



CANCER – AN AYURVEDIC PERSPECTIVE AND OVERVIEW

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ABSTRACT :

Cancer is one of the leading causes of death in India. Nearly three million patients are suffering from this disease at present. Every year nearly a million new cases are reported. Cancer seems to be holding its grip on India. Experts say the incidence of the killer disease is expected to raise five-times by 2025. It becomes a global challenge where the modern cancer therapy also burdened by drug-induced toxic side effects hoping perfect cure of disease from the complementary and alternative system of medicine. Nowadays scientists are keener to researches on complementary and alternative medicine for the management of cancer. *Ayurveda*, the oldest Indian medical system understands cancer as the derangement of *tridosha* as a whole of neuro-humoral, metabolic and nutritional imbalance that causes loss of mutual coordination in homeostasis resulting critical condition in tissue proliferation. *Ayurveda* defines these changes as “*ARBUDA*” a mass of tissue growth independent of function. At this juncture a natural remedial and preventive approach is the demand of the society to combat the altered homeostasis. *Ayurveda* emphasises some herbo-mineral medicaments, purificatory therapy, immunomodulators and holistic life style adaptation to cure, prevent and improve the quality of life.

Keywords : Cancer, Ayurveda, *Arbuda*

INTRODUCTION: The word Cancer is derived from a Greek word ‘CANKER’ meaning ‘CRAB’ which was used in Medical sciences for a growth surrounded by large number of prominent blood vessels suggesting a picture like claws of a crab. With reference to the modern medical literature the new growth of tissue independent of function resulting from a continuous proliferation of abnormal cells that have the ability to invade and destroy other tissues is termed as cancer. The global scenario of cancer update estimates for 28 types of cancer in 184 countries. As per the overview of the global cancer burden in the Globocan 2012 report¹. 14.1 million new cases (with the 2008 estimates being 12.7 million new cases), 8.2 million cancer deaths, and five-year prevalence of 32.6 million cancers in individuals above

the age of 15 years. Globocan 2012 estimates indicate a substantive increase to 19.3 million new cancer cases by 2025. A similar scenario in India that 1.1 million new cancer cases were estimated, indicating India as a single country (of the 184 countries) contributing to 7.8% of the global cancer burden; mortality figures were 682830, contributing to 8.33% of global cancer deaths; and the five year prevalence was 1.8 million individuals with cancer corresponding to 5.52% of global prevalence. Globally, the five most common cancers considered in both sexes were cancers of the lung (1,824,701; 13%), breast (1,676,633; 11.9%), colorectal (1,360,602; 9.7%), prostate (1,111,689; 7.9%), and cervix uteri (527,624; 3.7%), comprising 46.2% of the cancers reported.

Further, deaths due to these five cancers were 3,378,622.

The crude cancer incidence in Kerala is 172 male and 166 female per one lakh population. A rough estimation of 150813 people in state are currently living with cancer, where as every year 21285 are dying of cancer. Based on actual incidence data collected by population based cancer registry at the regional cancer centre² in 2014, Thiruvananthapuram district the commonest cancers in male are lung cancer (23.3), oral (18), Colorectal (14), prostate (13), stomach (7), urinary Bladder (7), Larynx (7) and in female breast (52), Thyroid (20), cervix (11), colorectal (11), ovary (10), corpus uteri (8) and oral (7) cancer per one lakh population.

Etiological factor: Cancer is more common in elderly, but it is variable. Heredity may be one of the causes for familial breast and ovarian cancer. Tumour suppressor gene P53 plays important role in prevention of cancer by preventing the replication of damaged DNA. So loss of P53 is associated with common cancers like breast, colon, retina, bone, brain, soft tissue and blood. Some acquired causes such as chronic atrophic gastritis, solar keratosis, leucoplakia, ulcerative colitis may turn to malignancy³. Exposure to cancer-causing agents (carcinogens) for instance, cigarette smoke, alcohol, aflatoxin B1, vinyl chloride, and pesticide contains many chemical initiators and promoters. Microbial carcinogens like human papilloma virus, Epstein-Barr virus, hepatitis virus and helicobacter pylori, exposure to radiation and geographic variation may often become a potential cause for cancer.

