



UNDERSTANDING SAMANYA SAMPRAPTI [ETIOPATHOGENESIS] OF CANCER IN AYURVEDA -a conceptual study.

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ABSTRACT

Background: Cancer is a group of diseases involving abnormal cell growth with a potential to invade or spread to other parts of body¹. Anually there are about 14 million new cancer cases diagnosed and 8.2 million cancer related deaths worldwide². Even though no direct references related to cancer is said in ayurvedic texts, it has contributed abundant literature similar to cancer

concept in modern science. Presentations and reports of a cancer patient gives insight of cancer in ayurveda. Hence in this article an attempt is made to understand the pathogenesis of cancer as per dispersed literature in ayurvedic texts.

Objectives: The objective is to understand pathogenesis of cancer based on current clinical observations and clinical outcome by going through reverse

literature analysis. **Method:** The pathogenesis of cancer is considered under six headings. Hallmarks of cancer like self sufficiency of cancer growth signals is considered as nija amaratwam, Insensitivity to antigrowth signals is viakarabhava abhava. Evasion of apoptosis is deergha jeevana of cancer cells. Excess vatapradhana Tridosha dusti leads to dissemination of metastasis.

Compromised immunity is ojo kshaya. **Discussion and conclusion:** Cancer is not a single entity to be understood. Conglomeration of various theories like beejabhagaavayava dusti,dhatwagni dusti,khavaigunya,mala sanga,upadrava,asadhya arista lakshanas of various vyadhis,sroto dusti,karmaja vyadhis should be used as tools in understanding pathology of cancer.Clinical experience and logical experimentation based reverse literature research is key to unlock and understand new oncopathology in ayurveda. The details will be presented in the full text.

KEY WORDS-Beejabhagaavayava dusti,metastasis,etiopathogenesis

INTRODUCTION-

Cancer is a disease of uncontrolled proliferation by transformed cells subjected to evolution by natural selection. In Ayurveda, "diagnosis" refers to the nature or phenomenon of an illness, rather than its name. This phenomena is characterized in terms of each patient's Samprapti (pathogenesis), which includes Dosha, Dushya, and Adhithana components³. Despite the preceding dictum, there are a number of diseases stated in Ayurveda by name that can be clinically connected with some diseases known in modern medicine, including cancer. Globally, cancer is one of the primary causes of morbidity and mortality, with approximately 14 million new cases and 8 million cancer-related deaths each year. Cancer is characterized by abnormal cell proliferation that has the ability to attack or spread to other sections of the body. Cancer development is considered as a multistep process including mutation and selection for cells with gradually greater proliferative, survival, invasion, and metastatic potential. Tumor initiation, the initial phase in the process, is thought to be the outcome of a genetic mutation that causes abnormal growth of a single cell. The tumor is caused by the growth of a population of clones by cell proliferation, and the progression of a tumor is further aided by mutations inside the cells.

MATERIALS AND METHODS-

The objective is to understand pathogenesis of cancer based on current clinical observations and clinical outcome by going through reverse literature analysis.The pathogenesis of cancer is considered under six headings. Hallmarks of cancer like self sufficiency of cancer growth signals is considered as nija amaratwam, Insensitivity to antigrowth signals is viakarabhava abhava.Evasion of apoptosis is deergha jeevana of cancer cells. Excess vatapradhana Tridosha dusti leads to dissemination of metastasis.Compromised immunity is ojo kshaya.

ETIOLOGY OF CANCER IN AYURVEDA BASED ON MODERN THEORY-

Heredity and mutation theory (Beejbhaga avayava dushti):- Beejabhaga dushti and hereditary causes of cancer are related in numerous ways. Genetic mutations, like inherent genetic mutations that affect the beejabhaga can be inherited from parent, increasing the risk of developing cancer. Epigenetic changes which affect the gene expression and increase the risk of cancer.

Hormonal imbalances which are caused by beejabhaga avayava dushti⁴ can increase the risk of developing hormonal related cancers such as breast cancer, ovarian and prostate cancers. Environmental toxins such as endocrine disrupting chemicals, affect the beejabhaga and leads to cancer development. Genetic predisposition can affect hormone regulation and increase the risk of cancer.

Chemical/toxin theory(visha):- Cellular damage brought on by visha exposure can eventually result in genetic mutation⁵. Ayurveda considers dhatu kshaya, dhatuvridhi, agnisada and ama to be the causes of cellular damage by visha, nidanas like Aturadesha dushti (janapadodwmsa), Mithyahara sevana or viruddh ahara sevana , chesta viparyaya , Bhuta (microorganisma) are considered as visha which leads to cancer manifestation.

Radiation theory (Rutuviparyaya):- Ionizing radiation such as x-ray, gamma rays and alpha particles has enough energy to remove the tightly bound electrons from atoms, resulting in the formation of ions. When this ionizing radiation interacts with the DNA molecule it can cause damage to the genetic material. This damage can lead to mutations, chromosomal aberrations, and epigenetic changes. In ayurveda rutuviparyaya leads to disruption natural rhythms, accumulation of ama(can be correlate to ions), praktiti vighata⁶,

hormonal fluctuation, suppress the immune system and increase the oxidative stress which directly contribute in genetic mutation.

