

## A critical review article on *Pandu Roga (Vyadhi)* with special reference to anaemia

Sachinkumar Sahebrao Patil \*

Department of Kayachikitsa, M.A.M.'s Sumatibhai Shah Ayurved Mahavidyala, Malwadi, Hadapasar, Pune -411028, India.

World Journal of Advanced Research and Reviews, 2022, 14(02), 305–311

Publication history: Received on 04 April 2022; revised on 10 May 2022; accepted on 12 May 2022

Article DOI: <https://doi.org/10.30574/wjarr.2022.14.2.0424>

### Abstract

Pandu Roga is one of the diseases mentioned in Ayurveda characterized by the changes in the skin colour to white (*Shweta*), yellowish (*Peeta*), greenish (*Harita*) etc. which is one of the “*Varnopalakshita Roga*” i.e. a disease characterized by the change in the colour. The clinical condition of Pandu in Ayurveda can be co-related with Anaemia described in Modern Medical Science, due to the resemblance in the clinical signs and symptoms. Anaemia is a major global public health problem and the most prevalent nutritional deficiency disorder in the world. This article presents the *Ayurvedic* concept of *Pandu Roga* (Anaemia).

**Keywords:** *Pandu; Vyadhi; Srotas; Anaemia*

### 1. Introduction

*Ayurveda* is the science of life that is focused on the maintenance of positive health in healthy and eradication of ailments in diseased through its holistic approach, lifestyle practices, dietary habits, and safer medications. Malnutrition either due to inadequate dietary intake or lack of balanced diet and population explosion in today's world has led to the development of various diseases and *Pandu Roga* is one of such diseases. Ayurveda described *Pandu* as *Pitta Pradhana Vyadhi* associated with *Rasa* and *Rakta Dhatu*.

*Pandu Roga* is characterized by the paleness of the body which may be due to reduced blood flow and oxygen or by a decreased number of red blood cells and Anaemia is one of the most common causes of paleness so *Pandu Roga* can be correlated with Anaemia. Anaemia is the most prevalent nutritional deficiency disorder in the world. Globally, Anaemia affects 1.62 billion people, which corresponds to 24.8% of the population. In India, Anaemia affects an estimated 50% of the population.

In *Ayurveda* concept of *Pandu* is abundantly and mentioned in various literature. The knowledge of this concept is very beneficial to treat different disorders where *Pandu* is a symptom and disease itself. This article presents the *Ayurvedic* concept of *Pandu Roga* (Anaemia). Hence, in this article attempt has been made to review various available *Samhita*, *Samgrahagrantha* to find out the different descriptions about *Pandu* and bring all of them in a single place.

#### *Aim and Objective*

To review the concept of *Pandu Roga* from different *Ayurvedic* literature.

\* Corresponding author: Sachinkumar Sahebrao Patil

Department of Kayachikitsa, M.A.M.'s Sumatibhai Shah Ayurved Mahavidyala, Malwadi, Hadapasar, Pune -411028, India.

---

## 2. Material and Methods

Material has been collected from ancient *Ayurvedic* texts, Research Journals, and electronic databases.

---

## 3. Review of Literature

### 3.1. Vyutpatti

The word *Pandu* is derived from '*Padi Nashane*' *Dhatu* by adding '*Ku Pratyaya*' to it, the meaning of which is always taken in the sense of *Nashana* and as *Pandu* has been kept under the group which is classified and named according to the change in colour.

### 3.2. Nirukti of Pandu

- According to *Shabdarnava Kosha* '*Pandustu Peet bhagardh Ketaki Dhulisannibham*' means *Pandu* is like the colour of pollen grains of *Ketaki* flower which is whitish yellow colour.
- '*Pandutwenuplakshito Rogah Pandu Rogah*' means the disease which resembles *Pandu Varna* is known as *Pandu*.

### 3.3. Synonyms

According to *Sushrut Kamala*, *Panki*, *Laghrak*, *Alas* and *Kumbhahwa* are the synonyms of *Pandu*.

