



A REVIEW ARTICLE ON KARKATARBUDA W.S.R.TO CANCER

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ABSTARCT- In present era changed food habit, pollution, industrialization, sedentary life style and stress, are the factors liable for development of numerous fatal diseases. Cancer is one among the foremost awful amongst them. Many endeavours are taken but success remains far, that's why terror of disease is greater than the disease. Cancer is not new term in Ayurveda. Our great trio (Charak Samhita, Sushrut Samhita, Astang Samhita) had already described about the disease. Acharya Sushrut has mentioned the *granthi* and *arbuda* which has resemblances with the observations and clinical entities of cancer. The descriptions regarding this disease are available in a scattered form, there is a requirement to compile this information collectively in systemic manner which will help us in understanding the etiology, pathology and therefore the management of the disease during a better way. It is evident that early Ayurvedic physicians had an honest understanding of etiology, clinical manifestations, symptoms, classifications, malignant and benign nature of tumors, metastasis, recurrence, diagnosis, prognosis and treatment. The present paper expounds those diseases with possible interpretation in modern system of medicine on the other hand possible Ayurvedic which is described in classical text.

Keywords – Ayurveda, granthi, arbuda, cancer and ayurvedic management.

I. INTRODUCTION

The identification and differentiation of malignant diseases have been enlightened much later than the description available in ancient Indian literature. The earliest and foremost record could be cited in Atharva Veda (2200 BC). During this period the disease was probably described under the heading of 'Apachi' or 'Apachit' which refer to the present knowledge of various texts of Indian medicines as multiple lymph nodes swelling. In the later period similar description has been depicted by Acharya Sushruta (400 BC). According to them this Apachi or multiple lymph node swelling has been cited at different places, viz. neck, axilla and groin. [Su.Ni.11/10] It suggests that ancient Indian clinicians were not unaware about the malignant disease, rather they presented their views regarding cancer as swelling on the body surface superficially or situated in deeper structure in relation to different systems and organs or sometimes presented as chronic non-healing ulcers. Superficial Swellings have been categorized under the heading of *Arbuda* whereas non-healing ulcers as *Asadhya Vrana*. Similarly malignancies of deeper structures have been described as *Gulma*. The various diseases described in Ayurveda may be considered as malignant. Ayurveda, a standard Indian medicine of plant drugs has been successful from very early times in using these natural drugs and preventing or suppressing various tumours using various lines of treatment. The broad aim of this text is to supply a general outline on descriptions of cancers and their management from an ayurvedic practitioners' perspective underlying its scientific principles involved in treating these conditions with the utilization of natural products.

II. MATERIAL AND METHOD

The disease *karkatarbuda* reviewed from *Charak Samhita*, *Susruta Samhita*, *Astang Hrudhya*, *Bhavprakash* and *Madhavanidan*.

All information was critically analyzed, discussed, and concluded.

III. OBSERVATION

Charaka 1 and *Sushruta 2* *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 coordinate 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 isn't too harmful because the body remains trying to coordinate among these systems. Malignant tumours (*Tridosaja*) are very harmful because all the three

major bodily systems lose mutual coordination and thus cannot prevent tissue damage, leading to a deadly morbid condition².

Samprapti of arbuda acco. To ayurvedic text

According to Sushruta, the elemental explanation for major neoplasm is that the pathogens that affect all parts of the body. He called the sixth layer of the skin as 'Rohini,' (epithelium) and pathogenic injuries to the present layer in muscular tissues and blood vessels caused by lifestyle errors, unhealthy foods, poor hygiene and bad habits leads to the derangement of doshas, which results in the manifestation of tumours. Excess of water or fat within the corpus of the tumour and the stability and rigid confinement of the doshas during a particular place were described as reasons for the non-infectious and non-suppurative nature of those abnormal growths. Cancer in everyone differs consistent with the person's exposure to pathogens and genetic constitutions which make each of them to react differently to an equivalent diet. The factors responsible for the vitiation of doshas are discussed here⁷.

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 causes¹.

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 tissues¹.

F. Medo aggravating factors: excessive intake of oily foods, sweets, alcohol and lazy attitude^{1, 2}.

According to Ayurvedic principles, the disease can't be named on its own because it differs between persons in terms of illness, clinical presentation and also the treatment required⁴. Thus, pathogenesis in Ayurveda is explained on the idea of Tridoshas. Agni or Pitta, which is present in each and each cell, is liable for digestion and metabolism in physical body. The decrease in agni is inversely proportional to the related tissue and thus in arbuda, the decreased state of dhatwagni (deranged metabolism) will end in excessive tissue growth. Vata are often 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 each other leading to proliferation. However, the abnormal cancerous growth at a selected organ (Ekadesavridhi) is managed by compensation from other parts of the body (Anyasthaniyakshaya), e.g. body weight loss (cachexia)⁷. Sushruta has proposed six stages within the pathogenesis of all diseases but his concept suits more to the pathology of the tumour than pathogenesis itself.

