

## EVALUATION OF EFFICACY OF DARVYADI KWATH KAWAL IN GALAGRAH (PHARYNGITIS)- A PILOT STUDY

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### ABSTRACT

Pharyngitis is a sore throat caused by inflammation of the back of the throat. Throat disorders are one of the most troublesome problems of modern era. The condition is the usual phenomenon in pediatric population due to intake of cold drinks, junk food etc. Hence this disease is more recurrent now a days than earlier. Throat is considered as a common pathway for the respiratory and digestive tract. Any kind of alteration in normalcy in its structure and structural based function in throat region has been considered as *kantha* or *Gala roga* in *Ayurvedic* texts. One of the throat disorders as mentioned in *Ayurvedic Samhitas* is "*Galagrah*" which present features same as seen in pharyngitis like Pain in throat, Congestion in posterior pharyngeal wall, fever etc. Hence pharyngitis can be correlated with *Galagrah*. So

here we analyse the action of *Darvyadi kwath kawal* in treatment of *Galagrah* as it has properties which can alleviate symptoms of Pharyngitis. In this pilot study an attempt has been made to highlight the view of ancient and modern science concerning with conceptual understanding of its etiology, diagnosis of Pharyngitis (*Galagrah*) and its *Ayurvedic* treatment. The present study has shown that *Darvyadi kwath kawal* is highly valuable in the management of Pharyngitis.

**KEYWORDS:** Pharyngitis, *Galagrah*, *Darvyadi kwath kawal*.

## INTRODUCTION

In today's industrial world, the incidences of throat disorders have increased rapidly resulting in high rates of morbidity and becoming the commonest cause of patients' visit to ENT clinics. Among the many infections that confront clinicians every day, there is probably no more common and yet controversial one than acute pharyngitis mainly caused by group A  $\beta$  hemolytic streptococcus (*Streptococcus pyogenes*) and viruses (Susan et al., 2001). This illness concerns clinicians because not only it is an acute illness for an individual patient, but the potential spread of the organism and the resulting public health implications cannot be ignored either. The clinical management of these upper respiratory tract infections remains controversial. The clinical diagnosis is not specific. Laboratory data can be misleading and frequently misinterpreted.

Accordingly, some describe the peculiar symptoms of the disorder as a burning sensation, while others feel a tickling or scratchy sensation in the throat. Overall a sore throat affects the person as a general sore feeling that starts at the back of the oral cavity, gradually spreading out into the region of the middle throat.

These symptoms are generally felt along with varying degrees of pain in individual cases. A sore throat can usually be seen more as a symptom of another illness and arises as a result of inflammation in the sensitive tissues of the throat.

In today's era after seeing limitation of allopathic line of treatment in area of recurrent and chronic type of disorder draws focus towards *Ayurvedic* line of treatment.

Pharyngitis can be compared with a disease *Galagraha* mentioned in *Ayurvedic* literature by *Charakacharya*. This disease mainly occurs due to vitiation of *kapha dosha* which settles in *Mukha (Gala)* pradesh causing *shotha* (inflammation) of *Gala Pradesh*. So, to get rid of such painful disease, *Ashtang Hridaya* has mentioned the *Kawal Chikitsa* which provides good relief in *Mukhagat* and *Gala rogas*.

The technique of Oil Pulling is mentioned in all the three major ancient book of *Ayurveda* as "*Kawal Dharana*. When liquid is filled in mouth to such a level that it can be moved easily, is called *Kawal*.

Some of the drugs mentioned for this purpose are medicated oil or ghee, milk, honey and luke warm water. According to *Ashtang Hridaya*, *Kawal ghran* gives good relief in *manya*

*stambha, shiro roga, karna roga, mukharoga and netra roga, lalastrava, kantha roga, mukha sosha, hrillasa, tandra, aruchi & pratishyayarogas.*

Gargling is the human act in which air from the lungs is bubbled through a liquid in the mouth. It usually requires that the head be tilted back, allowing a mouthful of liquid to sit in the upper throat. Vibration caused by the muscles in the throat and back of the mouth cause the liquid to bubble and percolate through the throat and mouth cavity. In a randomized study published in the American Journal of Preventive medicine in 2005 researchers recruited almost 400 healthy volunteers and followed them for 60 days during cold and flu season. At the end of the study period, the group that regularly gargled had a nearly 40% decrease in URTI compared with control group.