In *Rigveda* and *Atharvaveda* *Pandu* has been de-scribed by the name of *Vilohita*, *Halima* and *Haribha*.

### 3.4. Types of Pandu Roga

Acharya Charak described the disease under five categories namely *Vataja*, *Pittaja*, *Kaphaja*, *Sannipataja* and *Mridabhakshanjanya* and Acharya Sushruta has accepted only four types of *Pandu* excluding *Mridabhakshanjanya* *Pandu* they are:

- *Vataj Pandu*
- *Pittaj Pandu*
- *Kaphaj Pandu*
- *Sanipataj Pandu*
- *Mridikabhakshanjanya Pandu*

### 3.5. Causative Factors

The etiological / *Samanya Nidana* of *Pandu Roga* mentioned in *Charka*, *Sushruta* and other *Samhitas* can be broadly classified into 3 groups. (*Charka Chikitsa* 16/8; *Sushruta Uttarsthan* 44/3)

- *Aharaj Nidana*.
- *Viharaj Nidana*.
- *Mansik Nidana*.
- Other diseases i.e., *Nidanarthaka Roga*.

#### 3.5.1. Aharaj Nidana

Food or diet plays an important role in the normal development and maintenance of different *Dhatus* as well as in the vitiation of *Dosha*.

- Excess intake of *Kshaar* (alkaline), *Amla* (sour), *Lavan* (salt), *Ushna* (hot) and *Teekshna* (penetrating) *Ahar*.
- The food /*Ahar* which is *Virudhha* (incompatibles) and *Asatmya* (unwholesome)
- Intake of *Nishpav*, *Masha*, *Pinyak* and *Til Tail* in excess.
- Excess consumption of wine (*Madya*), eating mud (*Mrida*) and *Mridu Ahar*

#### 3.5.2. Viharaj Nidana

- Excessive *Diwaswapan*, *Vyayama* and *Maithun*.

- *Pratikarma Vaishamaya* (faulty administration of Panchakarma) and *Ritu Vaishamaya* (faulty management of seasonal regimen)
- Suppression of natural urge (*Vega Dharan*)

### 3.5.3. Mansik Nidana

- *Mansik Nidana* i.e., anxiety, fear, anger, and grief have a major role in the manifestation of *Pandu*.

### 3.5.4. Other /Secondary/Nidanarthaka causes

In Ayurvedic literature there is an indication of a correlation between various diseases and *Pandu Roga* either as a symptom or as *Upadrava*. So, all these can be causes of *Pandu* i.e. *Nidanarthaka Roga* of *Pandu*.

## 3.6. Premonitory Symptoms

According to Acharya Charak: *Tasya Lingam Bhavishyath Hridayaspandanam Rokshyam Swedabhavah Shramsatatha*. (Ch. Chi. 16/12) *Hridayaspandanam* (Palpitation), *Rokshyam* (dryness of the skin), *Swedabhavah* (absence of sweating), *Shramsatatha* (fatigue) According to Acharya Sushruta: *Twaksphotnam Shthevangatrasadoo Mridbhakshanam Prekshankootsothah*.

*Vidmutrapitatwamathaavipako Bhavishtasya Purahsarani*. (Su.U. 44/5) *Twaksphotnam* (cracking of skin), *Shthevan* (salivation), *Gatrasada* (sense of lassitude in the limbs), *Mridbhakshanam* (liking for mud intake), *Prekshankootsothah* (swelling over eye socket), *Vid-Mutra Pitata* (yellow colour of stool-urine), *Avipaka* (Indigestion) these are mentioned by Sushruta.

## 3.7. Symptoms

Acharya Charak has mentioned the *Samanya* and *Vishesh Rupa* of *Pandu Roga* in chapter 16 of *Chikitsa Sthan* according to the *Dosha* involvement which is mentioned below.

