Malignant Diseases in Ayurveda – A Review

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ABSTRACT

Introduction: Malignant diseases or cancer are rapidly spreading among the masses all over the world making it a cause of concern and creating the need of exploring it from varied perspectives aiming at discovering newer dimensions of its treatment. It is not a novel entity, the history being prevalent since vedic period.

Methods: It is not mentioned as such in ancient Ayurveda texts, instead the matter is scattered here and there due to vastness of the disease and its ability to affect any part of the body. Hence, all the texts including brihattrayee and laghytrayi were critically reviewed to find each and every minute detail and elaborate the disease in view of types, etiology, pathogenesis, prodromal symptoms, symptoms, complications, and treatment.

Results: It was observed that the disease was discussed under different headings in different chapters, the details reported in the article.

Analysis: Ayurveda principles focus on specific pathogenesis of disease rather than mere nomenclature and has much to offer in cancer management.

Discussion and Conclusion: The data will be beneficial to provide conceptual base of the disease, further enlightening the way to devise newer techniques and newer dravya to deal with the dreadfully.

1. INTRODUCTION

Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020, or nearly one in six deaths.[1] Tumour is “a mass of tissue formed as a result of abnormal, excessive, uncoordinated, autonomous, and purposeless proliferation of cells”[2] which can be both cancerous (malignant tumors/neoplasms) or not cancerous (benign), most of the tumors being benign.

Cancer referred as “Asadhya” in Atharvaveda[3] where Sun and Moon rays are employed for its treatment.[4] Garuda Purana advised Svedana chikitsa (fomentation) with Snuhi and Gandirika.[5]

Malignant disorders are presented in Ayurveda in a different aspects. Although the term “cancer” may be new to Ayurveda, clinical similarities similar to cancer have been discussed under the title of Arbuda.[6] Apart from that, different concepts such as Asadhya vrana,[7] Sannipatika asadhya conditions, Dushi visha (which may be related to carcinogens), Granthi, Apachi, Vidradhi, Shotha may be correlated. Arbuda is considered as superficial swelling, Gulma as swelling situated in deeper structures and Asadhivravrina as chronic non healing ulcers. Some other diseases which are asadhya and have similar presentation are Alasa[8] (~Adenocystic and Mucoid epidermoid tumors of salivary gland), Mamsaja oshtha[9] (~Ackerman’s tumour), Mamsa Kachhapa[10] (~tumour of hard palate), Galaugha (~malignant growth at oropharynx), Lingarsha (~Papillary carcinoma), Tridoshaja gulma (~Intra-abdominal malignant growth), Asadhya galaganda (~Carcinoma thyroid gland), Asadhya Udara roga (~malignant ascitis), Mamsa-utsanna- mahayoni,[11] Valaya, Mamstaan, Adhimamsa, Kshayaj, and kshataj kasa. There are also some diseases whose malignancy cannot be ruled out, namely, Tridoshaja Nadivrana[12] (~Carcinoma Anus), Asadhya pradara,[13] (~Carcinoma Uterus) Asadhya Kamala[14] (~Carcinoma biliary tract, head of Pancreas, Liver), Charmakila, Ashtheela, Mutragranthi, Yonikarnini, Granthivisarpa, Balmika, Kshataj visarpa, Yakritodara, Sannipatodar, apaki stana vidradhi, etc. Benign neoplasms are eka or dvidosha whereas malignant ones are Tridoshaja.
2. ARBUDA (NEOPLASIA) (~MAJOR NEOPLASM)

2.1. Etymological Derivation

According to yuyupatti, the term Arbuda is derived from root “Arb” suffixed with “Vich” (lingadivarga) giving rise to root “Abba” which is further suffixed by “Udach” (Uda+Ina+Ng) to give rise to word Arbuda.[15] According to nirdikti, word Arbuda is composed of root word “Arbb” (to kill, hurt or go towards) and suffixed by verb “Udetti” (to elevate or rise).[16]

2.2. Definition

Sushruta defined Arbuda as “Doshas having vitiating in any part of the body and afflicting body tissues esp. Mamsa, produce a swelling formed by unnecessary and uncontrolled abnormal proliferation of tissue which is circular, fixed into deeper structure, slightly painful or absence of pain except in final stage, big in size, broad based, slowly growing and does not suppurate”,[17] which seems to be robustly associated with tumour of present time science. Charaka suggested it to be a complication of Vatarakta without giving any specific definition.[18] Both Vagbhata stated vitiation of mamsa or mamsa with medas as factors responsible, clinical features identical to Granthi except Raktabudha, relatively bigger size than Granthi.[19,20] The uniqueness of Madhav, Bhavaprakash, and Sharangdhar’s definition was the connivance of both Mamsa and Rakta.[21-23] Ashtang Hridaya termed a large granthi as arbuda.[24] Thereby, Arbuda appears to be more closer to benign neoplasia and also provides solid foundation for malignant growths.