*Kawal* not only gives soothing effect to the throat (*gala Pradesh*) but also cures the symptoms like *Shoth* (Inflammation), *Shool* (pain), *Jwara* (Fever), *Aruchi* (Anorexia) in a very precise manner. So *Darvyadi Kwath Kawal* has been proposed to treat *Galagrah* (Pharyngitis) due to its *kaphghana karma* & extreme usage in *mukha-gala rogas*. Hence the present topic is chosen for the Pilot study.

According to *Yogaratanakar, Ostha, Dantamoola, Danta, Jivha, Talu, Gala* and *Galadi* are the seven parts of mouth. The part of *mukha* where the process of *nigiran* takes place is termed as “*Gala*”. *Indu teekakar* states that *gala* is specific *sharir avavya* which is situated internal to *kantha pradesha* and It is stated as a *sthana* of *kapha dosha*. As per modern review *Gala Pradesh* may be presented as pharynx region.

Pharynx is a fibro-muscular tube, serves as a continuation of the digestive cavity, providing a route from the oral cavity proper to the oesophagus. In addition, the pharynx communicates with the nasal cavity, the middle ear cavity, and the larynx. It extends from the skull base to the sixth cervical vertebra (lower border of the cricoid cartilage).

Structure of pharyngeal wall: From within out wards it consists of 5 layers-

1. Mucous membrane
2. Sub-mucous layer
3. Pharyngeal aponeurosis (pharyngobasilar fascia)
4. Muscular coat
5. Bucco-pharyngeal fascia.

Sub-mucous layer contains the waldeyer's ring, which is the subepithelial collection of lymphoid tissue scattered in the pharynx. This lymphoid ring has efferent vessels, but there are no afferent vessels. The waldeyer's ring consists of following collections of lymphoid tissues:

- Palatine tonsils (faucial tonsils)
- Nasopharyngeal tonsils
- Tubal tonsils – in the fossa of Rosenmuller behind the opening of the Eustachian tube.
- Lingual tonsils – spread on the posterior-third of the tongue.
- Lateral pharyngeal bands behind the posterior faucial pillars.
- Pharyngeal nodules.

Pharyngeal nodules localize in the posterior pharyngeal wall primarily involved in case of pharyngitis. Changes can be seen in size and shape in these lymphoid tissue. These lymphoid tissues are small at birth and increases in size till age of 8 – 10 years. Then onwards gradually recedes in size and becomes steady from age of 20 years.

### **AYURVEDIC DISEASE REVIEW**

According to *Sushruta*, *galaroga* are the diseases occurring in the *Gala*, synonyms *Galamaya*, *Galaroga*, and *kantharoga*.

Consumption of meat of fish, buffalo, pig, animals that of *Aanupa Pradesh*, pumpkin, reddish, leftover water after boiling flesh, curd, milk, *kanji*, cane extract, sleeping in head low position, not brushing the teeth properly, not doing *dhoompana*, *vamana*, *kawal* & *gandusha* properly and not performing *sira vedha* at appropriate time are the *hetu* of *Mukha Roga* (*Galagrah*).

When the *kapha dosha* gets vitiated due to above *hetu*, gets settled in the *Mukha(Gala) Pradesh* generates the diseases.

As per *Charaka* When vitiated *kapha* goes in *Gala Pradesh* and stays there and acutely generates inflammation (*shotha*), it is called “*GALAGRAH*”.

### **According to Ashtanga Hridaya**

In *Galagrah* there is obstructive sensation in *Gala Pradesh*.