INFECTION THEORY(KRIMI):- Infection contribute to cancer by chronic inflammation, oxidative stress, genetic mutation, epigenetic changes and immunosuppression like Humana papillomavirus(HPV), Hepatitis B and C, Helicobacter pylori, Human immunodeficiency virus(HIV). In ayurveda nidanas like bhahya and abhyantar krimi can leads to cancer.

AUTOIMMUNE DISEASE THEORY(VATADI DOSHA DUSHTI):- Autoimmune responses can disrupt the balance of cytokines, which regulates the immune response. vata dosha regulates the cellular functions including cell division, hence vikrita vata can contribute to uncontrolled cell growth and cancer.

Vikruta vata can manifest the cancer such as leukemia, lymphoma, and multiple myeloma. Pitta responsible for metabolism and digestion, here pitta vikriti leads to amotpatti which further can leads to chronic inflammation

which can increase the risk of cancer. Vikrita often associated with the cancer such as skin cancer, breast cancer and pancreatic cancer. Kapha dosha is responsible for regulating tissue growth and development. Vikrita kapha contribute to excessive tissue growth and it is

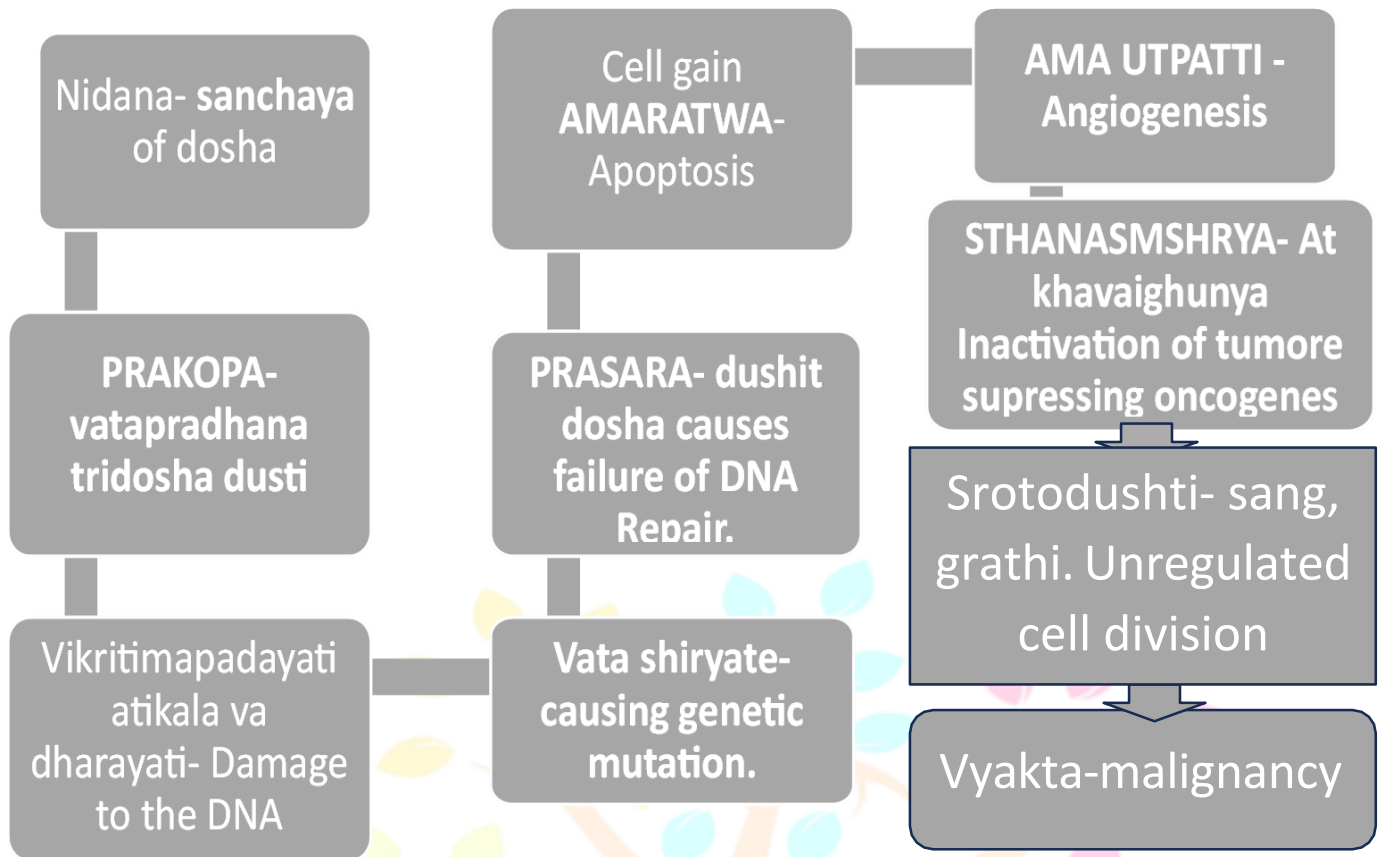
associated with the insulin resistance and obesity. Kapha vikriti often associated with cancer such as lung cancer, colon cancer and prostate cancer.

