



## ETIOPATHOLOGICAL STUDY OF ARBUDA W.S.R. CANCER

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### ABSTRACT

Cancer in essence is a change in cell metabolism. It is one of the most dreaded diseases of the 20th century and spreading further with continuance and increasing incidence in 21st century. Incidence of cancer is also related to the age and sex. Although modern science has made some major strides in understanding cancer and its molecular basis, the knowledge about how to prevent or treat cancer is still lagging behind. The knowledge and management of cancer was not unknown to the ancient surgeons of India. Though the Sanskrit equivalent for this word is not found in Ayurvedic literature, diseases having the signs and symptoms similar to those of Cancer are discussed in various contexts. This paper reviews ayurvedic classics to depict nidan panchak of cancer and it focuses on the ayurvedic concept of the causes of cancer and its linkage with inflammation, diagnosis, prevention, and treatment. In Ayurveda causation of any disease is mentioned under 5 division. Role of nidan have much importance in understanding cancer through Ayurveda. According to Ayurvedic principles, the disease cannot be named on its own because it differs between persons in terms of illness, clinical presentation and also the treatment required. Ayurveda describes different stages of tumorigenesis as chronic inflammatory and intractable diseases with the possibility of developing malignancy, precancerous growth or probable malignancy, granthi (benign glandular swelling), and arbuda (definite malignancy). Arbuda is a malignant tumor or cancerous growth. That means an uncontrolled growth of abnormal tissues, due to low dhatu agni. Study of pathophysiology of cancer may be helpful to understand prodromal symptoms, pathogenesis, classification and provide possible management potentials through Ayurveda. Ayurveda emphasizes prevention first and cure next. Rasayan is mentioned as the fold of preventive care. Many of this group of drugs do immune modulatory and antioxidant properties. Ayurveda may help to understand mode of action of anticancer herbs by samprapti vighatan. Ayurveda is also helpful in rehabilitation of patients.

**KEYWORDS:** Nidanpanchak, Tumorigenesis, Arbud, Rasayan, Cancer, Arbud, Granthi, Nidan.

### INTRODUCTION

Cancer is the leading cause of death around the world. The word Cancer is derived from the Greek meaning 'CRAB'. W. R. Belt suggested that the terminology of cancer is used for its adherence with such obstinacy to the part i.e. like a crab and cannot be separated from each other. Uncontrolled growth of cells is called Cancer. First cell is formed from sperm & ovum [Shukra & Shonit]. Controlled multiple division of this cell is result of individual's body. If this division is uncontrolled, it is cause to create Cancer. Every divided cell is producing same type of new cells. If new cell is not as it is in comparison with mother cell, it can be called cancer. The identification and differentiation of malignant diseases have been enlightened much later than the description available in ancient Indian literature. Earliest and foremost record could be seen in Atharva Veda, where the disease was nomenclature as "APACIT". The

discussion in the *Suśruta Samhitā* of the disease known as *arbuda* has striking resemblance to tumour forming cancers. The classical texts of Ayurveda have also classified *arbuda* into many types. The description of arbuda in Ayurvedic literature gives us a detailed picture of malignant tumors or cancer.

### AIMS AND OBJECTIVES

This article is aimed to draw role of etiopathogenesis causing cancer, purvarupa, rupa of cancer in ayurvedic texts which can be used in preventive approach of treatment of cancer.

### Research Methodology

Material has been collected from ancient ayurvedic texts, research journals and electronic database.

### Ayurvedic Concept of Cancer

Charaka and Sushruta samhitas, two well known Ayurvedic classics, describe cancer as inflammatory or non-inflammatory swelling and mention them as either Granthi (minor neoplasm) or Arbuda (major neoplasm). Ayurvedic literature defines three body-control systems, viz., the nervous system (Vata or air), the venous system (Pitta or fire), and the arterial system (Kapha or water) which mutually co-ordinate to perform the normal function of the body. In benign neoplasm (Vataja, Pittaja or Kaphaja) one or two of the three bodily systems are out of control and is not too harmful because the body is still trying to coordinate among these systems. Malignant tumors (Tridosaja) are very harmful because all the three major bodily systems lose mutual coordination and thus cannot prevent tissue damage, resulting in a deadly morbid condition.

