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Traditional medicine in the management of Recurrent Tonsillitis - An Ayurvedic Perspective

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ABSTRACT

Tonsillitis is one of the commonest infectious illness suffered by pediatric age group. It has high incidence in developing nations like India. Its recurrent attack results in hypertrophy of tonsils, difficulty in swallowing, sleep problems resulting in poor nutrition and poor school performance as well. Recurrent tonsillitis may also result in late complications like rheumatic heart diseases. Conventional systems of medicine usually advise surgical removal of tonsils to treat its recurrent infections. Ayurveda describes a similar condition, *Tundikeri* which have same clinical manifestations like recurrent tonsillitis and also advised its medicinal treatment. Ayurveda have ample treasure of herbal medicine which can be used in the management of recurrent tonsillitis. This article reviews various classical texts as well as recent experimental and clinical studies to find out herbal medicine useful in recurrent tonsillitis and revalidate their use to reduce necessity of tonsillectomy.

Key words: Tonsillitis, Tundikeri, Ayurveda, Antibacterial, Anti-Inflammatory.

INTRODUCTION

Tonsillitis is common condition of children and young adults. It have high incidence in developing country like India. About 7% visits to pediatricians are only because of tonsillitis. It causes high morbidity rate in maximum number of children in early years of life.^[1] Chronic tonsillitis results in recurrent morbidity, difficulty in feeding, poor nutrition etc. which may lead to growth problems in pediatric population. Recurrent tonsillitis may sometime act as pyogenic focus for distant infections. Tonsillitis (caused by streptococcal infection) may result in various systemic

complications like rheumatic fever, RHD etc. with long term health problems.^[2] Thus recurrent tonsillitis is major health problem in specified population.

Modern health science treat recurrent tonsillitis with surgery i.e. tonsillectomy. There is rise in number of tonsillectomies over the years. In India up to 2, 00,000 tonsillectomies are being performed per year.^[3] Although rare, complications associated with tonsillectomy can be taxing for patients and health care resources.

Ayurveda described a disease named *Tundikeri* which has same sign and symptoms as of tonsillitis. *Tundikeri* is one of the diseases described to occur in throat. The word *Tundikeri* is synonym of cotton and in this disease *Vanakarpas* (cotton fruit) like swelling is present in throat near to *Hanusandhi* (Temporo-mandibular joint).^[4] This disease is described in various ayurvedic *Samhitas in Talu* and *Kantha Gata Rogas*. The management of the disease is described like *Galshundi*. It is treated with oral medication as well as by different procedure of local application of drug like *Kavala*, *Gandusha* and *Pratisarana* etc.^[5] If not cured by medicinal management its surgery is also described in various texts of *Ayurveda*. On the basis of

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symptomatology and management of *Tundikeri*, it can be co-related with chronic tonsillitis as per modern health science description. Ayurveda can provide a solution to the chronic tonsillitis in the form of oral herbal drugs and local application of drugs, thus can prevent tonsillectomy.

MATERIAL AND METHODS

Classical Ayurvedic texts were searched for the reference of *Tundikeri* and its management. Various drugs single as well as compound formulations, used in the management of *Tundikeri* were compiled. Various search engines like Medline, Scopus, Google scholar, Science direct, pub med and Google were searched for recent studies (studies after 1990 A.D.) on single and compound Ayurvedic drugs useful in *Tundikeri*. The experimental, animal and clinical studies found supportive of Ayurvedic drugs in management of *Tundikeri* were reviewed. The key word used were *Tundikeri*, tonsillitis, Ayurvedic drugs, botanical names of various useful drugs, *Darvyadi Kashaya*. Various review articles, clinical trials and animal studies found on search engines as whole or abstract were critically reviewed for their contents and study parameters and included in this article on the merit of positive results.

RESULTS

There is lot of drugs described in Ayurvedic classics for specific treatment of *Tundikeri* or for diseases in oral cavity and throat. The drugs are either to take internally or have to applied locally. They are compiled here.