### 3.7.1. Samanya Rupa

- Loss of *Indriye Bala*, *Tej*, *Veerya* and *Oja*.
- Loss of *Bala*, *Varna* and *Agni* (power of digestion).
- *Karnashveda* (tinnitus), *Durbalya* (general weakness), *Annadweshya* (aversion towards food), *Shrama* (fatigue), *Bhramanipidita* (giddiness), *Gatrashula* (body ache), *Jwara* (fever), *Shwasa* (breathlessness), *Gaurva* (heaviness), *Aruchi* (anorexia).
- *Akshikutashoth* (swelling over orbit), *Shirnaloma* (hair fall), *Hataprabha* (body complexion become greenish)
- *Kopana* (dislikes cold things), *Nidralu* (feeling of drowsiness), *Alpawaka* (avoid speaking), *Shtheevan* (spitting frequently)
- *Pindikodweshthana* (calf muscle pain), *Katiuru-Pad Ruka* (pain and weakness in the lumbar, thighs and feet), *Arohaneayasa* (patient feels exhausted on climbing) *Vishishta Rupa*: Acharya Charka had classified *Pandu Roga* into 5 types; based on these types *Vishesh Rupas* are described.

### 3.7.2. Vataj Pandu

*Krishna-Panduta* (black and pale-yellow discolouration), *Rukshata* (roughness), *Aruna-Angatam* (Reddishness of the body), *Angmarda* (body ache), *Ruja* (pain), *Toda* (Pricking type of pain), *Kampa* (tremor), *Parshvashiro-ruja* (pain in chest-head), *Varchashosh* (dryness of stool), *Aashyavairasya* (distaste in mouth), *Shopha* (edema over body parts), *Aanah* (constipation), *Bala Kshaya* (weakness).

### 3.7.3. Pittaja Pandu

*Pita-Haritabhata* (complexion become either yellow or green), *Jwara*, *Daha* (burning sensation), *Trishna* (excessive thirst), *Murcha* (fainting), *Pipasa*, *Pitamutrashakruta* (yellowish discolouration of urine and stool), *Sweda* (profuse sweating), *Sheetakamta* (increase desire to take cold things), *Katukasayta* (feeling pungent taste in mouth), *Ushnaamlanupashyata* (uneasiness for hot and sour things), *Vidahe vidagadhe* Anne (feeling of burning sensation during indigestion of food), *Daugandhya* (foul smell of body), *Daurbalya* (weakness), *Bhinn-varcha* (diarrhea)

### 3.7.4. Kaphaja Pandu

*Gaurava* (heaviness), *Tandra* (Drowsiness), *Chhardi*, *Shvetavbhasta* (whitish complexion), *Praseka* (excessive salivation), *Lomoharsha* (Horripilation), *Murchha* (Fainting), *Bhrama* (giddiness), *Klama* (mental fatigue), *Sada* (looseness of body parts), *Kasa*, *Shwasa* (dyspnoea), *Alasya* (laziness), *Aruchi* (anorexia), *Vaka-swaragraha* (obstruction of speech and voice), *Shukla Mutra-Akshivarchasa* (whitish discolouration of urine, eye and stool), *Katurukshoshna Kamta* (feeling to take pungent, Hot and dry things), *Shwayathu*, *Madhurasyata* (sweetishness in mouth).

### 3.7.5. Tridoshaja Pandu

Sign and symptoms of all the three vitiated *Doshas* are present, and this is extremely intolerable because of developing complications.

### 3.7.6. Mridbhakshanajanya Pandu

*Bala-Varna-Agni Nash* (loss of strength, complexion, and power of digestion metabolism), *Ganda-Akshikuta-Bhru-Pad-Nabhi-Mehan Shotha* (oedema on cheek, eye socket, eyebrow, feet, umbilical region, genital parts), *Krimi Koshta* (Appearance of intestinal worm), *Atisaryet Mala Sasruka Kapha* (diarrhoea associated with blood and mucus).