1. Sanchaya: early stages of localized neoplastic changes.

2. Prakopa: transformation of primary growths into metastatic tumours.

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 idea of histopathology

Management

The treatment of cancer was existed ever since the Vedic period and has attracted attention of then physicians of Ayurveda. As mentioned in Arthava Veda (2000BC) in Kaushika Sutra there is vivid description of treatment of the above disease. In Samhita period (300BC-400BC) especially Agnivesha Samhita the line of treatment postulated was Agni Karma (heat therapy) Shastra Karma (surgery) and application of Kshara (caustic alkali). Sushruta Samhita has given clear cut details of treatment of Arbuda specifically and precisely. The treatment that has been advised in Ashtanga Hridaya is similar to Sushruta's treatment. The chemical treatment with use of Rasa Aushadhi in Arbuda which are dated back to 800 to 1400 AD and also in Madanapala Nighantu, which has given several treatment for Arbuda. Based on the predominance of the vitiated dosha involved, tumors are classified in to the six major categories, i.e. vataja, pittaja, kaphaja, raktaja, mamsaja and medoja and treatment modalities are recommended for every sort of tumor categorically, in Ayurveda. In general practice, the subsequent principles are adopted for the management of arbuda.

- (i) Poultice and sudation
- (ii) Bloodletting (rakta mokshan)
- (iii) Cauterization and use of Caustics
- (iv) Internal medication and
- (v) Surgery

(i) Poultice and Sudation

Kushmanda (*Benincasa cerifera*), ervaruka (*Cucumis utilissimus*), narikela (*Cocos nucifera*), priyala (*Buchanania lanzan spreng*) and eranda (*Ricinus communis*) seeds are boiled with milk, water and ghee and mixed with oil, is applied in vataja tumor⁸. Moringa pterygosperma (shigru) and the juice of meat (mamsa rasa) are boiled and steam is to be passed through a tube over the tumor⁹. In paittika tumor, mild fomentation and poultices are applied along side purgation. After rubbing the spare the leaves of udumbara (*Ficus glomerata* Linn.) or other leaves having rough surface, the paste of finely powdered sarjarasa (*Viteria indica*), priyangu (*Callicarpa macrophylla*), rakta chandana (*Pterocarpus santalinus*), arjuna (*Terminalia arjuna*) and yashti Madhu (*Glycyrrhiza glabra*) mixed with honey, is sprinkled over the tumor¹¹. Local application of varied medicated pastes are used after purification (samsodhan chikitsa), especially after emesis. The paste of the drugs used for emesis and purgation can also be applied to arrest the kaphaja tumor. Purification or detoxification therapies in cancer patients as pretherapy to conventional line of treatment has been studied^{12, 13}. The study showed that these procedures increased body weight, improved serum immunoglobulins, increased haemoglobin levels and normalized liver functions. It was found helpful in minimizing the adverse effects of chemotherapeutic agents. Purification therapies are advocated for the management of tumors supported the involvement of dosha. Oleation (snehana) is advised for vata dosh, purgation (virechana) is for pitta dosha and emesis (vamana) is advised for kapha dosha. Caustics (kshara) during a cow's urine also are prescribed as an area application for kaphaja tumor after the bloodletting procedure. Another medicated poultice made from boiled meet has also described as effective¹⁰.

(ii) Bloodletting (rakta mokshan)

Bloodletting again and again is indicated after purification within the management of vataja, pittaja, kaphaja and Medaja tumors. The use of cow's horn, non poisons leaches and gourd (*Lagenaria vulgaris*) for bloodletting has been advised in vataja, pittaja and kaphaja tumors respectively. In medaja tumors bloodletting has been advised after making an incision over the tumor. Bloodletting improves the collateral circulation of affected parts and cleanses the microcirculatory channels directly by removing toxic materials from the body there by helps to scale back the inflammation and to arrest the further growth of the tumor¹⁴.

(iii) Cauterization and use of Caustics (Agnikarma and Ksharkarma) Thermal cauterization (agnikarma) and application of caustics (Kshar Karma) is used alone or in combination with surgery for the management of kaphaja tumors, medaja tumors and tumors that do not respond to medical management. The recurrence of tumor after surgical excision was recognized by Susruta. His idea was that the even the last particle of dosha of a tumor left over would lead to a fresh growth and bring death just like the last spark of an unextinguished fire. A radical excision was advised to avoid recurrence. To prevent the recurrence of the disease therapeutic cautery and therefore the application of caustics are advised especially after surgery to realize the entire cure.