Table 1: List of single herbs indicated for tundikeri in various Ayurvedic texts^[5-8]

S N	Sanskrit Name	Scientific / English Name	Part used
1	<i>Haritaki</i>	<i>Terminalia chebula</i> Retz.	Fruit
2	<i>Rasanjana/Daruharidra</i>	<i>Berberis aristata</i> DC.	Root & Stem
3	<i>Nimba</i>	<i>Azadirachta indica</i>	Stem bark

4	<i>Nagara</i>	<i>Zingiber officinale</i> Rosc.	Rhizome
5	<i>Chitraka</i>	<i>Plumbago zeylanica</i> Linn.	Root bark
6	<i>Yava Kshara</i>	Alkali of <i>Hordeum vulgare</i> L.	<i>Kshara</i>
7	<i>Vacha</i>	<i>Acorus calamus</i> Linn.	Root & Underground stem
8	<i>Ativisha</i>	<i>Aconitum heterophyllum</i> Wall.	Root (rhizome)
9	<i>Kutki</i>	<i>Picrorhiza kurroa</i> Royle ex Benth	Root (underground stem)
10	<i>Madhu</i>	Honey	Whole
11	<i>Mustaka</i>	<i>Cyperus rotundus</i> Linn.	Rhizome
12	<i>Gomutra</i>	Cow's urine	Whole
13	<i>Kushtha</i>	<i>Saussurea lappa</i> C.B. Clarke	Root
14	<i>Patha</i>	<i>Cissampelos pareira</i> Linn.	Root

Table 2: List of herbal and herbo-mineral formulations indicated for *Tundikeri* in various Ayurvedic texts^[5-9]

SN	Name of formulation	Route	Contents
1.	<i>Yavagrajadi Gutika</i>	Oral (for internal use)	<i>Yava Kshara, Tejovati, Patha, Rasanjana, Daruharidra, Pippali</i>
2.	<i>Darvyadi Kashaya</i>	Oral (for internal use)	<i>Daruharidra, Twak, Nimba, Rasanjana, Indrayava</i>
3.	<i>Katukadi Kashaya</i>	Oral (for internal use)	<i>Kutki, Ativisha, Devadaru, Patha, Mushtaka, Indrayava</i>

3.	<i>Triphladi Kashaya</i>	Kawala (local application)	<i>Triphal, Yavakshara, Daruharidra, Chitraka, Rasanjana, Patha, Tejobal, Nimba, Sukta and Gomutra</i>
4.	<i>Katukadi Kawala</i>	Kawala (local application)	<i>Kutaki, Ativisha, Patha, Nimba, Rasna, Vacha</i>
5.	<i>Vachadi Kawala</i>	Kawala (local application)	<i>Vacha, Ativisha, Patha, Rasna, Kutakia, Nimba</i>
6.	<i>Pippalyadi Churna</i>	Pratisarna (local application)	<i>Pachkola, Sarjji Kshara</i>
7.	<i>Marichyadi Churna</i>	Pratisarna (local application)	<i>Maricha, Ativisha, Patha, Vacha, Kushtha, Aralu, Saindhav.</i>
8.	<i>Tankana Bhasma</i>	Pratisarna (local application)	<i>Tankana Bhasma, honey</i>

SINGLE DRUGS

Daruharidra (Berberis aristata DC)

Daruharidra is *Katu* (pungent) and *Tikta* (bitter) in *Rasa*, *Katu Vipaka*, hot potency and pacifies *Kapha*, *Pitta* and *Rakta*. It possesses properties like *Ruksha* (dry), *Shothahara* (anti-inflammatory) and especially useful in diseases of oral cavity and throat.^[11]

The plant is useful as anti-pyretic, anti-bacterial, anti-microbial,^[12] anti-inflammatory^[13] the properties which are useful in the management of tonsillitis.

Berberine an alkaloid found in *berberis aristata* is known to possess anti-inflammatory and immunostimulant activity which may be beneficial in patients of tonsillitis.^[14]

Haritaki (Terminalia chebula Retz.)

Haritaki possess five *Rasa* but *Kashaya Rasa* is predominant. It possess *Madhura Vipaka* and *Ushna* (hot) potency, it have various properties like *Laghu* (light), *Ruksha* (rough), *Shodhahara* (Anti-inflammatory). It is said to be pacifier of all three

Dosha.^[15] These properties make *Haritaki* a useful drug for throat diseases caused predominantly by *Kapha* and *Rakta* like *Tundikeri*.

Various recent experimental and clinical study shows that *Haritaki* possesses properties like anti microbial,^[16] anti-inflammatory,^[17] analgesic,^[18] antitussive,^[19] antiviral against influenza A virus,^[20] which prove its favorable action in tonsillitis.

