

“CANCER:- AYURVEDIC AND MORDEN ETIOLOGICAL FACTOR”**Markam Pushpa^{1*} and Nayak Nikhila Ranjan²**¹M.D. Scholar, Post Graduate Dept. of Roga Nidan Evum Vikriti Vigyan, Govt. Ayurveda Collage Raipur Chhattishgarh.²Professor and HOD, Post Graduate Dept. of Roga Nidan Evum Vikriti Vigyan, Govt. Ayurveda Collage Raipur Chhattishgarh.**Corresponding Author: Dr. Markam Pushpa**

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ABSTRACT

Cancer is a leading cause of death group world wide and accounted for 7.4 million death in 2004. The main types of cancer are: Lung, stomach, colorectal, liver, breast. More than 70% of all cancer death occurred in low and middle income countries. Death from cancer world wide are projected to continue rising with an estimated 11.5 million deaths in 2030. Many types of etiological factors are present here which leads to cancer. Pathogenesis of Cancer occurs when changes in a group of normal cell within the body lead to uncontrolled growth causing a lump called a tumour. According to ayurveda imbalance of the three doshas (vata, pitta, kapha) is the root cause of all the disease and so the cause of cancer. A lot of factors are responsible for the vitiation / mitigation of these three doshas. Literary meaning of arbuda is a lump or mass. According to the description given by sushruta, arbuda are gradually increasing mass of big size globular in shap fixed with deeper structure usually do not suppurate giving occasional pain and can occur in any part of the body. It can involve mansa and rakta due to vitiation of tridosha.

KEYWORDS: Cancer, etiological factor, pathogenesis, Arbuda.**INTRODUCTION**

At present, in the modern oncology the damage of the genetic apparatus of the cell is considered to be the primary cause of cancer, and the pathogenesis of cancer is seen as a process of transformation of a normal cell into a tumor cell, as evidenced by deep fundamental research of the pathogenesis of cancer, which is held exclusively at the cellular, molecular and genetic levels of the organism. such a vector of the scientific research based on the concept of cancer as a “ genes damage disease”. Cancer is often compared to a condition called arbuda described in ayurvedic and post cancerous states under different condition like Gulma (cystic growths), Apachi(benign), Gandamala (Lymphatic growth) etc.

EATIOPATHOGENESIS OF CANCER IN AYURVEDIC VIEW

Ayurvedic texts mentioned about arbuda, which is considered as an equivalent of cancer. Charaka described Arbuda in the chapter on sophia (cha.su.18, cha.chi.12) sushruta provided more information on Arbuda, Granthi, Apachi, Gandmala etc. Vagbhata mentioned about the Arbuda of lips, tongue, nose breast etc.

In Ayurveda, causation of any disease is mentioned under five divisions

NIDANA (Etiology)

PURVA RUPA (prodromal symptoms)

RUPA (signs & symptoms)

UPASAYA (Treatment & means of differential diagnosis)

SAMPRAPTHI (Pathogenesis)

Though cancer is often compared to Arbuda of Ayurvedic classics, many other conditions are found to fall under different tumours. However, only Arbuda is mainly discussed in the present context.

NIDANA (Etiology) of ARBUDA

Compared to other diseases, the etiological factors of Arbuda are mostly obscure in the Ayurvedic text. Only Mamsarbuda is described with some known causative factors.

- Vata prakopa karanas - Excessive intake of tikta (bitter), katu(pungent) & kashaya (astringent) foods, ruksha padartha (dry foods), more stress, and strain.
- Pitta prakopa karanas - Excessive intake of amla (sour), katu (pungent) & lavana (salty) diet, vidahi padartha (fried foods), krodha (more anger).
- Kapha prakopa karanas - Excessive intake of madhura (sweet), amla (sour), lavana diet, snigha padartha (oily foods), sedentary nature.
- Excessive intake of vidahi (fast foods etc.), amla (sour), ushna(hot)etc. Diet and other pitta prakopa karanas.

- e) Mamsa prakopa karanas- excessive intake of meat (mamsa), injuries, irregular diet etc.factors.
- f) Medo prakopa karanas- excessive intake of oily foods, sweets, alcohol, lazy attitude.

