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**PUBLISHED PAPER'S TITLE : CANCER AND
AYURVEDA**



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Research Paper

CANCER AND AYURVEDA

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Declaration

The Declaration of the author for publication of Research Paper in Asian Journal of Modern and Ayurvedic Medical Science (ISSN 2279-0772) Dr.Dheeraj Mohan M.S. (Ayu) ¹ Dr Neelam Verma² the authors of the research paper entitled Cancer and ayurveda declare that ,we take the responsibility of the content and material of my paper as we ourself have written it and also have read the manuscript of our paper carefully. Also, we hereby give our consent to publish our paper in ajmams , This research paper is our original work and no part of it or it's similar version is published or has been sent for publication anywhere else.we authorise the Editorial Board of the Journal to modify and edit the manuscript. we also give our consent to the publisher of ajmams to own the copyright of our research paper.

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ABSTRACT-

Nearly one in two men and more than one in three women in the United States will be diagnosed with cancer at some point in his or her lifetime. Cancer is now the leading cause of death for individuals under age 85.Cancer results from a series of molecular events that fundamentally alter the normal properties of cells. In cancer cells the normal control systems that prevent cell overgrowth and the invasion of other tissues are disabled. Cancer begins when cells in a part of the body start to grow out of control. There are many kinds of cancer, but they all start because of out-of-control growth of abnormal cells. The cases of cancer are increasing day by day. Different treatment ie.radical excision, radiotherapy, chemotherapy, palliative surgery, hormonal therapies are recommended alone or in combination but not very good outcome comes. An integrated approach is needed to manage cancer by using the scientific developments. Hundred of herbal compound are being screened worldwide to validate the efficacy of these drug as anti-cancerous drugs. If a combine approach of ayurveda and modern treatment is opted a better outcome may possible.



Introduction—

A tumour or neoplasm is a new growth consisting of cell of independent growth arranged atypically and serves no function. Cancer begins when cells in a part of the body start to grow out of control. There are many kinds of cancer, but they all start because of out-of-control growth of abnormal cells.¹The most important two processes which play role is abnormal reproduction and abnormal differentiation of the cells². In cancer cells the normal control systems that prevent cell overgrowth and the invasion of other tissues are disabled². Cancer is one of the most dreaded diseases of the 20th and increasing in 21st century day by day. Cancer is now the leading cause of death for individuals under age 85.³ In the United States, as the leading cause of death, it accounts for 25% of all the deaths in humans presently. In spite of the modern available treatment, multi-dissiplinary approach can give a better result. Implementation of ayurvedic therapies along with modern for combating cancer may be better option in tumour management.

Cancer in Ayurvedic texts

In Ayurvedic texts arbuda or granthi has been described. Granthi and Arbuda is one of the surgical diseases and was explained in detail by Sushruta⁴ the father of surgery. Granthi and Arbuda described by susruta have remarkable similarities with neoplasm. Acharya Sushurta has clearly described that "The Doshas having vitiated in any part of the body and afflicting the Mamsa and produce a swelling, which is circular, fixed, slightly painful, big in size, broad based, slowly growing and does not suppurate. Acharya Vagbhata told that Arubada is relatively bigger than Granthi. Acharya Charak described Arubada as a complication of Vata-Rakta, and have some similarity with sophia. Acharya Madhav while describing the definition of Arubada he said the vitiated Dosha afflict the Mamsa and Rakta both to produce a swelling It is clear that Ayurvedic classics, describe cancer as inflammatory or non-inflammatory swelling and mention them as either *Granthi* or *Arbuda*. ARBUDA" is constituted from the root ward "ARBB" and "UDETI". "ARBB" is to kill "UDETI" (Verb) is to elevate, To rise.