Life style factors: Many factors that are responsible for cancer arise from the way we live^{4,5,6}. Such life style factors are

- **Smoking** Cigarette is responsible for 85 per cent of lung cancer cases among men, 75 per cent among women and about 83 per cent overall. Smoking accounts for about 30 per cent of all cancer deaths. Those who smoke two or more packs of cigarettes a day have lung cancer mortality rates 15-25 times greater than non-smokers⁴.
- Certain nutritional factor increases risk for colon, breast, and uterine cancers in obese people. High-fat diets may contribute to the development of certain cancers such as breast, colon, and prostate. High-fiber foods may help reduce risk of colon cancer. A varied diet containing plenty of vegetables and fruits rich in vitamins A and C may reduce risk for cancers of larynx, esophagus, stomach, and lung. Salt-cured, smoked, and nitrite-cured foods have been linked to oesophageal and stomach cancer⁵.
- Almost all of the cases of non-melanoma skin cancer developed each year are considered to be sun-related. Sun exposure is also a major factor in the development of melanoma, and the incidence increases for those living near the equator⁵.
- Oral cancer and cancers of the larynx, throat, oesophagus, and liver occur more frequently among heavy drinkers of alcohol⁵.
- Use of chewing tobacco or snuff increases risk for cancers of the mouth, larynx, throat, and oesophagus.
- Oestrogen treatment to control menopausal symptoms increases risk of endometrial cancer. The use of a

progesterone with oestrogen replacement therapy has significantly reduced this risk.

- Excessive exposure to ionizing radiation can increase cancer risk. Most medical and dental X-rays are adjusted to deliver the lowest dose possible without sacrificing image quality. Excessive radon exposure in the home may increase lung cancer, especially in cigarette smokers.
- Some infections are linked to certain cancers. In particular, infections have been found to be involved in cancers of the stomach, liver, and cervix, and in Kaposi's sarcoma, a rare cancer which occurs in AIDS patients⁵.
- The bacterium *Helicobacter pylori* may help to cause many cases of stomach cancer. Studies have shown that people infected with the bacterium are four times more likely to develop this cancer.
- Cervical cancer is linked to two sexually transmitted types of human papilloma virus—HPV-16 and HPV-18.
- When viruses like hepatitis B (which contributes to liver cancer) are contacted at birth or during early childhood, the patient becomes a carrier.
- Exposure to a number of industrial agents (nickel, chromate, asbestos, vinyl chloride, etc.) increases risk of various cancers. Risk from asbestos is greatly increased when combined with smoking⁵.

Understanding Cancer in Ayurveda :
Arbudas are gradually increasing mass of big size, globular in shape, fixed with deeper structure, usually do not suppurate, giving occasional pain and can occur in any part of the body. It can involve *Mamsa* and *Rakta* due to

vitiating of *tridosha*⁶. Hence *Arbuda* can be correlated to tumour either benign or malignant. Sushruta describes *granthi* and *arbuda* in a single chapter as there is a similarity in their morphological characteristics. But there is a great difference in their pathogenesis. *Granthi* denotes minor neoplasm⁷, where *Arbuda* refers major neoplasm. *Granthi* manifests as there is *vata* *dosha* vitiation further vitiates *mamsa*, *rakta* and *meda*, where *kapha* remains as *anubandha*. *Granthi* is localised compact collection of increased or unwanted tissue. Main reason of such localised growth is *sroto dusti* & *sroto avarudha*. The *dosas* involved are *vata* & *kapha* with the failure of *pitta* to bring about *dhatu parinama* in that area. So a soft fluctuant swelling containing fluid in a sac is formed lined by epithelium or endothelium is called a *granthi* (cyst). *Arbuda* forms as a result of vitiation of *tridosha*. Here because of continuous intake of aggravating factors of *vata*, *pitta*, *kapha*, *rakta*, *mamsa* & *meda* initially *dosha samurchhana* happens. That *samurchhita dosha* vitiates the *mamsa dhatu* at any part of the body. As a result of neurohumoral, metabolic and nutritional derangement that amount of *mamsadhatu* (*kwachideva mamsa*) will start proliferate with lack of cellular differentiation, Pleomorphism – variation in size and shape, Anisocytosis, Anisonucleosis and Abnormal mitotic activities. The decrease in *agni* is inversely proportional (*Apaka*) to the related tissue and therefore in *arbuda*, the decreased state of *dhatwagni* (deranged metabolism) will result in excessive tissue growth⁸. In benign tumour (*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 systems⁹. Malignant tumours (*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. The *satkriyakala* can be explained here as¹⁰