According to *Kashyapa* the *lakshanas* of *Galagraha* are *jwara*, *aruchi*, *mukha strava*, *kandu* and *shotha* in *gala* and *shiroruja*.

Similarly, all above presentation of disease can be seen in inflammation occurring in different area of pharynx and collectively named as pharyngitis, Acute pharyngitis is very common and occurs due to varied etiological factors like viral, bacterial, fungal or others. Viral causes are more common.

### Causes of Acute Pharyngitis

Viral	Bacterial	Fungal	Miscellaneous
Rhinoviruses Influenza Para-influenza Measles and chickenpox Coxsackie virus Herpes simplex Infectious mononucleosis Cytomegalovirus	<i>Streptococcus</i> (Group A, beta-haemolyticus) <i>Diphtheria</i> <i>Gonococcus</i>	<i>Candida albicans</i> <i>Chlamydia trachomatis</i>	Toxoplasmosis (parasitic, rare)

Chronic Pharyngitis may be superimposed by acute pharyngitis. Milder infections present with discomfort in the throat, some malaise and low-grade fever. Pharynx in these cases is congested but there is no lymphadenopathy.

Moderate and severe infections present with pain in throat, dysphagia, headache, malaise and high fever. Pharynx in these cases shows erythema, exudate and enlargement of tonsils and lymphoid follicles on the posterior pharyngeal wall.

Very severe cases show EDEMA of soft palate and uvula with enlargement of cervical nodes.

Acute Pharyngitis	Chronic Pharyngitis
Raw sensation	Discomfort or pain in the throat
Pain	Foreign body sensation in throat
Refusal to eat in children	Tiredness of voice.
Constitutional Symptoms like malaise, fever, headache, and tachycardia.	Throat is irritable and there is tendency to cough. Mere opening of the mouth may induce retching.

### AIM AND OBJECTIVES

#### Aim

Pilot study on Evaluation of The Efficacy of *Darvyadi Kwath Kawal* in *Galagrah*.

**Objectives**

- 1) Study the efficacy of *Darvyadi Kwath Kawal* in *Galagrah*.
- 2) Study the properties of Chlorhexidine 0.2% w/v Liquid according to modern science.

**Type of study**

Entire study is based on clinical findings and narration of the patient.

**Source of data**

Daily O.P.D. based patients, Department of *Shalakyatantra*. Bharati Medical Foundation, *Ayurveda* Hospital, Katraj Pune-41104.

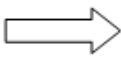
**MATERIALS AND DRUGS*****Darvyadi kwath*****Contents**

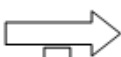
<i>Drug Name</i>	<i>Latin Name</i>	<i>Rasa</i>	<i>Guna</i>	<i>Virya</i>	<i>Vipak</i>	<i>Doshaghna</i>
<i>Daruharidra</i>	Berberis aristata	Tikta, kashaya	Laghu, Ruksha	Ushna	Katu	Pittaghna and Kaphaghna
<i>Rasanjana</i>	Berberis aristata	Tikta, Katu	Laghu, Ruksha	Ushna	Katu	Shleshmaghna
<i>Nimb</i>	Azadirachta indica	Tikta, Kashaya	Laghu, Ruksha	Ushna Shita	Katu	Kapha-pitta hara
<i>Indrayava</i>	Holarhena antidysentrica	Tikta	Laghu, Ruksha	Sheeta	Katu	Tridoshaghna


**Preparation of drug****Trial group drug – *Darvyadi Kwath*****Method of Preparation of *Darvyadi kwath***

- **Preparation of *Darvyadi churna*:** Take equal amount of powder form of Bark of *Daruharidra*, bark of *neem*, *Rasanjana* & *Indrayav* & mix them all to form a *Darvyadi churna*.
- Standardization and Authentification of drugs i.e. raw materials were done in Standard Laboratory.

**Preparation of *Darvyadi Kwath***

Drug (Churna):- 1 part  6 gms.

Water:- 64 parts  390ml(approx.)