Symptom	Arbuda	Granthi	Sopha	Benign	Malignant
Shape	Round	Round	Irregular	Well differentiated	Irregular
Size	Big	Small	Indefinite	Small	Large
Nature of growth	Sadhya- Slow Asdhya- Rapid	Slow	As per dosha	Slow growing	Rapid growing Infiltrative
Mobility	Sadhya - Mobile Asadhya Immobile	Sadhya-Mobile Asadhya- Immobile	Immobile	Mobile	Fixed



Supuration/ Ulceration	Absent	Absent	Present	Less	More tendency
Pain	Mild or absent	As per dosha	As per dosha	Less	Absent. May present in advance stage.
Chronicity	Sadhya-Chronic Asdhya-Acute	Sub acute	Acute	Chronic	Chronic
Recurrence	Present	Not mentioned	Absent	Less prominent	More prominent
Spread	Present	Absent	Absent	Rare	Present
Cachexia	Present	Absent	Absent	Absent	More marked & Cause of death

Main point which indicate its malignant nature are-

Gatra pradeshe kwachta-Anywhere in the body or any tissue may be damaged.

Mansam abhipradushyam-- Predominantly it is a disease of the Mansa that is damage of the muscular, connective and epithelial tissues.

Vritam sthiram: The growth is round and stony hard.

Mahantam--It is spread with deep seated and so it is compared with a sign of crab.

Chira viridhi-: Shows its Chronic nature and gradual development.

Apakam: Non-suppressive. Ulceration occurs but in advance stage of malignancy.

Manshrochyam—It is formed by undifferentiated and uncontrolled proliferation of the cell.

Concept of Adharbuda, Dwirarbuda presents its metastatic nature.

Fundamental classification-

On the basis of available text-

neoplasm may be classified on the basis of -

1-On the basis of size-

Granthi—Can consider as a benign growth
Arbuda-- can be consider as a malignant growth.

2-On the basis of Doshas-

1. Vataja 2. Pittaja 3. Kaphaja, 4. Raktaja, 5-Mansaja, 6- Medoja

3-On the basis of curable and non curable-

1-Sadhya—ie. Vatarbuda
2-Asadhya-ie. Raktarbuda and Mansarbuda



4-On the basis of site—

Netrarbuda,,Karnarbuda, Vartmarbuda, Nasarbuda.

On the basis of nature(Vagbhata)-

Navya -Acute
Girna -Chronic

Diseases with the possibility of malignancy, e.g.⁵

Visarpa (erysipelas), *asadhya kamala* (incurablejaundice)

Etiological factor— Ayurveda has clearly mentioned that—

No specific etiology is mentioned. Charaka andVagbhata included this disease under the heading of Sopha Roga. Both these authors are unanimous in their opinion that the etiological factors, which are responsible for creating Shophya, are also responsible for the development of Arbuda. They must have realized the relation between inflammation and neoplasia Susruta described the 2 thing while describing the mansarbuda--.⁶

1.Musti praharadivi ardite ange—

'Means traumatic injury'In modern science it is clearly coated When a tumour develop,the patient often recall having recived trauma at that part before.It is particularly seen in the case of osteocarcinoma.It can't be denied that injury may cause cell distruction followed by regeneration and thie may serve as a promoter where an initiating carcinogen has already produced a condition of latent cancer.⁷

2.Mansa parayanasye-

'Who develops craze of eating meat(su/ni11/19)- Gastric carcinoma Is particularly prevalent in such countries as in Japan, Chile, Hawaii,Possible contributing factor could

be the great consumption of smoked fish and smoked meat in these countries.⁸

According to *Sushruta*, the fundamental cause of major neoplasm is the pathogens that affect all parts of the body.He called the sixth layer of the skin as '*Rohini*,' (epithelium) and pathogenic injuries to this layer in muscular tissues and blood vessels caused by lifestyle errors, unhealthy foods, poor hygiene and bad habits results in the derangement of doshas, which leads to the manifestation of tumours⁹.