(iv) Internal Medicaments Several studies are conducted in past 20 years to guage the effect of Ayurvedic drugs within the management of tumor and therefore the results of all the studies found significant. Study revealed that Ayurvedic drugs not only prevent the progress of the disease but induce apoptosis (cell death) too. *Andrographis paniculata* (kalmegh) is employed as wonder drug within the traditional Ayurvedic system in India for multiple clinical applications. Andrographolide, a serious constituent from the leaves of the andrographis, inhibited the proliferation of various tumor cell lines in various in-vitro studies. The compound exhibited direct anticancer activity on cancer cells by cell cycle arrest at G0/G1 phase through induction of cell cycle inhibitory portion P 27 and decreased expression of cyclin dependent Kinase 4 (CDK4) (Rajgopal et al., 2003). *Aegle marmelos* (bilwa) found to possess strong anti cancer activity against thyroid cancer (Lampronti et al., 2003). *Centella asiatica* (mandukparni) protects from cancer by enhancing immune functions of the body (Punturee et al., 2007). The extract of whole plant has shown strong anti cancer activity (Yu et al., 2006). Curcumin sulphate, a serious constituent

from turmeric (haridra) induces apoptosis in various neoplastic cell types including skin, colon, stomach, duodenum and ovary (Lee et al., 2002). burn plant (ghrit Kumari) is found to inhibit metastasis of the tumor (Lissone et al., 1998). Lectin from Aloe, when injected directly into tumors activated the immune system to attack the cancer (Akev et al., 2007). Withaferin A and withanolide D found in *Withania somnifera* (ashwagandha) was reported to inhibit growth of cancer (Mathur et al., 2006). Studies have revealed that *Withania somnifera* enhances the therapeutic effect of radiotherapy. *Ocimum sanctum* (tulsi) considered sacred by Hindus, is reported to possess anti tumor activity. Beneficial effects of the extract of this plant have also been reported in radio therapy of human cancer (Ganasoundari et al., 1998). *Plumbago zeylanica* (chitraka) modulates cellular proliferation, carcinogenesis and radio resistance, all known to be regulated by activation of the transcription factor NF-kB, suggesting plumbagin might affect the NF-kB activation pathway (Santosh et al., 2006). The fruits of the *Semecarpus anacardium* (bhallataka) are reported to possess good anti-inflammatory agent and effective in various sorts of cancer (Chitinis et al., 1980). Although the exact mechanisms are still under investigation, research has demonstrated *Glycyrrhiza glabra* (yashtimadhu) inhibit abnormal cell proliferation, as well as tumor formation and growth in the breast (Shiota et al., 1999). Administration of polysaccharide fraction from *Tinospora cordifolia* (guduchi) was found to be very effective in reducing the metastatic potential of B16F-10 melanoma cells (Leyon and Kuttan, 2004). *Tinospora cordifolia* is additionally reported to possess immunostimulatory properties (Mathew and Kuttan, 1999). Tannins and triterpenes found in *Terminalia arjuna* (arjuna) are reported to point out antigenotoxic or antimutagenic effects (Scassellati-Sforzolini et al., 1999). The extract of *Taxus brevifolia* contains paclitaxel, commonly known by the name of taxol, a potent anti cancer drug used to treat ovarian, breast, lung cancer and Kaposi's sarcoma (Luck and Roche, 2002 and Ghamande et al., 2003). Apart from loknath rasa (brihat), rudra rasa (arbudhara), tamra Bhasm, manashila are the common Ayurvedic formulations prescribed for the treatment of arbuda in Ayurveda.

(v) Surgery- If a tumor doesn't answer a correct medical management it should be treated surgically. The main surgical treatments of tumors are excision and excision with scraping (lekhana). After complete removal of the mass the wound is cauterized to realize an entire cure. Cleansing of the wound should be undertaken after excision of the tumor using the decoction of aparajita (*Clitorea teratea*), jati (*Jasminum grandiflorum*) and karveera (*Neium odorum*). The oil prepared from bharangi (*clerodendrum serratum*), vidanga (*Embelia ribes*) and therefore the paste of triphala (*Terminalia chebula*, *Terminalia bellerica*, *Embllica officinalis*) may enhance the healing of wounds¹⁵. Suppurated wounds may be treated according to the measures mentioned for the management of infected ulcers (dushta vrana).

IV. CONCLUSION

From above description it's evident that early Ayurvedic physician had an honest understanding of etiology, clinical manifestations, symptoms, classification, malignant and benign nature of tumors, metastasis, recurrence, diagnosis, prognosis and treatment. It is remarkable that the essential information is fairly according to the present knowledge in these areas given the technology available 800 years ago. The physicians also recognized the facts that malignant tumors must be completely and extensively excised in order that not a trace of tumor is left within the body for even a trace can grow back to a tumor. Various treatment methods, both local and systemic, and various herbal formulations found useful in many tumors are presented. The review has shown that Ayurvedic therapies are useful as an adjuvant to standard therapy.

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