### Etiology

The person who are regular touch with carcinogenic factors like Alcohol, Tobacco, Non veg., spicy food etc. or factors which are irritating cells. Again and again irritation of cells is the cause of the unnatural growth. Some of causes identify by modern scientist are as follows.

1. Hereditary cause
2. Sedentary life style and junk /fast food
3. Pollutions
4. Low immunity power
5. Regular irritation of internal & external part of the body
6. Continue consumption of carcinogenic drugs like – Tobacco, Supari, Smoking, Long time particular hormones or modern medicine consumption, Air mixed with chemicals, and non-vegetarian food.

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 tumors. Excess of water or fat in the corpus of the tumor and the stability and rigid confinement of the doshas in a particular place were described as reasons for the non-infectious and non-suppurative nature of these abnormal growths. Cancer in each person differs according to the person's exposure to pathogens and genetic constitutions which make each of them to react differently to the same diet. The factors responsible for the vitiation of doshas are discussed here.

**a. Vata aggravating factors:** excessive intake of bitter, pungent, astringent, dry foods and stressful conditions.

**b. Pitta aggravating factors:** excessive intake of sour, salty, fried foods and excessive anger.

**c. Kapha aggravating factors:** excessive intake of sweet, oily food and sedentary nature.

**d. Rakta aggravating factors:** excessive intake of acid or alkali containing foods. Fried and roasted foods,

alcoholic beverages, sour fruits are some examples. Excessive anger or severe emotional upset, sunbathing or working under scorching sun or near fire and hot conditions, etc are some other causes.

**e. Mamsa aggravating factors:** excessive use of exudative foods like meat, fish, yoghurt, milk and cream. Behaviours leading to exudation like sleeping during the day and overeating are some of the causes for pathogens invading the fatty tissues.

**f. Medo aggravating factors:** excessive intake of oily foods, sweets, alcohol and lazy attitude

**Etiopathogenesis:** It is based mainly on Dosis theory i.e. Vata, Pitta and Kapha. Further by Mithya Ahara and Vihara the different humors are vitiated involving different Dhatus (Mamsa, Meda, Rakta, etc) resulting in the prescription of Arubuda.

Though vitiated "Dosa" are responsible for the development of Arbuda, almost all Ayurvedic texts have given maximum importance to Kapha. Susruta has mentioned that due to excess of Kapha, Arbuda does not suppurate. S. N. 19/15, which is considered to be the common and important factor for any growth in the body. Thus, it seems justified to postulate that excess of vitiated Kapha in the body might be responsible for the precipitation of cancer.

Irritation (S. N. 14/3) and trauma (S. N. 11/18) may precipitate or activate the formation of Arbuda. Where, for the enlargement of external genitalia, local application of certain irritable medicines have been advised. More often improper use or misuse of those drugs i.e. Linga Vridhikara Yoga has led to the development of Mamsarbuda. According to Susruta, trauma is also considered to be another causative factor for the development of Mamsarbuda, where as Vagbhata has described that whenever, there is excessive formation of Mamsa Dhatu it may lead to various pathological conditions (A. H. Su. 11/10), such as Galaganda, Gandamala, Arbuda, Granthi and Adhimamsa. It indicates that Mithya Ahara and Mithya Vihara probably changes local or systematic bio chemical factors (S. N. 11/13) including the haemodynamics (S.N. 11/16) leading to the origin of Arbuda.

