



Review Article

NON PHARMACOLOGICAL APPROACH FOR TREATMENT OF OSMF- A REVIEW

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ABSTRACT

Ancient medicine used herbs, for their medicinal purposes and therapeutic benefits. Herbs became important in the global context today, because they offer solutions to the various concerns faced by mankind. Herbal extracts have been proven effective because they interact within the body with the special chemical receptors. Nevertheless as such herbal medicinal products were part of human evolutionary cycle substituted with allopathic preparations. In the last few years because of usage of antimicrobials and antifungals drugs, many organisms with apparent side have gained resistance with negative consequences. Late resurgence towards herbal medicines is therefore on the horizon rise. The following manuscript sheds light on the various organic materials possible remedies for treating oral mucosal lesions. The study is to review the non-pharmacological therapies in the management of Oral Submucous Fibrosis.

KEYWORDS: Herbs, Mucosa, Oral cavity, Garlic, *Neem*, Green Tea, *Amla*, Grape Seed, *Aloe Vera*, Pomegranate, Turmeric, Licorice Root, Honey, *Spirulina*, Coffee, *Triphala*.

INTRODUCTION

"OSMF is an insidious chronic disease affecting any part of the oral cavity and sometimes the pharynx. Although, occasionally preceded by and/or associated with vesicle formation, it is always associated with juxta epithelial inflammatory reaction, followed by a fibro elastic change of the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa and causing trismus and inability to eat" (Pindborg).^[1] Blanching and stiffness of oral mucosa, trismus, burning sensation, loss of tongue mobility and loss of gustatory sensation are characteristic of the disease. In the Indian population the bulk of these cases are seen. The prevalence varies from 0.20 to 0.5 percent in India, with a higher percentage found in the southern part of the country.^[2] It has been linked with a number of physiological factors including betel nut chewing, capsasine, autoimmunity and genetic predisposition. The OSMF can progress to oral cancer if not treated. The conversion rate is around 2-10 percent.^[3] It is the major health issue that affects 2.5 million Indians under 40 years of age. OSMF is the disorder that is least understood and unsatisfactorily treated. The younger the age, the faster the progression of the illness. All available treatments give only short lived symptomatic relief. The incidence of OSMF continues to rise alarmingly and there is a desperate need to try

an effective and safe treatment due to the lack of present therapies to either provide a complete cure or treat the patients at the risk of adverse effects. Comprehensive search of scientific literature has shown that only limited Ayurvedic preparations are used in OSMF treatment, although their effectiveness has to be assessed in a proper clinical trial. Natural Ayurvedic treatment of OSMF along with lifestyle modification can help to decrease OSMF symptoms and can help cure the disease.^[1]

Garlic

Plants of the *Allium* genus are known for producing organosulfur compounds which have interesting biological and pharmacological characteristics. Of these, garlic (*Allium sativum*) is among the most commonly used. Once extracted and isolated, these compounds show a wide range of beneficial effects against microbial infections as well as cardio protective, anticancer and anti-inflammatory activity.^[4] Garlic is a natural bioactive ingredient commonly used in the Ayurvedic medicine for a number of diseases. The main ingredient of garlic is allicin that is considered to have anti-inflammatory properties and immunomodulation. Allicin has been found to effectively decrease inflammatory product secretion, migration of

neutrophils and inhibit bacteria and viruses. They also interfere with oxidation and play an important role in immunomodulation.^[5]

In various traditions it has acquired a reputation as both a prophylactic and therapeutic medicinal plant. Garlic has historically played important dietary and medicinal roles. Some of the earliest references to this medicinal plant have been found in Avesta, a compilation of sacred Zoroastrian writings possibly collected during the sixth century B.C. (Dannesteter, 2003). There is some evidence that garlic was fed to the athletes during the earliest Olympics in Greece to raise stamina (Lawson and Bauer, 1998).^[6]

Neem

Also known as *Azadirachta indica*, an Indian lilac and belongs to the family Meliaceae. It is used in ancient traditional Ayurvedic and Chinese medicine. Each neem component has medicinal properties. It has neuroprotective, anti-bacterial, anti-fungal, anti-helminthic, anti-cancer, anti-inflammatory properties. It is used as mouthwashing in the treatment of aphthous ulcers. The leaf extract of *Neem* is postulated for treating oral malignancy. It is available in dried form and in oil (derived from neem tree fruits and seeds).^[7]

Amla

Phyllanthus emblica is also known as Indian gooseberry, and belongs to the Phyllanthaceae family. Healing, nutritional and medicinal benefits are attributed to it, and thus take a special place in Ayurveda. It is the most abundant source of vitamin C. It helps to cool down and to digest. *Amla* studies have suggested it has anti-bacterial, anti-fungal, anti-viral, anti-oxidant properties. The root bark mixed with honey is applied to aphthous mouth ulcers and a decoction of the leaves is also useful in the treatment of aphthae as a mouth wash.^[8]

Because of all these properties, in treating OSMF with prior ethical clearance from the institute a synergistic approach using *Amla*, garlic and neem was expected. The explanation for choosing these medications was that, despite their proven efficacy as anti-metabolite and anti-inflammatory steps, there were no clinical trials on OSMF.^[9]

Aloe-Vera

Aloe Vera was derived from the Arabic word "alloe," meaning shiny and bitter, vera, meaning real or authentic, from the Latin term. It is commonly known for its rejuvenating, curing or calming properties as a first aid herb. Vitamins, enzymes, minerals, amino acids, salicylic acids are all present. This has anti-cancer, anti-inflammatory, anti-oxidant, antibacterial, anti-virological properties. Aloevera is

used for aphthous stomatitis, carcinogenic cancer, oral lichen planus, oral submucous leukoplakia, herpes simplex infections; herpes simplex, herpes zoster; oral candidiasis; benign pemphigus; regional tongue; mouth fire, irregular cheilitis; stomatitis in dentures and causing radiation mucositis. It may be attributed to any of these products.^[10]