- **Sanchaya:** Early stages of localized derangement of doshas those trigger neoplastic changes.
- **Prakopa:** Transformation of primary growths

- **Prasara** : Altered differentiation , anaplasia, lymphatic involvement, rapid rate of growth
- **Sthana samsraya:** Increased vascularity, microscopic changes, expressed clinical sign and symptom.
- **Vyakti:** Complete metastasis and secondary growth.
- **Bheda:** Differentiation of growth occurs.

Cancer cells duplicate continuously and compete with normal cell for space and nutrition. They tear through and crush neighboring tissues, strangle blood vessels, and take nutrients that are needed by healthy cells. Cells can travel, this is called metastasis.

Invasion and Spreading

- Local spread – nearby soft tissue, vessel, bone
- Lymphatic spread – by permeation - breast to axillary lymph node, by embolisation – axillary to supraclavicular lymph node
- Blood spread – by infiltration to lungs, bone, liver
- Seedling – kissing cancer from lower lip to upper lip, vulva, cervix
- Transcelomic spread – spillage or dislodgement through body cavity

Classification : *Arbuda* can be classified according to *dosha* as *Vataja*, *Pittaja*, *Kaphaja*, and *Tridosaja*; according to site as *Vartmarbuda* (eye lid), *Karnarbuda* (ear), *Nasarbuda* (Nose), *Taluarbuda* (Palate), *Ostharbuda* (Lip), *Galarbuda* (Throat), *Mukharbuda* (Buccal mucosa), *Sirarbuda* (Tumors of brain). Genital organ has also been included under the nomenclature of “*Suka Dosa*”. i.e. *Mamsarbuda* and *Sonitarbuda* which is precipitated due to misuse of various types of ‘*Linga vrddhikar Yoga*’. According to

prognosis some of the *Arbudas* are described as *Sadhy* which are most probably cyst, benign tumours or chronic inflammatory swelling. *Arbuda* including *Mamsarbuda*, *Raktarbuda* and *Tridoshaj* of any site occurring in ear, nose, throat etc. are considered as *Asadhy* (incurable). Types of *Arbuda* according to *Dhatu* (tissue) are *Medaja Arbuda* (fatty tissue), *Mamsaja Arbuda* (muscular tissue), *Raktarbuda* (blood). *Asthi* (Bone) has also been involved to give rise to swelling like *Arbuda* described as ‘*Adhyasthi*’, but not as *Asthyarbuda*¹¹. Further *Asthi Kshaya* if localized to some particular portion resembling pathological fracture or osteoclastic destructive change in the bone may also be included in *Asthyarbuda*¹². With reference to the modern classification it can be of Sarcoma - arise from connective tissue such as bone, cartilage, nerve, blood vessels, muscle, and fat. Carcinomas - arise from epithelial tissue, such as the skin and glandular tissue, breast and prostate. Leukemia and lymphomas - involve blood-forming tissue, lymph nodes, bone marrow, and the overproduction of immature white blood cells. Further depending on the metastasis and aggressiveness it can also be graded for its treatment and prognosis.

Cancer Therapy: Conventional treatments for cancer include chemotherapy, radiation therapy, and surgery. Other treatments include hormonal therapy, stem cell therapy, immunotherapy, tomotherapy etc. Chemotherapy, radiation therapy and hormonal therapy have harmful toxic effects along with their beneficial effects¹³. Sometime the adverse reactions may produce fatal symptoms. Chemotherapy drugs and radiotherapy are highly toxic

and both damage adjacent healthy cells. Side effects may be acute, intermediate or late. Some important side effects of chemotherapy are: nausea, vomiting, diarrhea, mucositis, alopecia, constipation; whereas radiation therapy though administered locally, can produce systemic side effects such as fatigue, anorexia, nausea, vomiting, alteration in the taste, sleep disturbance, headache, anemia, dry skin, constipation. Late complications of these therapies also include pharyngitis, esophagitis, laryngitis, persistent dysphagia, fatigue, hepato-toxicity, infertility and cognitive deficits. These arrays of side effects have a devastating effect on the quality of life of the cancer survivors.