Nimba (Azadirachta indica A. Juss)

Nimba is *Tikta* (bitter) in *Rasa*, *Katu Vipaka*, *Sheeta* (cold) potency and pacifies *Kapha* and *Pitta Dosha*. It is useful for treating cough and fever and is very good *Krimihara* (antimicrobial).^[21]

Azadirachta indica A. Juss in various experimental studies possesses properties like anti-inflammatory,^[22] antiviral,^[23] antibacterial,^[24] antifungal, antioxidant,^[25] and immunomodulatory^[26] which are beneficial in tonsillitis.

Mustaka (Cyperus rotundus Linn.)

Mustaka is *Kashaya* (astringent) and *Tikta* (bitter) in *Rasa*, *Katu Vipaka*, *Sheeta* (cold) potency and pacifies *Kapha*, *Pitta* and *Rakta*. It is useful for treating fever and is known *Jantuhrita* (antimicrobial).^[27]

Cyperus rotundus Linn. is proven to have properties like analgesic, antimicrobial, antibacterial,^[28] anti-inflammatory^[29] and antioxidant^[30] which are useful in the treatment of tonsillitis.

Ativisha (Aconitum heterophyllum Wall.)

Ativisha is *Katu* (pungent) and *Tikta* (bitter) in *Rasa*, *Katu Vipaka*, hot potency and pacifies *Kapha* and *Pitta*. It is useful for treating cough and *Krimi* (antimicrobial).^[31]

Various studies show that *Aconitum heterophyllum* Wall possess properties like anti-inflammatory,^[32] antibacterial,^[33] immunomodulatory^[34] which are useful in treating tonsillitis.

Patha (Cissampelos pareira Linn.)

Patha is *Katu* (pungent) in *Rasa*, *Katu Vipaka*, hot potency and pacifies *Kapha* and *Vata*. It possesses properties like *Laghu* (light), *Tikshna* (prompt),

Shoolahara (analgesic), *Krimihara* (antimicrobial) and *Jwarahara* (antipyretic).^[35]

Cissampelos pareira Linn. in various animal studies is known to have properties like antipyretic,^[36] antioxidant and immunomodulatory^[37] which are helpful in the management of tonsillitis.

Kutki (*Picrorhiza kurroa* Royle-ex-Benth)

Katuki is *Tikta* (bitter) in taste, *Katu* Vipaka, having *Sheeta* (cold) potency and pacifies *Kapha*, *Pitta* and *Rakta*. It possesses properties like *Ruksha* (dry), *Laghu* (light) and useful in treating fever, cough, *Daha* (burning sensation) and *Krimi* (antimicrobial).^[38]

Various recent studies highlight properties of *Picrorhiza kurroa* Royle-ex-Benth which may be useful in the management of tonsillitis. These are immunomodulatory,^[39] antioxidant,^[40] anti-inflammatory^[41] and anti sepsis activity.^[42]

Vacha (*Acorus calamus* Linn.)

Vacha is *Katu* (pungent) and *Tikta* (bitter) in *Rasa*, *Katu* Vipaka, hot potency and pacifies *Kapha* and *Vata*. It possesses *Bhutahara* and *Jantuhara* (antimicrobial) properties.^[43]

Acorus calamus Linn. possesses properties like antibacterial,^[44] antioxidant,^[45] anti-inflammatory and immunomodulatory^[46] which are very valuable in the treatment of tonsillitis.

Compound Drugs

Darvyadi Kashaya* and *Indukanta Yoga

Gaur A et.al. conducted a clinical study in patients of acute tonsillitis among children of 5-15 years age group. They divided patients in two groups of 20 patients each. One group was given *Indukanta Yoga* (containing *Dashmoola*, *Panchkola*, *Putika* (*Holoptelea integrifolia*), *Yava Kshara* (*Potasiicarbonas*) and *Devdaru* (*Cedrus deodara* in syrup form) in a dose of 10-15 ml twice daily according to age for 10 days while other group was given *Darvyadi Yoga* (containing *Daruharidra*, *Berberis aristata*) *Nimba Twak* (*Azadiracta indica*), *Rasanjana* (water extract of *Berberis aristata*), *Kutaja Beeja* (*Holarrhena antydysentrica* in syrup form) in a dose of 10-15 ml

twice daily according to age for 10 days. Follow up was done after 15 days of therapy. Assessment was done on clinical parameters based on sign and symptoms of tonsillitis. Results shows marked relief in both groups but *Indukanta Yoga* has comparatively better effect than *Darvyadi Kashaya*.^[47]