The factors responsible for the vitiation of *doshas in relation to the cancer* are

a. *Vata aggravating factors:*

excessive intake of bitter, pungent,astringent,Cold(refrigeration—for gastric carcinoma) dry foods.

b. *Pitta aggravating factors:*

excessive intake of sour, salty(e/f for Gastric carcinoma,Nasopharyngeal carcinoma as per modern research), fried foods

c. *Kapha aggravating factors:*

Oily food and sedentary nature.

d. *Rakta aggravating factors:*

Excessive intake of acid or alkali containing foods. Fried and roasted foods, sour fruits are some examples. Excessive anger or severe emotional upset(Psychosocial factor including stress, chronic depression,and lack of social support as a risk factor for cancer progression)

Mamsa aggravating factors:

excessive use of exudative foods like meat, fish, Behaviours leading to exudation like sleeping during the day are some of the causes for pathogens invading the fatty tissues.



Medo aggravating factors:

excessive intake of oily foods, sweets, alcohol(Metabolizing ethanol into acetaldehyde which is toxic chemical and probable a humen carcinogen.

Probable pathogenesis—

SAMPRAPTI GHATAKA:

Dosha: Predominance of Vata with Tridosha

Dushya : Rakta,Mamsa, Meda

Srotus :Mamsavaha, Medovaha and Raktavaha

Sroto dusti: Sanga and Siragranthi

Agni:Maandye

Rogamarga :Bahya

Udbhavsthana - Anywhere in the body .

Adhithhana: Sixth layer of the Skin i.e.Rohini..

Vata can be correlated with the anabolic phase of growth whereas kapha to the catabolic phase. Cancer originates due to a metabolic crisis. Aggravation of vata and suppression of kapha may result in Excessive proliferation of the tissue.

Probable Samprapti in correlation with modern pathogenesis—

SANCHAYA: LOCALIZATION:

Early stages of localized neoplastic changes,or carcinoma in situ, Metaplasia Anaplasia may be come in this phase

Metastatic site—¹¹

Site of primary tumour	Common site of metastasis
Lung	Bone, Liver, Lung
Colon	Liver
Rectum	Liver, Lung
Breast	Liver , Lung, Bone, Brain

When the equillirium of dosha get distrubed it results into their over

accumulaton of dosha at its original site; and produse only some unnatural feeling simulating with the charactor of the involved Doshas as well as to the body in general.After neoplastic transformation, progressive proliferation of neoplastic cells is initially supported by the nutrients supplied from the organ by the process of diffusion. Premalignant lesion may be added in this group.

PRAKOPA: Effervescence.

If the surgeon fails to take the proper measures or the patient has not screened well then this stage comesProcess of. Neovascularization or angiogenesis may be considered in this phase.Because theses are the important step for tumour growth.Locally malignant tumour may belongs to this phase.

PRASARA: SPREAD:

Again if the provocative factors responsible for the previous two stage are still allow to continue or again fails to treat or unable to make proper diagnosis then Doshas may spread to other parts,oragans and moving throught the body.It is metastasis.

This can be spread by: ¹⁰

- 1- Local or direct spread
- 2- Invasion by th lymphatics
 - Permeation and Embolism
- 3- Spread through the blood vessels
- 4- Transcolemic spread
- 5- Spread along the natural passage.



Prostate	Bone
Ovary	Liver, Lung
Stomach	Liver
Pancrease	Lung
Head and Neck	Lung
Thyroid	Bone
Bladder	Liver, Bone, Lung
Melanoma	Liver, Lung

STHANSANSRAYA: Localization:

The provocative factors responsible for Sanchaya, Prakopa and Sthansansraya stages if further allowed to go forward or if the surgeon fails to diagnose and Proper treatment is not given then Doshas become more powerful to localize in a tissue or an organ whose defence mechanism is weak or there is a khavagunya. This is the stage of Dosh-Doshaya Sammurchana where a particular picture of the prodromal symptoms of the particular disease will be manifested.

VYAKTI : Presentation of feature—

Clinical signs and symptoms are expressed. This is the stage of clinical manifestation.