2.3. Types of Arbuda

The same disease is found in scattered manner associated to different Dosha, Dhatu, prognosis, site or organ, and chronicity.

2.3.1. According to predominance of Dosha and Dushya

- Charaka quoted Arbuda and Granthi to be similar on basis of site, aetiology, clinical features and involvement of dosha and dushya, hence implied same six types as that of granthi resembling the classification of Sushruta.
- Bhela indicated five types Vataja, Pittaja, Kaphaja, Mamsaja, and Medoja;
- Harita told four types Vataja, Pittaja, Kaphaja, and Raktaja;
- Tridoshajara arbuda is also mentioned in reference to Nasakarna-Shiro roga.[31]
- Madhav introduced dvidoshaj variety which is sadhya.

2.3.2. On the basis of dhatu

- Medoja-Mamsaja-Raktarbuda implying involvement of fatty, muscular, and blood tissue.
- Bhavaprakash mentioned Asthi arbuda which is incurable while another quotation reveals involvement of Asthi (bone) to produce swelling like Arbuda but termed as Adhiyasti and not Asthikshaya. Asthikshaya localized to a particular area having resemblance to pathological fracture or osteoclastic changes may also be considered as Asthikarbuda.

2.3.3. On the basis of Sadhya Asadhyata

- Vataja, Pittaja, Kaphaja, and Medoja Arbuda are Sadhya (curable) whereas Raktaja and Mamsarbuda are Asadhya (incurable).
- Among Shukadosha (diseases of linga), Shonitarbuda is curable while Mamsarbuda is incurable.
- Even the curable ones should be discarded from treatment, in case of discharge, situation over vital parts or over the Srotas and those which become fixed.
- Shankararbuda described under Kshudra rogas and Vartmarbuda are curable varieties.
- Vaghbha stated Oshtharbuda (which is similar to Raktabudha) and Galarbuda (a Kanthagata roga) as incurable while Karnarbuda, Nasarbuda, Jalarbuda, and Kapalarbuda (a Shiroroga or Kapala vyaddhi) to be curable.
- Marmajarbuda and Srotarbuda are incurable.

2.3.4. According to chronicity of disease

While discussing treatment of disease, Vagbhata classified it as Navya and Jeerna arbuda.[34]

2.3.5. On the basis of site

- Vartmarbuda (eye lid), Karnarbuda (ear), Nasarbuda (Nose), Talarbuda (Palate), Jalarbuda and Oshtharbuda (Lip), Galarbuda (Throat), Mukarbuda (Buccal mucosa), Shiro or Kapalarbuda (Head and brain), Shankararbuda (skin/body)[35] and Shukadosha including Mamsarbuda and Shonitarbuda (genital organs).
- Ashtanga hridaya while describing Sarvasara mukharoga, speaks of another variety Kapha or Kapolrbuda which is incurable.
- Marmajarbuda and Srotarbuda are accepted by most of Acharya according to their site of origin except Vaghbha. Much details are not found.

2.4. Samprapti (Pathogenesis)

Ayurveda has its own unique concepts, where instead of nomenclature, the nature or phenomenon of disease which is specific for every patient and on which the treatment depends is given more significance.[36] Samprapti of any anukta vyadhi, for every individual patient can be generated according to guna and karma of tridosha and agni or Pitta existing in each and every cell accountable for digestion and metabolism of body. Vitiared pitta (due to repeated exposure to environmental toxins/Dushivisha) at cellular levels lead to micro-inflammatory alterations disturbing the cellular components of Agni, that is, pilu agni and pitah agni causing poorly formed tissue. Agni is inversely proportional to associated tissue; hence diminished state of dhatwagni (deranged metabolism) causing excessive tissue growth (Table 1).