Kumarabharana Rasa

In a clinical study Raj A. R.G. et al, 40 patients of chronic tonsillitis in 5-10 years age group were divided into two groups of 20 patients each. Study group patients were treated with *Kumarabharana Rasa* (a compound drug comprising *Bhasmas* (purified calx) of *Swarna* (gold), *Rajata* (silver), *Pravala* (coral) and *Churna* (powder) of *Yastimadhu* (*Glycyrrhiza glabra* Linn.), *Amalaki* (*Emblia officinalis* Gaertn.), *Ashwagandha* (*Withania somnifera* Dunal.), *Sunthi* (*Zingiber officinale* Rosc.), *Pippali* (*Piper longum* Linn.), *Haritaki* (*Terminalia chebula* Retz.), *Vacha* (*Acorus calamus* Linn.). All these drugs were processed with *Swarasa* (extract juice) of *Guduchi* (*Tinospora cordifolia* Miers ex Hook. F. & Thoms), *Brahmi* (*Centella asiatica* Linn.) and *Tulsi* (*Ocimum tenuiflorum* Linn.) separately then prepared in tablet form) in tablet form at a dose of 500 mg once daily for 30 days.

The patients in the control group were treated with *Godhuma Vati* (containing tablet form) at a dose of 500 mg once daily for 30 days. The drug was crushed to powder and given with honey as *Anupana* (vehicle for drug administration) before food, in the morning, for both groups. Assessment was done on subjective parameters i.e. the signs and symptoms of chronic tonsillitis and objective parameters i.e. Laboratory blood investigations – hemoglobin % (Hb%), total leukocyte count (TLC), neutrophils, lymphocytes, eosinophils, and erythrocyte sedimentation rate (ESR). Results show statistical significance (p< 0.05) improvement on signs and symptoms of chronic tonsillitis in interventional group (*Kumarabharna Rasa* group), but nothing significant was observed with placebo (*Godhuma Vati* group). Routine laboratory blood investigations assessed within the KR (study group) showed

statistical significance ($p < 0.05$) on Hb%, TLC, lymphocytes and ESR, whereas *Godhuma Vati* (placebo) were nonsignificant.^[48]

Yavaksharadi Vati and Panchvalkala Kashaya

In clinical study Ahuja et.al. registered 20 patients suffering with tonsillitis in age group of more than 5 years. The patients were treated with *Yavaksharadi Vati* (containing *Yavakshara (Hordeium vulgare)*, *Patha (Cissampelos pareria)*, *Daruharidra (Berberis aristata)*, *Pippali (Piper longum)*, *Tejbal (Zanthoxylum alatum)* and *Madhu.*) 500mg thrice daily with honey and *Panchvalkala Kashaya* (decoction of *Vata (Ficus bengalensis)*, *Udumbara (Ficus glomerata)*, *Ashwatha (Ficus religiosa)*, *Parisha (Thespesia populnea)* and *Plaksa (Ficus lacor)*) 50ml twice daily for 15 days, follow up were done every week for 4 weeks after drug therapy. Assessment was done on subjective parameters i.e. the signs and symptoms of tonsillitis and objective parameters i.e. Laboratory investigations – hemoglobin % (Hb%), total leukocyte count (TLC) & erythrocyte sedimentation rate (ESR). Results show statistically significant improvement in size of tonsils (46.51%), congestion (90.38%), cough (83.33%), exudates (43.10%) and other signs & symptoms. In objective parameters result was significant statistically for Hb% (improvement is 3.81%) and ESR (fall of 41.72%).^[49]

Treatment Protocols and Procedures

Kawala^[50]

Kawala is procedure where in decoction of herbal drugs or medicated oil is taken in oral cavity in such a quantity so that it can be rotated inside. It is just like gargle with medicated liquids. It is mostly used in Ayurveda for treating various ailments of oral cavity and throat. Various types of *Kawala* are indicated for the treatment of *Tundikeri* in classics.