PURVARUPA

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

- A) Malavashtambha means repeated chronic constipation or absolute constipation. It is helpful to do a colonoscopy just to rule out cancer.
- B) Mutra kricha means a change in bladder habits, repeated urethritis, or cystitis.
- C) Rakta gama means bleeding. one can rule out cancer when there are repeated attacks of bleeding from the nose, the ear, the vagina or the rectum.
- D) Srava is a foul smelling discharge from a wound.
- E) Kathinya granthi means thickening of a tumor.
- F) Avipaka is chronic indigestion, which is another preliminary symptom of cancer
- G) Sakastha anna pravesha means difficulty in swallowing.
- H) Tivra kasa is a nagging cough that doesn't respond to cough syrup. A nagging cough can be due to cancer of the lungs.
- I) Svara bheda means hoarseness of voice. A hoarseness of 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.
- J) Arbuda granthi is a hard nodular mass. This is another purva rupa that can occur in a person who has developed cancer.
- K) Deha laghuta means extreme, severe weight loss. It is another warning sign of cancer.

RUPA (signs& symptoms) of ARBUDA

- 1) Samanya lakshanas (general signs & symptom)
Appearance of round, immobile, large, deep – rooted, fast growing and swelling is diagnostic of arbuda.
- 2) Vissha lakshanas (specific sign & symptom):
 - 1. vataja arbuda- swelling with cutting /dragging – type of pain, blackish colour, rough and bladder like appearance.
 - 2.pittaja arbuda – Swelling with hot & burning sensation, pricking pain, necrotic, reddish yellow coloured.
 - 3) kaphaja arbuda-swelling which is cold, skin coloured, less painful, severely itching, stony – hard and slow growing.
 - 4) Medoja arbuda- Tumour increases and decreases with the body weight. It be smooth, large, itching and painless.
 - 5) Raktaja arbuda – Node or polyp-like appearance, spreads very quickly and increase in size quickly, and may also bleed severely.
 - 6)Mamsaja arbuda – painless, glistening, skin-coloured, stony hard, immobile swelling.

List of different arbudas mentioned in the ancient classics.

1. vataja arbuda 2. pittaja arbuda 3. kaphaja arbuda 4.medoja arbuda 5. raktaja arbuda 6. mamsja arbuda 7. sthanarbuda 8. karnarbuda 9. Oshtarbuda 10. Nasarbuda 11. raktaja –oshtarbuda 12. jihwarbuda.

Other arbudas are:

Adhyarbuda - a very big tumour or a secondary tumour.

Dwirarbuda-a pair of tumours formed one after other at one place.

UPASAYA- Ayurveda as many treatment protocols

- 1) Sodhana chikitsa (pancha karma procedures)
- 2) Dhatwagni chikitsa(correction of metabolic defects)
- 3) Rasayana prayoga(immunotherapy)
- 4) Vyadhipratyanika chikitsa(anticancerous drug)
- 5) Lakshanika chikitsa(symptomatic treatment)
- 6) Sastra chikitsa (surgical treatment)

SAMPRAPTHI(pathogenesis) OF ARBUDA

Samprapti is to get the proper knowledge about the pathway of disease manifestation.

Before proceeding to pathogenesis of Arbuda and its management, it is essential to know the basic concepts of Ayurveda in relation to cancer.

Pathogenesis in Ayurveda is explained on the basis of tridoshas. Agni or pitta, which is present in each and every cell, is responsible for digestion and metabolism in human body. The decrease in agni is inversely proportional to the related tissue and therefore in arbuda, the decreased state of dhatwagni (deranged metabolism) will result in excessive tissue growth.

Vata can be correlated with the anabolic phase of growth whereas kapha to the catabolic phase. Cancer originates due to a metabolic crisis, i.e. aggravation of vata forces and suppression of kapha forces, both interacting with one another resulting in proliferation. When ever there is excessive growth at a particular site (Eka Desa Vriddhi), there must be some deficit on other part of the body (Anya sthaniya kshaya). This is a general concept of pathology in Ayurveda. In eka desa vriddhi is indicated by tumour growth and anya sthn kshya is denoted by loss of body weight.

Sushruta has proposed six stages in the pathogenesis of all diseases but his concept suit more to the pathology of the tumour than pathogenesis itself.

Shat kriya kalas(six steps in disease process). they are.

- 1) Sanchaya: early stages of localized neoplastic changes.
- 2) Prakopa: transformation of primary growth into metastatic tumours.
- 3) Prasara: metastasis (in the development of cancer stages of invasion is followed by metastasis)

- 4) Sthan samsraya: the stage when metastasis is complete and second aries developed at another place outside the place of origin of the tumour.
- 5) Vyakti: the stages where clinical signs and symptoms of neoplasms are expressed
- 6) Bheda: the stage where differentiation of growth occurs on the basis of histopathology.

