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REVIVING ANCIENT WISDOM: EXPLORING THE POTENTIAL OF VATADI LEPA IN ARBUDA (SKIN CANCER) TREATMENT – A HISTORICAL JOURNEY OF NATURAL REMEDIE

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ABSTRACT

Introduction: In Ayurveda, "*Arbuda*" symbolizes malignant growths. This study delves into the potential of *Vatadi Lepa*, an Ayurvedic formulation, for skin cancer treatment, aiming to bridge ancient wisdom with contemporary healthcare challenges. ***Arbuda* in *Ayurveda*:** *Arbuda*, associated with *Dosha* imbalances, prompts abnormal cell division. Ayurvedic principles delineate six stages in disease pathogenesis, offering insights into *Arbuda* progression. **Cancer:** Cancer, a global health concern, includes diverse diseases. Skin cancer, linked to UV radiation, necessitates early detection and treatment for favorable outcomes. ***Vatadi Lepa:*** *Vatadi Lepa*, from *Vangsen Samhita*, proposes a remedy for *Arbuda*, showing efficacy within seven days. Ingredients like *Vata* latex, *Kustha*, and *Romaka* salt exhibit potential anti-cancer properties. **Conclusion:** *Vatadi Lepa*, an *Ayurvedic* remedy, shows promise in cancer treatment due to its blend of natural ingredients like *Vata* latex, *Kustha*, *Romaka* salt, and *Vata* sprout. These ingredients have known medicinal properties, including anti-inflammatory and detoxification effects. Future clinical trials, particularly focusing on skin cancer, could explore its potential efficacy in combating cancerous growths.

INTRODUCTION

In the *Vedic* era, "*ARBUDA"* was regarded as a demon with a serpent-like appearance that Lord *Indra* had vanquished (Moniar Williams). *Arbuda*, on the other hand, has the literary

connotation of a bulk or lump. *Arbudas* can develop in any part of the body and progressively grow to large sizes, have globular shapes, are fixed with deeper structures, seldom suppurate, and occasionally cause discomfort. Due to the vitiation of the *Tridosa*, *Mamsa* and *Rakta* may be involved. Both industrialized and developing nations are dealing with an increasing number of cancer cases. The ancient Ayurvedic literature also divided *Arbuda* (cancer) into a variety of forms. The Ayurvedic literature's depiction of *Arbuda* paints a thorough picture of the cancerous growth or cancer.

While the concept of "*arbuda*" in Ayurveda can be likened to various types of cancer, in this context, we specifically focus on its correlation with skin cancer. Our emphasis on skin cancer stems from our review of "*lepa*" preparations, which are applied externally. Therefore, our discussion will delve into skin cancer in detail.

Although there are medications and therapies for the treatment and management of cancer, they are often ineffective and have negative side effects. Currently, chemotherapy is a significant clinical therapy for the management of advanced cancer stages and yet, many cancer patients look for alternate treatments and alternative therapies for cancer therapy due to the serious side effects of radiation therapy and chemotherapy. A number of plants and herbs that have a variety of pharmacological activities have the ability to treat cancer in humans without causing any damage.[1]

Arbuda in ayurveda

The ailment was referred to as *Apachi* (benign growth) in the *Atharva Veda*, which has the first and most important record of it. They expressed their beliefs that cancer either swells on the surface or is located deeper structure or on sometimes as persistent ulcers. Additionally, these tumor or swelling has been thought to be *Arbuda*.[2]

The word *Arbuda* is a multivariate word that also represents swelling, a long round mass, lump of flesh with rough surface etc. Another relevant meaning of *Arbuda* is that which possesses a killing or hurting instinct. The word *Arbuda* also depicts a numeral for 100 million, which may be a reflection of the uncontrolled multiplication of the cells. Symptomatically, it may have a resemblance with clinical entities such as cancer. However, the exact pathogenesis of cancer does not match these conditions of *Arbuda*, but still based on symptoms it can be possibly correlated up to a certain extent.[3]

According to the principle of *Ayurveda*, the reason for every disease is the dearrengement of *Doshas*. In addition, *Arbuda* originates due to a metabolic crisis, i.e., aggravation of *Vata* and suppression of *Kapha*, both interacting with one another resulting in proliferation. *Ayurveda* principles also report that there is no single cause assigned to be the causative factor of a particular disease.