Mushrooms

Mushroom is a food stuff that is commonly used. Recent demonstrate excellent mutagenic activity, including anticancer, in distilled biological compounds derived from medicinal mushrooms such as shiitake, maitake and agaricus. In the presence of certain glucan and poly saccharide peptides (proteoglycans) the immune system is strengthened.^[10]

Green Tea

It consists of *Camellia sinensis* leaves. Green tea comes from China and has become relatively widely distributed in recent times throughout the world. It is known for its use in various dietary supplements, beverages and cosmetics. Green tea contains a number of proteins, amino acids, phytochemicals, sterols and minerals. The four principal polyphenols of green tea are epicatechin (ec), epicatechin (egc), epicatechin-3-gallate (ecg), and epigallocatechin-3-gallate (egcg), all of whom were found to inhibit a number of processes linked to cancer cellular growth. Therefore, oral cancer may have a possible role to play. This drug also has anti-oxidant, anti-inflammatory, antiviral and anti-allergic characteristics.^[11]

Grape Seed

Grapes are members of the *Vitis* family. Grapes can be consumed raw or used for making wine, jam, juice, jelly, extract of grape seed, raisins, vinegar and grape seed oil. Various types of grapes are available. Traditional therapies have been carried out in Europe for thousands of years, along with their leaves and sap. Extract of grape seed is derived from the ground grape seeds. They have known antioxidant, chemo preventive and cancer properties that are therefore used to prevent oral cancer.^[12]

Pomegranate

Also known as *Punica granatum* and it belongs to the Lythraeae family. Pomegranate is used for food and medicines. It is an anti-oxidant, anti-viral and anti-inflammatory. Grenade known as folk medicine is used in many diseases as a remedy. Candida associated denture stomatitis is successful.^[13]

Triphala

The herb *Triphala* product is made of *Terminalia chebula*, *Terminalia belerica* and *Emblica*

officinalis in equal proportions, as the name implies *Triphala*. *Triphala* has excellent antimicrobial and antioxidant function. *Triphala* extract has good antioxidant activity and is thus used to treat cancers.^[14]

Spirulina

Spirulina is a bluegreen algae that offers rich protein, carotenoids and other micronutrients from a natural source. It is used in leukoplakia and OSMF successfully. The chemical prevention capability to reverse precarious spirulina lesions is to attribute the high-level beta carotene and superoxide dismutase antioxidant property. Spirulina may have anti-viral effects, it has been observed recently. They have been found to inhibit the replication of a number of enveloped viruses, including Herpes Simplex, Human Cytomegalovirus, MMV, influenza A, and HIV-1.^[15, 16]

Licorice Root

It is a sweet root of *Glycyrrhiza glabra* belonging to the Fabaceae family, also called Radix glycyrrhiza. It is used in both conventional and herbal remedies, cosmetics, feed and tobacco. Licorice is a metabolite that is used in the treatment of oral candidiasis, aphthetic ulcers and oral lichen planus, such as saponins, flavonoids, isoflavonoids, chalcones, and coumarins.^[17,18] The form of capsules, tablets and liquid extracts is available.

Turmeric

It is a rhizome with a flavoring yellow orange spice of *Curcuma longa*, which belongs to the Zingiberaceae family. It is a traditional medicine that has been used as a therapeutic, cosmetic and flavoring agent from ancient times. It has a high level of anti-inflammation, antioxidant, anti-microbial, neurosecutarian, cardiovascular, thrombo suppressive and antidiabetic action^[21,22] and it induces apoptomorphic anti-tumor activities. It is used in both Ayurvedic and Unani medicines and its primary ingredients are called curcuminoids, which include mainly curcumin (diferulolymethane), demethoxy-curcumin and bisdemethoxycurcumin.^[1] It is also linked to the down regulation of notch-1, nuclear factor (NF-b), cyclo oxygenase 2 expression, liquid oxygen (LOX), synthesis of iNOS, metalloproteinase (MMP-9), tumor necrosis factor (TNF), chemokine and cyclin D1.^[22] It is available in powder and oil forms and is used topically in oral lichen planus and oral submucosphibrosis treatments.^[7,8] It may also be associated to downregulation. Curcumin also has a fibrinolytic effect which inhibits the synthesis of collagen.^[19]

Honey

Honey has been produced by nectar flowers as a natural substance. It is used as a sweetener and

sweetener. It also has certain medicinal values along with these properties. The bacterial, antibacterial, anti-microbial, anti-septic, anti-inflammatory, anti-oxidant, wound healing, and immune reactions are triggered. It is used for radiation treatment of oral mucositis and aphthous ulcers due to these properties.^[23]

Coffee

Coffee made from bean has other medicinal qualities as well. This is a natural alkaloid. It contains caffeine. The effects are anti-inflammatory and anti oxidant. Studies have shown that coffee, combined with good chemotherapy, causes mucositis. It is available in powder form.^[24]

CONCLUSION

Inflammation is part of the host defense system and is triggered by a variety of noxious stimuli. The present article opines that Ayurvedic treatment protocol ensures the regain of the normalcy of oral mucosa. It is effective in the management of OSMF without any adverse effect as well as having sustained relief in follow-up. It can be considered as a better alternative to the modern treatment modality in the management of OSMF.

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