HORMONAL THEORY (AGNI DUSHTI):- Hormonal imbalance leads to cancer by affecting cell division and increase the genetic errors. Agni dushti leads to accumulation of ama which further causes imbalanced metabolism can lead to an overproduction of reactive oxygen species which can damage cellular DNA. Agni dushti disrupt the cellular homeostasis can lead to uncontrolled cell growth and cancer development.

CHRONIC INFLAMMATION THEORY: Chronic inflammation can promote angiogenesis(the formation of new blood vessels that supply nutrients to growing tumors). And chronic inflammation can maintain cancer stem cells, which increase the risk of recurrence and metastasis In ayurveda vyadhi like jwara, shotha, vatarakta and amavata can lead to chronic inflammation when not treated

FACTORES RESPONSIBLE FOR THE FORMING SAMPRAPTI OF CANCER IN AYURVEDA:-Amaratwa or dheergajeevana(apoptosis),Vata vishirya guna , vikritibhava abhava and ojkshay contribute in samprapti of cancer.





SCOPE OF FOLLOWING AYURVEDIC PRINCIPLES IN RELATION TO CANCER

PEELU PAKA AND PITARA PAKA:- Both peelu and pitar paka theories describe the process of cancer cell formation and growth. The peelu paka explains the process of cellular degeneration and abnormal cell growth, while pitar paka theory describes the process of cancer cell nourishment and tumor formation.

SROTODUSHTI: Srotodushti, impair the dhatuposhana (delivery of nutrients and oxygen to the cell) leading to cellular starvation and mutation.

KHAVAIGUNYA: It leads to cellular mutation, loss of cellular differentiation, impaired cellular communication and accumulation of cellular damage which can increase the risk of cancer.

DHATWAGNI VIKARA: Impaired metabolism leads to uttarottara (Anuloma gati) dhatwagni dushti leads to formation of cancer samprapti according to a particular dhatwagni, for example rasa dhatwagni vikar leads to cellular starvation, raktadhatwagni vikar leads to cellular mutation, mansa dhatwagni vikar leads to abnormal cell growth and so on based on the causes and condition.

KARMAJA VYADHI: According to ayurveda, an individual's past actions, including their thoughts, words, and deeds can influence their current and future health. Examples, like adharmaja karma, asatymaja karma, sanskaraja karma.

AMA VISHA: Amavisha due to agnidushti, aturadesha dushti and due to manasika factors like shoka, bhaya, krodha can contribute to cancer manifestation.

SCOPE OF CANCER IN AYURVEDA EXPLANATION OF FOLLOWING DISEASES

Asadhya vyadhis are characterized by their complexity and multifactorial nature, making them difficult to treat. Cancer is a prime example of such diseases. Asadhya vhyadhies pften caused by tridosha dushti. For Example asadhya pandu, asadhy vrana asadhya gulma, raktarbhuda, mamsarbhuda, dwirarbhuda, asadhya udara, kumba kamal, asadhya raktapitta,sannipataja atisara,tridoshaja grahanis, rajayakshma, sannipataja jwara, shukragata jwara.

DISCUSSION

In contrast to intervention for the cancer interruption, ayurveda improves metabolic abnormalities, restores normal tissue functioning and improves subject quality of life. Ayurveda provides a distinct perspective on the etiopathology of cancer. according to ayurveda, cancer is a complex disease that arises from bheeja dushti, beeja bhaga dushti or due to beeja bhaga avayava dushti, tridosha dushti, saptadushya, viaha, rutuviparyaya, krimi and other factors. Deerga jeevana or amaratwa of cancer cell vishirya guna of vata, prakriti bhava abhava, nad ojo kshaya components, together with the shatkriya kala, are the main factors to comprehend the cancer pathophysiology in ayurveda. The prasara stage of cancer manifestation, which can only be identified with the aid of clinical participation, is broadly influenced by vata. A straightforward course of treatment, however, can stop the disease from development of doshas are in the first stage. Since ayurveda treatments seek to restore immunity, revitalize bodily systems, and eliminate vitiated doshas, they also employ indirect methods to cure cancer. this is comparable to allopathy clinical techniques that include cancer vaccines and immunotherapy. Restoring the bodies inherent defence and self-healing abilities is major goal of ayurvedic treatment plan. Ayurvedic treatment encourage long-term illness recovery by strengthening and renewing various body systems. It goes without mentioning that a holistic approach to diagnosis translates into a holistic approach to treatment. Furthermore, while manifestation and complication are the only phases recognized by allopathy medical science to diagnose or treat cancer, ayurvedas multi stage approach provides a wealth of information about the pathogenesis, diagnosis, and treatment of cancer in its early stages under the shatkriya kala.

Conclusion

Clinical experience and logical experimentation based reverse literature is the key to unlock and understand new oncopathology in ayurveda. Carcinoma as rightly stated above is not merely a single entity to be understood.

Conglomeration of various basic principles like agni, ama, sroto dushti ect are applied to unveil the pathogenesis of cancer.

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