedative purposes and help your body relax.

A person suffering from meningitis will have different body temperatures throughout their body. While taking a neutral bath, your blood will respond accordingly and get redistributed throughout your body. Thus, easing the inflammation and discomfort in the brain and spinal cord, and providing overall relief.



#### 4. Hydrate yourself:

Whenever you are suffering from bacterial meningitis it is necessary to keep your body hydrated. Maximum waste and infection-causing bacteria will be flushed out or cleansed out by drinking plenty of water from your body. Individual can also drink fruit juices instead of drinking only plain water.

#### CONCLUSION

Bacterial meningitis is a cataclysmal contagious malady associated with high risk of permanent disability & special deformation in survivors and substantial mortality. Characterization of acute as

well as chronic bacterial meningitis is carried out by the broadening of bacteria in this compartment leading to inflammation within the CSF and the adjacent brain tissue and entry of bacteria into the cerebrospinal fluid. Allopathic treatment for meningitis is based on clinical subgroups and causative micro-organisms. Mainly meningitis is treated by antibiotics, steroids, and oxygen therapy as supportive care. Ayurvedic treatment for meningitis is based on strengthening the immune system with the aid of various herbs which have specific medicinal properties. Ayurvedic treatment can be continued along with modern treatment to prevent complications

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