Vata, Pitta and Kapha are accountable for metastasis, abnormal growth of cells and enhanced metabolic activity of cancerous growth respectively. Abnormal cellular growth may also be accredited to viation Vata as it is the main cause of Koshavibhajan in Ayurveda embryology. In Ayurveda, most diseases including Arbuda occurs due to malfunctioning of agni causing formation of Ana (metabolic bye products and free radicals) which is directly related to vyadhikshamatsa of patient. Hence, cancer is a tridosha disorder with deranged agni and compromised immunity.

The process of carcinogenesis starts about 10–15 years earlier (Johnson, 1979) following the concept of shatkriyakal. Various types of carcinogens start stimulating cell at gene level (Sancharayavastha), interact with cell to initiate vitiation of particular doshas (Prakopavastha) leading to mutagenic changes and release of its vitiated chemicals and enzymatic factors in the body (Prasaraavastha). The action of promoting agents on such dormant cells , altering them
at particular site leading to development of cancer (due to Sthan sanshraya and srotorodh). Involvement of specific sites owes to particular cell receptors as per modern science and kha vaigunya as per Ayurveda. The next stage is vyakti showcasing roopa (symptoms) which is then followed by bheda involving formation of dwirarbuda and adhyararbuda (Distant and Regional metastasis) (Table 2).

In depth analysis of Ayurveda literature reveals that Shopha and Granthi are two initial stages to occur before development of Arbuda where former is a distant precursor and latter immediate precursor bearing some similarities to Arbuda.\[57\] Paka formation suggests it to be grouped under Vidradhi and Vrana. Sushrut and Bhaja believe that Arbuda may not get suppurated whereas anjananidana believes abscess formation and incurability in its last stages. Charaka quoted Granthi and Arbuda to be linked with surgery to some extent and had detailed them in Shotha chikitsa adhyaya due to similarity of basic clinical feature, that is, swelling (Table 1).\[38\]

2.5. Role of Vata in Pathogenesis of Arbuda

While elucidating the pathogenesis of Gulma, Sushruta held disordered Vata to play a significant role for beginning of any growth; saying that like bubbles are formed in water, new growths are frequently reported in acute myeloid leukemia (upto 50–60% of cases)\[43-45\] which is then followed by bheda involving formation of dwirarbuda and adhyararbuda (Distant and Regional metastasis) (Table 2).

2.6. Role of Pitta in Pathogenesis of Arbuda

In Raktarbuda, Rakt is involved (~rudhiratmakam) which ensures vitiation of Pitta too as both belong to same yoni.\[42\] Madhav, Bhavaprakash, and Sharangdhar quoted involvement of Rakt alongwith Mamsa in general Arbuda too. It may be hypothesized that vitiated pitta covering vayu aggravates it further.

2.7. Role of Kapha or Meda in Pathogenesis of Arbuda

Kapha and Meda predominance stabilizes or fix and knot dosha with each other and is responsible for non-suppuration of arbuda.\[43-45\]

2.8. Nidana (Etiology)

Any particular etiology has not been specified except for Mamsarbuda. Charaka\[13\] (Cha. chi. 29/32) and Vagbhata detailed the disease under Shopha roga and have unanimously accepted the similarity of their etiological factors establishing the relation between inflammation and neoplasia.\[40\] Charaka also stated the etiological factors, site, shape, Dosh and Dushya of Arbuda to be similar to that of Granthi\[47\] and enlisted arbuda in Mamsa pradosha vikara\[40\] in contrast to Sushruta who included it in Rakt-Ja-Mamsa and Medoja vikara.\[49\] Sushruta and Laghnatrayee also pointed out at the similarity of causative factors and clinical features to that of Granthi.\[23\] (Su Ni 11/14) Laghnatrayee followed the same. Hence, it can be concluded that Nidana of Arbuda are similar to that of Shopha and Granthi.\[90\] Harita enlisted suppression of natural urges or jumping or an ulcer (either physical or accidental) as some of the causes.\[51\]

2.9. Purvarupa

Only Vagbhatta was vocal about it stating that swelling (Granthi) which is smaller as compared to that of Arbuda, should be regarded as its Purvarupa.\[52\]