- Take 1 part of *Darvyadi Churna* mixture and to it add 64 parts of water and boil it till it remains half, use this liquid for gargles (approx.. 200 ml-2 cups).
- Statistical analysis was done using Wilcoxon signed rank tests.

### Control Group Drug:- Hexidine liquid

Contents: - Chlorhexidine 0.2% w/v

### Preparation of drug

8-10 drops of Hexidine liquid in 200 ml of water.

### Dose & Time of Drug Administration

#### Trial group:- *Darvyadi Kwath Kawal*

Dose:- 200 ml kwath

Duration:- Twice a day for 7 days.

#### Control group:- Hexidine liquid Gargles

Dose:- 200 ml solution

Duration: - Twice a day for 7 days.

## METHODOLOGY

Grouping of patients was done as follows:

Study included 20 patients divided into two groups.

- Trial group – 10 Patients.
- Control group – 10 Patients.

Inclusion criteria	Exclusion criteria
Patients suffering from <i>Galagrah</i> .	Patients below 10 years and above 60 years of age were not selected.
Patients in the age group of 10 to 60 years were selected.	Lower respiratory tract infected patients.
Patients suffering from Pharyngitis	Patients suffering from Rhinitis
Selection was irrespective of sex, religion & socio economical class.	Any other major systemic disease
	Psychosomatic and mentally challenged patients.

### Follow Up

Follow-up was done on 0, 2nd, 4th, 6th, 8<sup>th</sup> days & observation was recorded in tabular form.

## OBSERVATIONS

Observations were noted in tabular form according to the symptoms observed and narration of the patient.

No.	Lakshana	0 day	2 <sup>nd</sup> day	4 <sup>th</sup> day	6 <sup>th</sup> day	8 <sup>th</sup> day
1.	<i>Gala Shool</i> (Pain in Throat)					
2.	<i>Aaraktata</i> (Posterior wall congestion)					
3.	<i>Sakashta Nigaran</i> (Difficulty in swallowing)					
4.	<i>Aruchi</i> (Anorexia)					
5.	<i>Jwara</i> (Fever)					
6.	<i>Sirah Shool</i> (Headache)					

## Gradation of Symptoms

Normal	0
Mild	+
Moderate	++
Severe	+++

**Place of Work:-** Department of *Shalakya Tantra*

Bharati Vidyapeeth Medical Foundation,

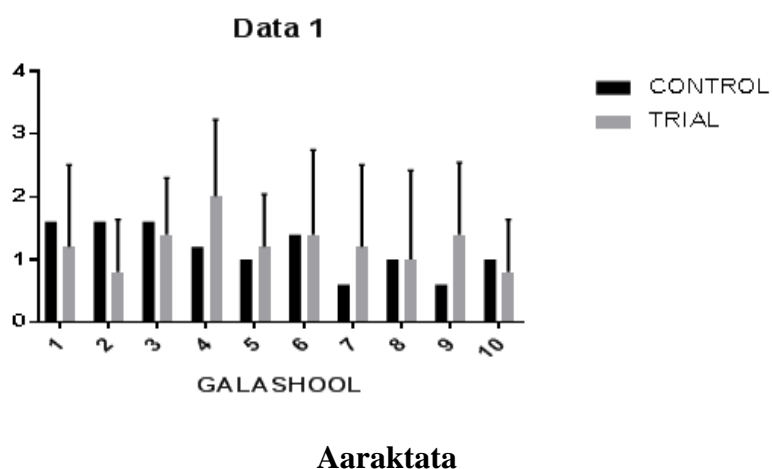
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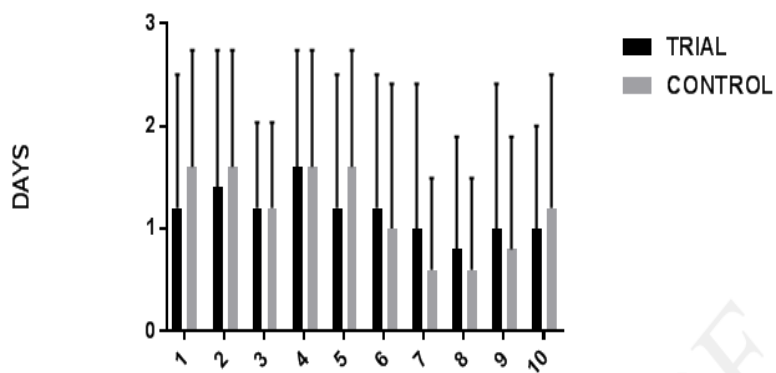
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## Statistical Analysis