In this stage where due to both the excessive accumulation of the Doshas as well as the causative factors gives sufficient damage to the tissue of a particular organ .Tumour cells bearing appropriate cells surface receptors can respond to paracrine growth factors and hence proliferates in the organ parenchyma. Local and general symptoms usually pain is occur in this stage.

BHEDA: Differentiation- :

This is a final stage of the disease. In this stage differentiation of growth can made on the basis of histopathology. Or histological grouping may do in this phase of the disease.

Treatment-

Sodhana Chikittsha—

This is a process of purification which eliminate the vitiated Doshas are mentioned in(su/ni18) as a conservative or as a medical management of arbuda.Vamana, virechana,Swedana,upnaha are indicated in the management of arbuda. When medical treatment fails, then the surgical intervention should done. Surgical management of cancer in *Ayurveda* include-.

Surgical management—¹²

Lekhana(Scrapping),Agnikarma(cauterization),Samulachedana(radical excision).

Anusastra karma-

Blood letting.

Rasayana prayoga (immunotherapy)-¹³

Over the year there has been a great deal of interest in stimulating the immune response because the immune response is diminished in the cancer patients.

Vyadhipratyanika chikitsa (specific anti-cancerous drugs)—

Many of the medicinal plant have scientifically-proven anti-cancerous properties and are used for the treatment of various cancers.Some are listed below-

Phyllanthus niruri(bhumyamalki)- ¹⁴

An aqueous extract of *P. amarus* increases the life span of the tumour bearing rats and normalizes _-glutamyl transpeptidase activity . It plays a major role in disruption of



HBsAg mRNA transcription and post-transcription which could be beneficial against viral carcinogenesis.¹⁴

***Andrographis paniculata* (kalmegha)**

The extract and isolated diterpenes (andrographiside and neoandrographolide) from this plant are proved to be beneficial against tumorigenesis by their anti-lipoperoxidative action and by enhanced carcinogen detoxification action.¹⁵

***Piper longum* (pippali)**

Piperine, an active alkaloid extracted from this plant has been used as an ingredient of ayurvedic anticancer formulations because of its anti-oxidative potency in both in vitro and in vivo conditions.¹⁶

***Podophyllum hexandrum* linn. (Podophyllin)**

It is a powerful anticancer drug against various cancers for e.g. sarcomas, adenocarcinoma and melanoma. The mechanism of action has been suggested as necrosis and is a direct consequence of its cytotoxic effect on tumour tissues.¹⁷

***Tinospora cordifolia* (guduchi)**

The active principles from *T. cordifolia* enhance host immune system by increasing immunoglobulin. It has the ability to reduce solid tumour volume by 58.8%, which is comparable to cyclophosphamide, a known chemotherapeutic agent.¹⁸

***Withania somnifera* (ashwagandha)**

Anticancer activity in the water extract of ashwagandha was deduced in vitro and in vivo assays. It is cytotoxic to the cancer cell and causes suppression of cancer in vivo.¹⁹

***Muhlethi* (*Glycyrrhiza glabra*)**

Glycyrrhizin possess ant carcinogenic properties. Researchers has demonstrated that it inhibit the abnormal cell proliferation, as well as tumour formation and growth in the breast, liver and skin cancer.²⁰

Aloe vera

In a double-blind clinical trial, comparative study of mild soap and aloe vera gel against the complication of radiation therapy induced skin reactions, the median time of five weeks was taken to show any skin changes in the aloe/soap treatment. The protective effect of adding aloe to the soap regimen increases during long time radiation exposure.²¹

CONCLUSION-

It is clear that a multidisciplinary approach is needed to get more satisfactory result in case of cancer. Researches shown that many Ayurvedic plant has anti-tumour activity as well as it gives a very good result in treating the complication created by the Radiotherapy and chemotherapy. Along with the modern therapy ayurveda can act a supportive treatment in the management of cancer. Future research on this topic would help to identify safety and effectiveness of anticancer drugs and will further the exploration of their mechanism of action.

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