Classification of arbuda there three basic pathological pathway-(Trividha roga margas)

- 1) Bahya roga marga: Dhatus (tissues), twak (skin) etc.
- 2) Madhyama roga marga: snayu, kandara etc.
- 3) Abhyantara roga marga: maha srotas.

IN MORDEN VIEW: Cancer is a term used for disease in which abnormal cell divide without control and may invade other tissues. Cancer cell can spread to other part of the body through the blood and lymph system. The body is made up of many different type of cells such as skin cells, and blood cell. Many normal cells are continually dividing in our body to create new cells. Normally cell have an internal system that knows when the cell is getting old and should die to make room for a new cell.

When an error occurs in the making of a new cell, that cell can become a cancer cell. In addition to an error in development of the cell, cancer cells do not have the internal system that causes the cell to die after a certain time. This causes a buildup of the abnormal cells. When this occurs, it can crowd out the good, healthy cells, like with leukemia or other cancer that effect the blood. If cancer cells leave their original site and move to other part of the body, this is called metastasizing.

Cancer types can be grouped into categories, which described where the cancer originally started from. The main categories of cancer are.

Carcinoma: This is the most common kind of cancer and is generally known by the place in the body where the cancer begins, such as the lung, breast, or colon.

Sarcoma: cancer found in supporting tissue, such as bone, muscle, or fat.

Leukemia: Cancer that start in the blood or bone marrow an abnormal production of blood cells.

Lymphoma: Cancer that start in immune system cell within the lymphatic system.

Central nervous system cancers: Cancer that start in the brain or spinal cord.

CAUSES OF CANCER

As with other chronic disease, cancer has a multifactorial aetiology.

1. Enviromental factors

Environmental factors are generally held responsible for 80 to 90 percent of all human cancers. The major environmental factors identified so far include.

- a) Tobacco – tobacco in various forms of its usage like smoking, chewing is the major environmental cause of cancer of the lung, larynx, mouth, pharynx, oesophagus, bladder, pancreas and probably kidney. It has been estimated that, in the world as a whole, cigarette smoking is now responsible for more than one million premature deaths each year.
- b) Alchole – Excessive intake of alcoholic beverages is associated with oesophageal and liver cancer. Some recent studies have suggested that beer consumption may be associated with rectal cancer. It is estimated that alcohol contributed to about 3 per cent of all cancer death.
- c) Dietary factors – dietary factor are also related to cancer smoked fish is related to stomach cancer, dietary fibre to intestinal cancer, beef consumption to bowel cancer and a high fat diet to breast cancer. A variety of other dietary factors such as food additives and contaminants have fallen under suspicion as causative agents.
- d) Occupational exposures- These include exposure to benzene, arsenic, cadmium, chromium, vinylchloride, asbestos, polycyclic hydrocarbons, etc. Many other remain to be identified. The risk of occupational exposure are usually reported to account for 1 to 5 per cent of all human cancers.
- e) Viruses: An intensive search for a viral origin of human cancer revealed that hepatitis B and C virus is causally related to hepatocellular carcinoma. The relative risk of Kaposi's sarcoma occurring in patients with HIV infection is so high that it was the first manifestation of the AIDS epidemic to be recognized. The human leukaemia virus is associated with adult T-cell leukaemia / lymphoma in the united state and southern parts of japan.
- f) Parasites- parasitic infection may also increase the risk of cancer, as for example, schistosomiasis in middle east producing carcinoma of the bladder.
- g) Other – other environmental factors such as sunlight, radiation, air and water pollution, medications (e.g. oestrogen) and pesticides which are related to cancer.
- h) Customs, habits and life style- To the above causes must be added customs, habits and life styles of people which may be associated with an increased risk for certain cancers.

2) GENETIC FACTORS

Genetic influence have long been suspected. For examples, retinoblastoma occurs in children of the same parent. Mongols are more likely to develop cancer (leukaemia) than normal children. Genetic factors are less conspicuous and more difficult to identify. There is probably a complex interrelationship between hereditary susceptibility and environmental carcinogenic stimuli in the causation of a number of cancer.

PATHOGENESIS OF CANCER

Cancer has a complex pathophysiology. pathologist are physicians who are concerned primarily with the study of disease in all its aspects. This includes cause of disease, diagnosis, how the disease develops (pathogenesis), mechanism and natural course of the disease. they also deal with biochemical features, progression, or outcome of the disease.

Pathology of cancer and other complex disorder have undergone a sea change after development of technologies like immunohistochemistry, flow cytometry, And molecular biologic approaches to cancer diagnosis.