### Cellular Dynamics

According to Ayurveda, the cancer disease process happens at the subtle cellular level, called atianu srotas. It is this molecular digestion that is affected by arbuda. Every tissue also has its own agni component, called dhatu agni, which refers to the enzymes and amino acids that govern tissue nutrition and cellular metabolic activity. At the cellular level, each cell is a center of awareness, a conscious microscopic life. Every cell has cellular integrity and governs its own metabolic activity. There is a flow of communication from one cell to another, which is called prana. *Tejas* is responsible for cellular metabolic activity and *ojas* governs immunity. These three (prana, tejas, ojas) are the factors that control

reproduction of arbuda at the cellular level. Arbuda has its own tejas and it can produce new blood vessels (*sirā*) as part of the process of angiogenesis. Arbuda also has its own perverted prana, which absorbs nutrients. It can produce agni (enzymes) and, with the help of prana, it can invade the circulatory system and find a place to grow. Arbuda can also stimulate its own proteins to grow and multiply. It demands increased metabolic output; as a result, there is often severe weight loss in the patient. Sushruta has proposed *six stages in the pathogenesis* of all diseases but his concept suits more to the pathology of the tumor than pathogenesis itself.

1. **Sanchaya:** early stages of localized neoplastic changes
2. **Prakopa:** transformation of primary growths into metastatic tumors.
3. **Prasara:** metastasis.
4. **Sthana samsraya:** complete metastasis and secondary growth.
5. **Vyakti:** clinical signs and symptoms are expressed.
6. **Bheda:** the stage where differentiation of growth occurs on the basis of histopathology

#### Purvarupa of Cancer or Arbud

Cancer is a silent enemy in the beginning, with few signs and symptoms. The following is a list of the prodromal signs and symptoms of arbuda or cancer.

- Malavashtambha means repeated chronic constipation or absolute constipation. Changes in bowel habits are quite common after age 65, but if such a person does not have a bowel movement even after taking triphala, one should think about cancer of the rectum as a possibility. It is helpful to do a colonoscopy just to rule out cancer.
- Mutra krichra means a change in bladder habits, repeated urethritis, or cystitis.
- Raktagama means bleeding. Say children are playing and a child who receives a pinch to the skin suddenly develops a balloon-like hematoma; that is an early sign of cancer. Rakta gama are bleeding disorders. One can rule out cancer when there are repeated attacks of bleeding from the nose, the ear, the vagina or the rectum.
- Srava is a foul smelling discharge from a wound.
- Kathinya granthi means thickening of a tumor.
- Avipaka is chronic indigestion, which is another preliminary symptom (*purva rupa*) of cancer.
- Sakashta anna pravesha means difficulty in swallowing. If a person feels like they have swallowed some food but it is stuck near the heart area, and especially if such a person is elderly, one can think about the possibility of cancer and encourage the person to have it checked out.
- Tivra kasa is a nagging cough that doesn't respond to cough syrups. A nagging cough can be due to cancer of the lungs.
- Svava bheda means hoarseness of voice. A hoarse voice is due to dryness of the vocal cords and it is an important sign of cancer that is due to depletion of ojas. This may indicate a malignant tumor in the vocal cords, or a tumor elsewhere in the body. It is more common in the case of someone with a history of smoking. However it can also be a sign of pandu, which

means anemia. In that case, the person looks fair and has low energy levels.

- Arbuda granthi is a hard nodular mass. This is another *purva rupa* that can occur in a person who has developed cancer.
- Deha laghuta means extreme, severe weight loss. It is another warning sign of cancer.

#### Lakshanas of Arbud and Tumor in Classical Texts

“Arbuda” is the Sanskrit word for tumor. According to Sushrut the three doshas (Vata, Pitta and Kapha) when aggravated, may develop a malignant tumor; especially aggravated Kapha and Vata doshas. This affects the tissue, which might result in developing a malignant tumor. This tumor will have the following features: Round, Firm, Causing mild pain, Large, Deeply rooted in the body, Slow growth, Showing no suppuration, A swollen, fleshy growth. A malignant tumor does not suppurate, because it contains an excess of Kapha and adipose tissue, thus forming firm little balls.