Vata dosha is responsible for cell division. Aggravation of *Vata dosha* and suppression of *Kapha dosha* or both the *doshas* interacting with one another may result in proliferation of cells. However, the *Ekadesavriddhi* (growth at a specific part) is a part of abnormal cell division resulting in benign or malignant tumours. *Acharya Sushruta* has explained about six stages in the pathogenesis of all diseases: They are *Sanchaya*-the early stage of localized neoplastic changes, *Prakopa*-transformation of primary growths into metastatic tumours, *Prasara*-is metastasis, *Sthana samsraya*-complete metastasis and secondary growth, *Vyakti*-clinical signs and symptoms observed, *Bheda*-stage where differentiation of growth is understood on the basis of histopathology.[4]

Cancer

The term cancer refers to a major health problem worldwide; it is not just one disease, but a generic term used for a group of more than a hundred diseases sharing common characteristics.[5]

Skin cancer

Malignant melanoma (melanoma) and nonmelanoma skin cancers (NMSCs), which include squamous cell carcinoma (SCC) and basal cell carcinoma (BCC), are the two most frequent types of skin cancer. Despite not being actual invasive tumors, solar keratoses (also known as actinic keratoses) and Bowen's disease (also known as carcinoma in situ) need to be taken into account due to their connection to actual skin cancers.

Like in most other nations where these tumors are reported, the incidence and fatality rates of skin cancer are rising in the United States. It is expected that present rates will grow due to stratospheric ozone depletion, which is caused by an increase in terrestrial ultraviolet radiation (UVR).[6]

Skin cancer develops due to multifactorial causes, primarily driven by ultraviolet radiation (UVR) from sunlight, particularly UVA and UVB rays. UVA rays penetrate deeper into the

skin, causing elastosis, while UVB rays predominantly lead to sunburn. UVR induces DNA damage, mutations, immunosuppression, and inflammation, initiating and promoting skin cancer. It directly damages DNA and indirectly triggers DNA damage through free radicals. UVR's impact on DNA repair genes like p53 dysregulates apoptosis, leading to unchecked cell division and cancer growth. Additionally, UVR-induced free radicals contribute to carcinogenesis, with genetic variations in enzymes like glutathione S-transferase (GST) influencing susceptibility to skin cancer. Clinical signs of skin cancer include changes in mole appearance, emphasizing the importance of prompt evaluation by healthcare providers for any suspicious skin changes.

Squamous cell carcinoma

Squamous cell carcinoma (SCC) comprises 16% of skin cancer cases, linked to sun exposure. Arising from epidermal keratinocytes, SCC can invade the dermis and metastasize via lymphatic or hematogenous routes. Clinical signs include non-healing lesions on sun-exposed areas. Early removal of small SCC lesions has a favorable prognosis, but invasive tumors may spread regionally or to nearby organs, particularly those near the ears, lips, or scars. Lingual or mucosal SCCs may metastasize before diagnosis.

Basal cell carcinoma

Basal cell carcinoma (BCC) comprises 80% of non-melanoma skin cancers, primarily caused by intermittent and childhood UV exposure. Typically found on the head and neck, BCC appears as shiny papules with pearly borders, often mistaken for benign lesions, with common symptoms including crusting, bleeding, tenderness, and itching. Metastasis is uncommon, but local growth can be aggressive.

Malignant melanoma

Malignant melanoma, while representing only 4% of skin cancer cases, is responsible for 65% of all skin cancer-related deaths. Incidence rates are significantly higher in whites compared to Hispanics and African Americans. Arising from epidermal melanocytes, malignant melanoma can occur in any tissue containing these cells. Its induction involves various mechanisms, including immune system suppression, melanocyte division, and DNA damage. Detection often relies on visual examination, following the ABCDE rule, with approximately 2% to 8% of melanomas being amelanotic.[7]

Diagnosis

Diagnosing skin cancer requires considering alternative diagnoses. Benign conditions include seborrheic keratosis, verruca vulgaris, and eczema, while malignant conditions encompass SCC, Bowen's disease, and BCC. Total body skin examination is recommended, especially for high-risk individuals, with non-invasive optical technologies such as dermatoscopy aiding in diagnostic accuracy. Photodynamic visualization may also assist in identifying actinic keratosis, with histologic confirmation required for suspected invasive skin cancer.[8]

Lepa

In *Ayurveda*, *Lepa* refers to a medicinal paste or poultice that is applied topically on the skin to treat various skin conditions, promote healing, and enhance skin health. *Lepas* are commonly prepared using natural ingredients and herbs, and their formulations can vary based on the specific condition they are intended to address.

The medication enters the human body in two different ways. One is by direct routes, or through body apertures, while the other is through the entire body's surface. Drug distribution through the skin must be handled carefully for best results. Ayurvedic *Lepas* have existed since the beginning of time, appearing in everything from the *Vedas* to the *Samhitas* to modern-day practice.

Acharya Sushruta instructed that the Thickness of *Lepa* should be equivalent to moist buffalo's skin.[9] It is 4-5 mm approximately.