2.10. Rupa

Sushruta, Vagbhatta, Madhav Nidana, Bhavaprakash, and Yograthnakar stated clinical features of arbuda to be similar to that of respective Granthis. However, Dalhana and Gayadasa were of the opinion that only Vyajaya, Pittaja, Kaphaja, and Medoja arbuda exhibit this similarity. Hence, Sushruta and Vagbhata described Raktu and Mamsarbuda distinctively. Further, Sushruta believed non-suppuration of Arbuda owing to predominance of Kapha and Meda inspite of Tridosha involvement in it. Pandu is mentioned as a complication of Arbuda.\[53\] Harita specified the clinical features of all four types mentioned by him; Vyajaya arbuda being soft and rough, Pittaja with burning sensation and suppuration, Kaphaja solid and cold while sannipataja hard and solid like stone.

GRANTHI is stated as an abnormal glandular growth (in form of a small swelling which is round in shape, erect, and knotted) within or of any bodily tissue or organ identical to the shape of water bubbles owing to vitiation of Mamsa, Raktu, Kapha, and Meda by aggravated dosha.\[34\]

ASADHYA VRANA (~Malignant ulcer)\[45] is portrayed as contracted or expanded ulcer, too much hard or soft, too much elevated or depressed, too much warm or cold, swelling with itching. In case of deeper tissue involvement foul smelling muscle, veins or tendons covering the ulcer at its top are seen. Its features typically simulate to that of squamous cell or basal cell carcinoma. Malignant change may also be initiated by chronic inflammation of ulcers due to sustained bacterial activity.

Comprehension of GULMA-RAJAYAKSHMA-PANDU PURVARUPA in Colorectal cancer and upper GIT malignancies, lung cancer and chronic myeloid leukemia respectively may give newer vision for early detection and prevention of cancer progress. Tridoshaj/Nichaya gulma is believed to be malignant due to its stone like hardness and incurability.\[59\]

2.11. Chikitsa/Samprapti Vighatana (Ayurveda Treatment)

Comprises of Prakritishapana (health maintenance), Rasayan (restoration to normal/immunomodulation), Naishthiki (spiritual approach), lakshanika (symptomatic), and Roganashini (includes Dhatvagni chikitsa i.e., correction of metabolic defects) chikitsa; or Bhaihsajya (aims at breaking Dosh-dushya Samurchana through different herbomineral products and improving immune mechanism) and Shalya chikitsa (Shasra karma i.e., surgical procedure viz. Chedana,\[57\] Lekhana, Visravana, Aharana, and Anushastra karma i.e., para surgical procedure viz. Kshara, Agni, Raktamokshana, Krimirogenic introduction of maggots for desloughing). Surgical cancer management is advised only when other treatment does not works or for advanced cases; Sushruta advised Amshansk samuddhara, that is, complete excision with root and destruction of any remaining cells through cauterization (Sonata, 1986). If left, rapid recurrence of Arbuda will be initiated by aggravated dosha.\[58\] Nidana parivarjan is beneficial for prophylaxis but not for cure as it is just responsible for initiation of cancer. Some local applications such as swedana, lepa, upanaha, and oil are used.\[59\]

Vata kapha shamak, Pitta virechaneya, Medonashak, Yakritottejak, Raktaoshadhek, Srotoshodhek, Ojovardhek, Balya, Medhya, Rasayan,
Deepan, Pachan, Vatanuloman, Manda-Sheeta-Snigdha-gunayukta, and anti-inflammatory dravya should be employed, namely, Sariva, Musta, Patha among the single drugs and Sutashkekara rasa, Swarnavasantamalati rasa among compound formulations.

2.12. Pathya

Shigru (Moringa oleifera), Purana Shali (Oryza sativa), Purana ghrita, Mudga (Vigna radiata), Patola (Tricosanthes dioica), Karavellaka (Momordica charantia), seeds of Yava (Barley), Guggulu, Shilajatu, Katu (pungent), and Laghu and Santarpana food. Yoga, Pranayama and mild exercises.