#### The Stages in the Development of Arbuda and Its Correlation with Cancer

The following points emerge from the descriptions of arbuda in the classical texts of Ayurveda.

1. Arbuda is a localized growth in any part of the body - *gātrapradesie kvacideva dosā*.
2. Initially it grows slowly and silently - *ciravridhhi, apāka*
3. Local spreading of the growth and rooting - *analpamūla*
4. Fixation - *kritamūlatva, aclyā*
5. Spreading - *mahāvāstuparigraha*
6. Ulcerating - *samprasruta*
7. Recurrence - *adhyarbuda*
8. Metastasis - *dvirarbuda*.

**Classification:** Although the present era of modern medical sciences has under gone manifold technical advancement for the diagnosis and confirmation by histopathological studies under light and Electronmicroscope, during olden days they had to depend entirely on various clinical symptomatology with Dosha theory. Considering the various lacunae in those days, the malignant diseases may be classified as follows according to the description given in different Ayurvedic text books.

1. Diseases which can be labeled as clear malignancy.
2. Diseases which may be considered as malignancy.
3. Diseases presenting symptoms similar to malignancy.

**Diseases which can be labelled as clear malignancy**  
**The diseases falling under this group may be further classified as follows**

- (A) Arbuda (Neoplasia)
- (B) Asadhya Vrana (Malignant ulcer)

### Classification of Arbuda

These Arbudas may be classified under the following headings

1. Types of Arbuda according to Dosa.
2. Types of Arbuda according to site.
3. Types of Arbuda according to prognosis.
4. Types of Arbuda according to Dhatu (tissue).

#### Arbuda according to dosha

Based on dosas Sushruta has differentiated the Arbudas into (S. N. 11/25 and S. U. 22/9) four types.

1. Vataja
2. Pittaja
3. Kaphaja, and
4. Tridosaja

This indicates that probably there are four main doshas or humors playing an important role after vitiation or derangement which may be low or high in comparison to other humors to precipitate the malignant growth in the body. Extreme diversion of dosa's, may lead to fatality. Such variations in different types of Arbuda can be diagnosed or labeled as Vataja, Pittaja, Kaphaja, based on their symptomatology. Those Arbudas having mixed symptoms of all the three humors, can be labeled as tridosaja. However, to establish or label the particular types or dosaja Arbuda, require detailed fundamental advancement in the field of Ayurveda.

This indicates that ancient Indian clinicians were aware of the involvement of different tissue either primarily as local factor or generally by derangement of doshic factors. According to Susruta's description in Nidana Sthana, Dhatus are involved in Arbuda i.e. three types of dhatus.

1. Medaja Arbuda (fatty tissue).
2. Mamsaja Arbuda (muscular tissue).
3. Raktarbuda (blood).

#### Types of Arbuda according to sites

According to Susruta, Arbuda, can occur at any site or tissue of the body and probably no site is exempted, which cannot give rise to Arbuda. This include eye, ear, nose, buccal cavity separately such as Vartmarbuda (eye lid), Karnarbuda (ear), Nasarbuda (Nose), Taluarbuda (Palate), Jalabuda and Osthambuda (Lip), Galarbuda (Throat), Mukharbuda (Buccal mucosa) and Sirarbuda (Tumors of head or brain).

#### Types of Arbuda according to prognosis

Based on the prognosis of the different types of Arbudas described in Ayurvedic text books, they can be placed under two categories.

1. Sadhya
2. Asadhya

Most of the Arbuda' including Mamsarbuda, Raktarbuda and Tridoshaj of any site occurring in ear, nose, throat etc. are considered as Asadhya (incurable). However, some of the Arbudas are also described as Sadhya which

are most probably cyst, benign tumours or chronic inflammatory swelling.