Tankana Bhasma Kawala

In a clinical study 40 patients of age group between 8-40 years, diagnosed with chronic tonsillitis were randomly selected into two Groups A & B. in Group A (control group) aspirin 150 mg dissolved in 50 ml water was given for gargling for 2 minutes twice daily

before food. In group B (trial group) *Kawala* was done for 2 minute with *Tankana Bhasma* dissolved in 50ml water twice daily before food. The treatment period was 7 days and follow up was done on 10th day. The result shows rapid decline in the mean value of pain, burning sensation and dysphagia in trial group in contrast to control group. There was a great improvement with respect to swelling, halitosis and white spots in trial group than control group. on comparison, it is observed that the efficacy of the trial drug is much better than the effect of the standard drug.^[51]

Haridra Kashaya Kawala

In single blind randomized study Yadav M et.al. treated 30 patients of acute tonsillitis with *Haridra Kwath Kawala* (decoction of *Curcuma longa*) and 30 patients in Control group with warm saline gargle for 7 days. For *Kawal*, *Harida Kshaya* (decoction of *Curcuma longa*) was prepared by boiling *Haridra* in 640 ml water and reducing it to 85ml. The *Kawal* was administered once daily for 7 days. Saline gargle was prepared by adding 5 gm of sodium chloride to 250 ml of water. The result of the study shows that treatment with *Haridra Kwath Kawal* in acute tonsillitis relieves majority of symptoms and recovery of disease is fast.^[52]

Pratisarana^[53]

Pratisarana is procedure where powder of herbal drugs or *Kshara* (alkali prepared from herbal & mineral drugs) is applied with some medium like honey over a surface for local action. In the management of *Tundikeri* (tonsillitis) *Lekhana* is advised with various *Lekhanaiya Drayas* or *Ksharas*.

Pippalyadi Churna Pratisarana

In an open label clinical trial Kumar S et.al. conducted *Pratisarana* on 10 patients of chronic tonsillitis in the age group of 10-40 years, with *Pippalyadi Churna* (*Pippali - Piper longum*), *Pippalimula - root of Piper longum*), *Chavya*, *Chitraka (Plumbago zeylanica)*, *Nagara (Zingiber officinale)*, *Yavakshara (Hordeium vulgare)*, *Sarjakshara*. *Pratisarana* was done with *Pippalyadi Churna* mixed with honey for 7 days and

patients were observed for 15 days follow up period. Result of study show highly significant improvement in all clinical parameters including pain, congestion, dysphagia, halitosis, enlarged tonsils and lymphadenopathy with p value <0.001.^[54]

Tankana Bhasma Pratisarana

In an open clinical trial Renu VT et.al. conducted *Pratisarana* on 10 patients of chronic tonsillitis in the age group of 10-40 years, with *Tankana Bhasma*. *Pratisarana* was done with *Tankana Bhasma* mixed with honey for 7 days and patients were observed for one month follow up period. The treatment protocol shows statistically highly significant improvement in all clinical assessment criteria including pain, dysphagia, swelling, redness, exudates and halitosis.^[55]

DISCUSSION

Ayurveda confer an insight to the management of recurrent tonsillitis with the use of various local therapies like *Kawala*, *Pratisharna*, *Gandusha* and also valuable oral herbal medicines. These herbs have effectively been used for centuries without any adverse effect reported. *Ayurveda* governs that drugs which are having properties opposite to the causative factors are valuable in the treatment of various ailments.^[10] *Tundikeri* is caused by *Kapha* and *Rakta*, and presents with sign and symptoms like swelling, pain, redness, burning and *paka* (sepsis).^[4] Thus the drugs which pacify *Kapha* and *Rakta* are to be used in the management of *Tundikeri*. Out of abundant drugs mentioned in *Ayurvedic* texts a few representative are mentioned here. Most of the drugs discussed here possess *Katu*, *Tikta* taste, *Ushna* Potency, *Ruksha*, *Tikshna*, *Laghu* properties and are pacifier of *Kapha*, *Pitta* and *Rakta Dosha*. Thus they provide all essential properties required to subvert the pathogenesis of *Tundikeri*.

Moreover, recent experimental, animal and clinical studies have proven the positive effect of various *Ayurvedic* herbs in the management of tonsillitis. These drugs possess various properties like anti-inflammatory, antimicrobial, antiviral, analgesic,

antipyretic, antioxidant and immuno-modulatory effect. These properties prevent recurrent infection of tonsils and also reduce as well as cure the acute symptoms like inflammation, swelling, pain, fever etc. Various clinical studies have proven their efficacy as well.

CONCLUSION

In Conclusion, *Ayurveda* possess a huge treasure of herbal medicine which can be employed in the management of recurrent tonsillitis and can minimize necessity of surgery. Efficacy and safety of these herbs is once again revalidated by various recent animal and clinical studies. However most of the work done is either animal studies or clinical trials with limited sample size. These drawbacks may be corrected in forthcoming research studies so that revalidation process may become flawless.

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