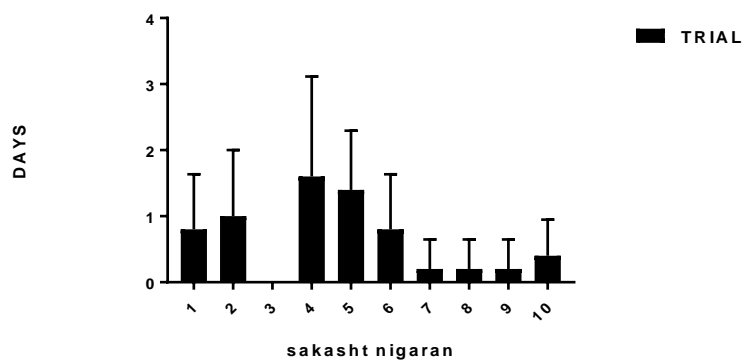
Statistical analysis was done by “t” test after collecting all data.

Data is represented by suitable graphs and diagrams.

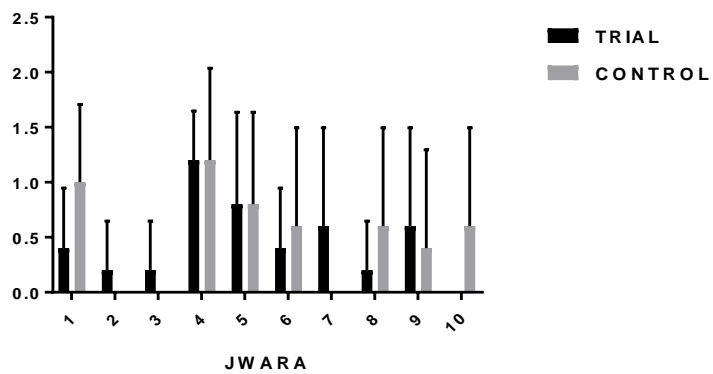




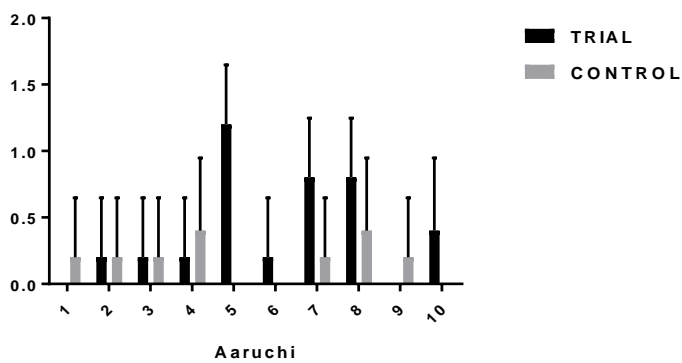
Data 1

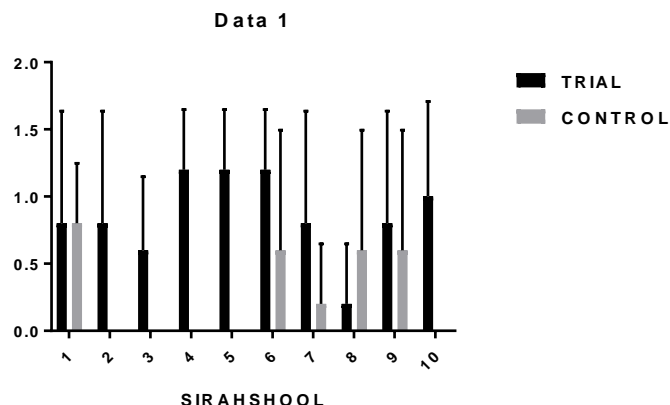


Data 1



Data 1





## DISCUSSION

Therapeutic goals for treating *Galagraha* (Pharyngitis) are elimination of Upper respiratory tract infections and inflammation, improvement of symptoms and physical findings, prevention or minimization of long term sequel.