#### Recurrence and metastasis

At an interval or period of time of Sadhya Arbuda may develop into Asadhya i.e. from one stage to the other or Asadhya Aruda may give rise to its spread to another place which may be called as metastatic stage. Such pathogenesis of malignancy has been described in Ayurvedic text books as "Adhyarbuda" or "Dvirarbuda". This most probably suggests the recurrence and metastasis of tumours to distal places. When Arbuda is appearing at preexisting site or nearby primary growth it is called as Adhyarbuda (recurrence), whereas when a couple of similar types of growth occurring at different places, following one after another it is called "Dwairbuda" i.e. metastasis.

**Asadhya vrana (malignant ulcers):** Asadhya Vrana may be due to a number of causes and malignancy cannot be ruled out as one of them. Almost all clinical presentation of different Asadhya Vrana described by Susruta can be considered under malignant ulcers. According to Susruta these ulcers are chronic in nature and depicts with raised or rolled edges, multiple firm fleshy masses similar to cauliflower type with various types of discharges. Sometimes these ulcers also presents some general symptomatology i.e. painful respiration, Anorexia, chronic cough, Cachexia etc. suggesting the stage or spread of cancer to other places (Metastatis).

#### Diseases which may be Considered as Malignancy

This includes particularly those diseases which are labeled as Asadhya alongwith certain manifestations similar to malignancy. Those are Mamsaja Osta, Alasa, Mamsa Kachhapa, Galaudha, Asadhya Galaganda, Tridosaja Gulma, Asadhya Vrana, Lingarsa etc.

**Mamsaja Osta:** This is an incurable disease of lips which becomes heavy, thick protruding fleshy mass and developing ulcers occasionally. Such lesions of the lips can be considered as exophytic lesion (Acerman's Cancer).

**Alasa:** Due to vitiation of Rakta and Kapha there is a deep seated swelling under the surface of the tongue. It increases gradually in size, with fishy odour discharge and destroys the surroundings structures. Such types of diseases resembles Adenocystic and Mucoïd epidermoid tumours of salivary glands.

**Mamsa Kachhapa:** Due to vitiation of Kapha, a big swelling develops on the palate which is painful, increases gradually in size and is incurable. This resembles a tumour of hard palate.

**Galaudha:** Similar to other diseases this diseases develops also due to vitiation of Rakta and Kapha. In this disease an extensive swelling occurs in the throat obstructing both the passages of oesophagus and trachea,

with the result, that patient develops difficulty in swallowing and also in respiration which becomes fatal to the patient. A malignant growth at oropharynx may give all these symptomatic features.

**Asadhya Galaganda:** Galaganda or thyroid enlargement of long duration having complications like anorexia, weakness, hoarseness of voice and not responding to prescribed medical therapy may be considered as carcinoma of thyroid gland.

**Asadhya Gulma:** In Asadhya Gulma which are gradually increasing in size, wide spreaded and fixed with tortoise like mass in the abdomen, the skin over mass shows engorged veins. In addition, patient may suffer cachexia, cough, vomiting, fever etc. These features are probably suggestive of intra abdominal malignant growth.

**Asadhya Udara Roga:** When ascitis is associated with flank pain, marked anorexia, sometimes diarrhea, weakness and reappearance of fluid after aspiration it resembles malignant ascitis.

**Lingarsa:** Vitiated dosa lodged in the external genitalis affect the local musculature etc. and give rise to itching which gradually become ulcerated. These ulcers give rise to the growth of fleshy mass with blood discharge. Such symptomatology closely resembles a papillary carcinoma.

#### **Diseases Where Malignancy cannot be ruled out (Asadhyata)**

Apart from the various factors mentioned earlier, there are certain other symptomatology or the diseases which are also considered as 'Asadhya' and labeling them under malignancy seems to be a controversial subject. However, it is also difficult to rule out the possibilities of malignancy based on their sign and symptoms. Those diseases are Tridoshaja Nadi Vrana, Asadhya Pradar a Asadhya Kamala and Carmakila etc.