Cancer Management: The goal of Ayurvedic treatment is to maintain the equilibrium in the physiology, which is called as homeostasis in modern parlance. The primary aim is to bring back the neuro-humoral derangement, metabolic derangement and nutritional derangement. The Secondary goal is to improve the Immunity and Immune Response. But the great matter of concern is when to intervene. It may be quite difficult to treat a patient when the cancer is already metastasised, or in case of squamous cell carcinoma when it is differentiated on mitotic activities (Gr – I, II, III, IV). The potentiality of Ayurveda can be established with scientific evidence if the treatment will be started at the appearance of alarming signs. Appearances of warning signs do not mean that the person is having cancer but it should not be ignored if persist more than three weeks. Those signs are – persistent headache, shortness of breath, a cough or hoarseness that refuses to go, indigestion or difficulty in swallowing, loss of appetite, a sore or

bruise that does not heal, a change in bowel or bladder habit for no reason, unexplained changes to finger nail, blood in urine stool or spittle, a mole that changes shape size or bleed, unexplained weight loss or tiredness, new lump or growth on skin. Another area of intervention will be in pre malignant stage like actinic keratosis, Barrett's esophagus, atrophic gastritis, ductal carcinoma in situ, dyskeratosis congenital, sideropenic dysphagia, lichen planus, oral submucous fibrosis, solar elastosis, cervical dysplasia, leukoplakia, erythroplakia etc. further the treatment may also be offered to the susceptible group of patients after the cancer screening like, in the patients where BRCA 1 and BRCA2 gene mutation is positive, two or more close relatives (parents, siblings, children) have breast cancer before the age of 50, a male relative has breast cancer, a female relative has both breast and ovarian cancer, two relatives have ovarian cancer, or where tumour marker is elevated.

Most people begin to feel tired after chemo therapy and radiation therapy. Fatigue usually gets worse as treatment goes on. Radiation induced oedema leading to radiation necrosis, alopecia, nausea, vomiting, head ache are the common consequences after cancer treatment and in cancer survivors. Ayurvedic treatment can also be offered to them to improve the quality of life. The therapeutic approach of Ayurveda should be started with sodhana chikitsa (purification process), which eliminates vitiated dosha followed by Samana chikitsa, which pacifies dosha and gradually relieves the disease, Rasayana prayoga (immunotherapy), Dhatwagni chikitsa (correction of metabolic defects), Vyadhipratyanika chikitsa (specific anti-cancerous drugs), and Lakshanika chikitsa (symptomatic treatment)¹⁴. To improve the quality of life and for prevention in susceptible

cases add on treatment can be given by changing lifestyle, healthy & compatible diet, herbo-mineral drugs, Periodic Panchakarma, regular Exercise, Holistic approach and meditation and by improving resistance. About 80 per cent of cancers are potentially preventable. The following modification may help in preventing cancer^{15,16,17}.

- Don't use tobacco
- Protect yourself from the sun. Avoid midday sun.
- Participate in cancer screenings according to recommended guidelines
- Eat a healthy diet - Eat plenty of fruits and vegetables. Limit processed meats.
- Maintain a healthy weight and be physically active to avoid obesity
- Get immunized - Hepatitis B. Human papillomavirus (HPV).
- Observe safety rules in jobs where exposure to chemicals, radiation, and other hazards.

CONCLUSION: Cancer is the second leading cause of death in adults in the Western world. A cancerous growth is clonal—that is, all its cells are descendants of a single cell. Smoking causes 90 per cent of lung cancers. About 80 per cent of cancers are potentially preventable. The earlier a cancer is diagnosed and treated, the greater the chance that it can be cured.

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