If a *Lepa* contains vegetable medications, it must be used within 24 hours; otherwise, the medications break down and the application may cause skin damage. If a *Lepa* consists of metals and mineral medications, the substances themselves lack any expiration date. Therefore, it is entirely dependent on the base. Wherein the medications are combined to create a *Lepa*. Because, all other Ayurvedic bases other from *Siktha*, *Ghrita*, and *Taila* have a tendency to spoil in 24 hours.[10]

Vatadi lepa

In *Vangsen Samhita Vatadi lepa* mentioned and explained in reference to *Arbuda*. *Vata* latex, *Kustha*, *Romaka* salt pounded together along with *vata* sprout and this paste applied locally alleviates *Arbuda* in seven days. It is a tested preparation.[10]

Vata latex

The antiproliferative activity of F. benghalensis latex extracted in various solvents was examined on a number of cell lines, including colorectal, human breast, neuroblastoma, and lymphocytes. The effectiveness of ethanol extract in the treatment of colorectal and Ethyl acetate extract is effective against human breast cell lines and neuroblastoma cells. Both additionally, it was found that the extracts had reduced harmful effects on peripheral blood cells. Another study examined F. benghalensis aerial root ethyl acetate extract. to evaluate its antitumor efficacy against breast cancer (MDA-MB-231), lung cancer (A549), and cell lines from cervical carcinoma (Hela).[12]

Vata arial root (*Vatankura*)

GC-MS study of F. benghalensis methanol extract indicates the presence of components such as methyl quinic acid, palmitic acid, and ergosterol acetate, ester, and amyrenyl acetate which display antioxidant properties. It demonstrates that the majority of chemicals have potential anti-inflammatory and anti-cancer properties. The largest percentages of α-amyrenyl acetate and lindenyl acetate (35.4% and 16.34%, respectively) were discovered in the methanol extract of F. benghalensis. These two substances' have anti-cancer, anti-ulcer, antihyperglycemic, anti-bacterial, antifungal, anti-oxidant, and anti-malarial properties demonstrate the significant medical value of F. benghalensis.[13]

Kutha (*Kustha*)

The anticancer potential of a phytoconstituent called costunolide, which is extracted from S. lappa roots, was studied in human cancer cells (HL-60). Costunolide was shown to be a possible anticancer drug by the use of apoptosis analysis, mitochondrial membrane potential evaluation, and ROS (reactive oxygen species) detection.[14] In human cancer cell lines (DU145), the chemopreventive efficacy of S. lappa extract (hexane) was investigated. Isolated from extract, dehydrocostus lactone exhibited potent anticancer properties and slowed the proliferation of cancer cells by triggering apoptosis. The immuno-modulatory properties of another chemical, cynaropicrin, which was isolated from S. lappa roots, were studied. Cynaropicrin inhibited the proliferation of Jurkat T, U-937, and Eol-1 cell lines in a dose-dependent manner. The corresponding IC50 values were 2.36, 3.11, and 10.90 μmol/l.[15] Alcoholic S. lappa extract reduced the proliferation of gastric cancer cell lines in 48 hours at a dose level of 80 g/ml, causing apoptosis in a time and dose-dependent manner.[16]

***Romaka* salt**

Romaka salt has a sharp taste and a strong heating effect. Its activity is strong and easy to digest, and it instantly permeates the entire system after usage. It is purgative and diuretic, subdues Vayu, penetrates even the smallest capillaries in the body, and tends to promote internal organ secretion.[17]

CONCLUSION

In the realm of potential medical advancements, *Vatadi Lepa*, a traditional *Ayurvedic* remedy, may hold promise in the field of cancer treatment, thanks to its unique blend of natural ingredients. This formulation encompasses various elements, including *Vata* latex, *Kustha*, *Romaka* salt, and *Vata* sprout, all renowned for their therapeutic properties. *Vata* latex, valued for its medicinal attributes, and *Kustha*, with its purported anti-inflammatory and anti-tumor effects, stand out as significant contributors to the potential efficacy of this preparation against cancer. Additionally, *Romaka* salt's speculated role in detoxification and purging harmful substances from the body adds to the intrigue surrounding this ancient remedy's potential cancer-fighting capabilities.

Looking ahead, future clinical trials could be conducted to explore the efficacy of *Vatadi Lepa* in cancer treatment, with a particular focus on skin cancer. Investigating the application of this preparation on the skin may provide valuable insights into its effectiveness in combating cancerous growths, given the accessibility of the skin for observation and analysis. Through rigorous scientific inquiry and validation, the therapeutic potential of *Vatadi Lepa* in cancer management could be further elucidated, offering hope for the development of novel treatment modalities rooted in traditional *Ayurvedic* wisdom.

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