#### **Prevention and management potentials of cancer in Ayurveda**

**1. Prevention:** by understanding nidana of various cancers described above we can prevent the disease by nidana parivarjan. Cancer in each person differs according to the persons exposure to pathogens and genetic constitutions which make each of them to react differently to the same.

Ayurveda says that in cancer the aura is disturbed allowing negative astral forces to enter in body. Cancer may be caused by environmental pollution, junk food, lethargy, lack of spiritual purpose, suppressed emotions and stagnations. Past life karma also plays a role in disease. Cancer can also be caused by imbalance of all the three doshas. So avoiding such causes may help to reduce spread of disease. Like if patient stops tobacco chewing smoking etc. it may help to lower the threat of cancer.

#### **2. Management**

The primary modalities of cancer treatment are surgery, chemotherapy, and radiotherapy; these may be used alone or in combination. Each treatment type brings a certain level of risk, pain and disability to the patient, but malignant cells when left untreated inevitably choke off vital organs and circulation. In that consequence, Ayurveda can offer a lot of relief to patients through natural treatments. Ayurveda is providing excellent medicines and treatments which can be easily incorporated with the mainstream cancer medicine. Commonly used anticancer herbs are *Vitis vinifera*, *Baliospermum montanum*, *Madhuka indica*, *Pandanus Odoratissimum*, *Barlaria Prionitis*, *Proscopis cineraria*, *Amorphophallus campanulatus*, *Oroxylum indicum*, *Moringa oleifera*, *Ficus bengalensis* *Tinospora cordifolia*, *Podophyllum hexandrum* etc. In many research studies on the drugs reported to have an anticancer effect indicates that herbs with Katu, Tikta, Kasāya Rasa (bitter, pungent, and astringent taste), Usna Virya (e.g., hot biopotency), and Katu Vipāka (catabolic active metabolites), and herbs with dry, coarse, light, and sharp biophysical properties have significantly greater possibilities of producing anticancer effects.

#### **3. Ayurvedic herbs can also be used to diminish the side effects noted with modern**

treatments that substantially impact the quality of life of cancer patients. Cancer-associated cachexia includes anorexia, chronic nausea, and change in body image. Anorexia or weight loss could be effectively managed by the commonly used rasayana herbs *Withania somnifera*, *Sida cordifolia*, *Asparagus racemosa*, *Vitis vinifera*, *Plumbago zeylanica*, *Tinospora cordifolia*, and *Zingiber officinale*. These herbs have been shown to improve appetite, food intake, malnutrition, fatigue, and sensation of well-being, which could elicit body-weight gain. Use of herbs every day in the diet (eg, ginger, turmeric, garlic, pepper, cloves, tulsi, saffron and taking seasonal detoxifiers and antioxidants such as triphala neem, and amla is also very beneficial. Several herbs have been described in ayurveda that can alleviate some of the common side effects associated with modern medical treatment of cancer.

#### **CONCLUSION**

Overall, this review provides a glimpse of the ayurvedic approach to cancer diagnosis and prevention. Ayurveda can determine subtle disturbances in a very early stage of this disease. Even before it manifests itself, Ayurveda can already establish disturbances in the balance of mind and body. A review of classical Ayurvedic literature reveals that the clinical features of tumour forming cancers were well understood in the very early stages of the evolutionary history of Ayurveda. Strikingly, the benign and malignant tumours have been distinguished with Caraka pointing out the presence of a capsule in the case of benign tumours called granthi while all the authorities point out the fixation, rooting and spreading of the malignant type of tumour known as arbuda.

Suśruta clearly describes the various stages in the development of malignant tumours and also recognizes recurrence as well as metastasis. This review also indicates the awareness of malignancy during ancient Indian / Clinicians period including its etiopathogenesis, types, sites, stages and spread. It also supports the views that solution of etiopathogenesis can be studied in detail by enlightening the Dosa, and Dhatu. Ayurveda nidana can help in understanding of cancer, diagnosis, prevention and rehabilitation.

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