2.13. Apathya

Milk, curd, meat, Masha (Black phaseolus), sugarcane and its products; madhura (sweet), amla (sour), and guru abhishyandi (hard to digest) food. [60]

3. DISCUSSION

Different diseases have resemblance with cancer which is described in various chapters under different names. In view of the detailed literature scattered here and there, Ayurveda may play a significant role in cancer care in view of its preventive, therapeutic and palliative abilities. Basic principles of treatment to be noted:

- In spite of being a bahudosh vayadhi, shodhana chikitsa is avoided as Rogibala is reduced due to Dhatukshaya and Ojashra with progression of disease; Santarpana may be given taking care of Srotas and Agni.
- It usually presents with Vikritivishamasamvaya Samprapti, dravya acting through prabhava or Vichitrprayatarabdh should be selected.
- Association of Dhatukshaya and Margavarodha suggests the utility of Vatanuloman, Srotoshodhana, and Brimhana-Rasayana.
- Side effects of conventional treatment may be pacified through Pitta shaman or Rakta prasadana Aushadhi which helps to counteract its immoderate Ushna and Tikshna guna.
- The cycle of further Nidana and Samprapti should be interrupted through Nidana parivarna. [61]
- Granthi chikitsa incorporates Mamsaja Granthi and Kaphaja Granthi chikitsa, Mamsa pradoshayadhi chikitsa (i.e., Sanshuddhi, Shastra, Kshar, Agnikarma). MedovIRDhijanya vayadhi chikitsa include Panchakarma procedures viz. Snehan (sarshap oil), Swedan (Pinda), Vaman, Virechan and Basti; which work by expelling over accumulated dosha; siddha sneha being Agni Deepak, Pachak, and Ojovardhak.
- Viruddhapakramatva should be avoided as many treatment principles may be contradicting which need to be taken care.

4. CONCLUSION

Malignancy/Cancer is not described as such in the Ayurveda texts which have a different perspective regarding the disease. It is scattered throughout the texts under different headings with varied disease entities of different parts of body having high similarity index. Although, many Ayurveda practitioners are managing the disease well, Ayurveda has much more potential in anti-cancer treatment especially in palliative care, primary and secondary prevention and needs to be explored and validated scientifically.

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6. AUTHORS’ CONTRIBUTIONS

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8. ETHICAL APPROVALS

This study does not require ethical clearance as it is a review study.

9. CONFLICTS OF INTEREST

Nil.

10. DATA AVAILABILITY

This is an original manuscript, and all data are available for only review purposes from the principal investigators.

11. PUBLISHERS NOTE

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Table 1: Samprapti ghataka of Arbuda

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Arbuda</th>
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<tbody>
<tr>
<td>Dosha</td>
<td>Tridosha with predominance of Kapha</td>
</tr>
<tr>
<td>Dashya</td>
<td>Mamsa, Rakta, Meda</td>
</tr>
<tr>
<td>Srotus</td>
<td>Mamsa-Meda-Rakavaha</td>
</tr>
<tr>
<td>Srotodushti</td>
<td>Sanga, Siragranthi</td>
</tr>
<tr>
<td>Agni</td>
<td>Jatharagni manda and visham, Dhatwagni manda</td>
</tr>
<tr>
<td>Rogamarga</td>
<td>Bahya and Abhyantarana</td>
</tr>
<tr>
<td>Adhishthana</td>
<td>Anywhere in body (Rohini twak*)</td>
</tr>
<tr>
<td>Pratyatma linga</td>
<td>Mamsopachayam shopham</td>
</tr>
<tr>
<td>Upadrava</td>
<td>-</td>
</tr>
</tbody>
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*Rohini appears to be synonym of epithelium (group of cells found lining the skin and surface layers of mucous membranes)*

Table 2: Stages of development of Arbuda and their analogous terms

<table>
<thead>
<tr>
<th>Chronological Stage of development of Arbuda</th>
<th>Analogous modern terminology</th>
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<tbody>
<tr>
<td>Shopha</td>
<td>Local edema</td>
</tr>
<tr>
<td>Granthi</td>
<td>Glandular swelling</td>
</tr>
<tr>
<td>Arbuda</td>
<td>Tumour/Neoplasia</td>
</tr>
<tr>
<td>Adhyarbuda</td>
<td>Regional Metastasis</td>
</tr>
<tr>
<td>Dwirarbuda</td>
<td>Distant Metastasis</td>
</tr>
<tr>
<td>Vidradhi</td>
<td>Abscess (After sec. infection)</td>
</tr>
<tr>
<td>Vrana</td>
<td>Ulcer (After secondary. infection)</td>
</tr>
</tbody>
</table>