*Daruharidra*, the main ingredient of *Darvyadi kwath* has *Tikta*, *Kashaya rasa*, *Katu vipak*, *Ushna virya*, *Laghu*, *ruksha guna*. It is useful in alleviating of *Pitta* and *Kapha doshas* which are the main culprit behind throat infections.

Its bark contains an alkaloid Berberine which possess antibacterial, antifungal, antiviral, antioxidant and antiinflammatory properties. *Daruharidra* possess *shothaghana* (Anti-inflammatory), *Jwaraghna* (Antipyretic) and *Kaphaabhishyandahara* properties (Drying quality).

It is said that *Daruharidra* has properties similar to turmeric but it is mainly useful for *Karnanetramukha rogas* (Ear, nose, throat disorders).

*Rasanjana*, the second most important ingredient, is the crude extract of *Daruharidra*.

It possess anti-inflammatory and wound healing properties , hence useful in mouth ulcers and throat congestion. It also act as hepato stimulant and astringent and hence can be useful in treating anorexia.

*Rasanjana* is also best known to cure *Galarogas* as mentioned by *Acharya Charak*.

Oil pulling is cheap; the only expense is for the oil used. It is very easy.

Compared to other forms of detoxification it is relatively effortless. It doesn't require dieting, fasting, or consuming unpleasant, and often bowel loosening, mixes of herbs and pills. And it is completely harmless.

It keeps Oral Cavity Healthy

After thorough Discussion of all the observations found throughout the treatment period, one can draw a definite conclusion. The entire discussion can be divided into several parts for proper understanding such as:

- Galashool - There is significantly better relief of symptom observed in both groups.
- Galaraktata- There is significantly better relief of symptom of observed in both groups.
- Aruchi- There is significantly better relief of symptom observed in both groups.
- Sakasta nigiran - There is significantly better relief of symptom observed in both groups.
- shirah shool - There is significantly better relief of symptom observed in both groups.
- Jwara - There is significantly better relief of symptom observed in both groups.

According to the observations it was found that the symptoms like *gala shool*, *aaraktata*, *sakashta nigaran*, *aruchi*, *Jwara*, *shirah shool*, were significantly relieved with *Darvyadi kwath kawal*.

Combined action of *Darvyadi Kwath* is *Tridoshaghana*.

When compared to both the groups *Darvyadi kwath kawal* was found nearly as effective as that of chlorhexidine liquid (0.2%). *Darvyadi kwath kawal* can be considered as safe and effective therapy for *galagrah*.

Probable mode of action: relief of all the symptoms may be contributed to the properties of *Darvyadi kwath*. During the treatment period, *pathya-apathya* should also be followed specially.

## CONCLUSION

From the above study, we can say that *Darvyadi Kwath Kawal* efficiently decreases the symptoms of *Galagraha* (Pharyngitis), It is a simplest method of treatment with minimal or no side effects. Herbal materials used in this treatment ie. *Daruharidra*, *nimb* etc. are easily available. Due to their antibacterial and anti-inflammatory properties, symptoms of *Galagraha* are relieved without side effect. *Kawal* is also proved to be an important procedure for treatment of Pharyngitis.

*Galagraha* and Pharyngitis can be co-related. *Darvyadi Kwath Kawal* can be considered as an effective treatment in *Galagrah* (Pharyngitis). Effect of *Darvyadi Kwath Kawal* in *Galagraha* is as good as Chlorhexidine liquid (0.2%), and is proved to be safe and effective drug.

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