Cancer is a disorder of cell growth. The normal cells perform two important function viz., work and reproduction. work depend on the activity of the cytoplasm and reproduction depend on the activity of the nucleus. In contrasts cancer cell spend most of their energies on growth and little on function.

Neoplasm means a new formation of tissue. Certain chemical functions are lost in the transformation of normal cell to neoplastic cell. This corresponding with the structural change of cellular anaplasia and loss of differentiation.

The affected genes are divided into two broad categories. Oncogenes are genes that promote cell growth and reproduction. tumour suppressor gene are genes that inhibit cell division and survival. malignant transformation can occur through the formation of novel – expression of normal oncogenes, or by the under – expression or disabling of tumor suppressor genes. Typically, changes in multiple genes are required to transform a normal cell into a cancer cell.

METASTASIS

Metastasis is the spread of cancer to other location in the body. The dispersed tumors are called metastatic tumour, while the original is called the primary tumor. Almost all cancers can metastasize. Most cancer deaths are due to cancer that has metastasized.

Spread of tumours occur by six methods

- 1) By infiltration
- 2) By lymphatics
- 3) By blood vessels
- 4) Along natural passages
- 5) Through serous cavities
- 6) By inoculation

Common place for metastases to occur are the lung, liver, brain and the bones.

CLASSIFICATION OF TUMOURS

- 1) Benign tumours – the cells of these tumours undergo accumulation and transformation to reproduce abnormal number but, remain within the original

tissue. It is usually encapsulated. frequently they are multiple.

- a) Adenoma- a neoplasm of glandular epithelium i.e. it arises in connection with secondary gland.
- b) Fibroma- A fibrous, encapsulated, connective tissue tumour. Occurs in connection with fascia, aponeurosis, muscle and nerve sheaths. e.g.-keloid.
- c) Haemangioma – An angioma consisting of blood vessels and congenital in origin.
- d) Lipoma - it is a fatty tumour. It is associated with excessive beer drinking. They are frequently multiple.
- e) Neuroma – A tumour along the course of a nerve or at the end of a divided nerve, consisting of coiled masses of axis cylinders, schwann cell, and fibrous tissue.
- f) Papilloma – Epithelial tumour of skin or mucous membrane consisting of hypertrophied papillae covered by a layer of epithelium e.g. warts, condylomas, polypi.

2) Malignant tumours

- a) Carcinoma – The tumour which arises from tissues of ectodermal and endodermal origin, is the commonest form of malignant new growth. It is of three types: Glandular, squamous cell or basal cell.
- b) Endothelioma- The endothelial linings of blood vessels, lymphatic space and serous membrane occasionally give rise to neoplasms.
- c) Melanoma- They usually arise in the skin, the pigment layers of the eye, or the lower colon.
- d) Sarcoma – A tumour of nonepithelial, modified, embryonic connective tissue. It may affect the bones, bladder, kidney, liver, lungs, parotids and spleen.

CONCLUSION

It should be recognized that cancer process is still unmanageable due to the lack of systemic representation about the true pathogenesis of cancer, but unable scientific research continues to withdraw beyond the scope of understanding of the nature of cancer, depending the gap between science and clinical practice. The existent molecular – genetic oriented scientific approach to study of cancer problem leads away clinicians 100, 000 times further away from the understanding of true pathogenesis of cancer in human. We hope that this view of the pathogenesis of cancer will be allowed to create more adequate models of research and management of cancer process and to develop pathogenetically based approaches to cancer therapy.

REFERENCES

1. Nooyi SC, Murthy NS, Shivananjaiah S, Pruthvish S, Mathew A. Trends in rectal cancer incidence – Indian scenario. Asian Pacific J Cancer Prev, 2011; 12: 2001-2006.
2. Sumantran VN, Tillu G. Cancer, Inflammation, and Insights from Ayurveda. Evidence-Based Comp & Altern Med, 2012; Article ID 306346.

3. Kumaraswamy BV. Ayurvedic identification and conceptual analysis of cancer. *Ancient Sci Life*, 1994; XIII &: 218–231.
4. Garodia P, Ichikawa H, Malani N, Sethi G, Aggarwal BB. From ancient medicine to modern medicine: Ayurvedic k.park preventive and social medicine sixteenth sediton M/s banarsidas bhanot publishers 1167, prem nagar, Jabalpur india.
5. Dr. j. l. n. sastry m.d.(ayu) Introduction to oncology (cancer) in ayurveda.chaukhambha orientalia a house of oriental and antiquarian books Varanasi.