## 3.8. Pathogenesis

*Acharya Charaka* has mentioned the *Samprapti* of *Pandu* in *Chikitsa Sthan*. According to him, due to consumption of *Nidana Pitta* located in the *Hridaya* (*Sadhak Pitta*) gets aggravated and being expelled from *Hridya* by powerful *Vata* and it enters the *Dasha Dhamanya* (attached to the heart) and circulates all over the body. This aggravated *Pitta* reaches the space between skin and muscle tissue and brings vitiation in *Kapha*, *Vata*, *Asrika*, *Twaka* and *Mamsa*. This leading to abnormal types of colouration like *Pandu*, *Haridra* and *Harita* to the skin.

## 3.9. Samprapti Ghataka

- *Dosha – Pitta Pradhan Tridoshaja*
- *Pitta - Sadhaka, Ranjaka and Bhrajaka*
- *Kapha – Avalambaka, Kledaka*
- *Vyana- Vyan Vayu*
- *Dushya - Twaka, Rasa, Rakta, Mamsa and Meda.*
- *Strotas – Rasavaha, Raktavaha*
- *Stroto Dushti - Sanga and Vimarga Gamanam.*
- *Agni - Jatharagni and Dhatvagni.*
- *Agni Dushti - Mandagni*
- *Udbhavasthaan - Amashaya*
- *Adhishtana - Twaka Mamsa Abhyantara*
- *Vyaktasthaan - Twaka*
- *Sancharasthaan – Twaka & Mamsa*
- *Svabhav – Chirkari*

## 3.10. Chikitsa

### 3.10.1. According to Acharya Charak

*Tatra Panduvamyi Snigdhatateekshnaurdhvaaranu-lomikeh*

*Sansodhyo Mriduvitikteeh Kaamli Tu Viraichne. (Ch.Chi.16/40)*

According to *Acharya Charak* in *Sadhya Pandu Rog*, *Teekshna Vaman* and *Virechan* should be done.

According to *Acharya Sushruta*: *Harechha Doshan Bahushoalpamatrach Shvayedhhi Doshesvtinirharatesu (Su. Ut. 44/22)* Means in *Pandu Roga*, *Dosha* which get situated in *Dhatus*, *Srotas* and *Ashayas* should be removed by *Vaman* and *Virechan* repeatedly if not done so then these *Doshas* cause *Shotha* in the different body part.

### 3.10.2. Snehana Karma

In *Pandu Rogi* there is *Sneha- Abhava* (deficiency) and the *Doshas* get adhered to *Shakhas* therefore *Snehan* is essential to bring the *Doshas* in *Koshtha* and correct *Rukshata*. In *Pandu Rogi* both *Bahya* and *Abhyantara Snehana* are indicated.

For *Abhyantara Snehana Acharya Charak* indicated some medicated Ghee i.e. *Panchagavya Ghrit, Mahatiktak Ghrit, and Kalyanak Ghrit* etc.

*Vamana and Virechana Karma: Samyaka Snehan and Swedana* bring the Doshas into *Koshtha* and by the action of *Vaman* or *Virechana Karma* they are expelled out of the body by their action. *Virechana* is considered as *best Shodhanopakarma for Pitta Dosh*. So, *Virechana* is most suitable in *Pandu Roga*.

### 3.10.3. Shamana Chikitsa

#### *Vishesha Chikitsa*

- In *Vatika Pandu Snigdha Guna Pradhan Aushadha* are to be used internally.
- In *Pittaja Pandu Tikta Rasa* and *Shita Veerya Pradhan Aushadha* are to be used internally.
- In *Kaphaja Pandu Katu-Tikta Rasa Yukta* and *Ushna Veerya Pradhan Aushadha* are to be used internally.
- In *Sannipataja Pandu Mishrit Guna Aushadha* are to be used internally.
- In *Pandu Poga Vanaspatika* and *Khanija Yoga, Asava Arishta, Avaleha, Churna Yoga, Vati Yoga* are used.

#### *Mridbhakshana Pandu*

The ingested soil should be removed from the body by *Tikshna Sansodhan (Vaman and Virechana)* by evaluating the *Sharirik* and *Agni Bala* of *Rogi*. After the *Shodhana* when the soil gets out of the body then *Agnivardhak* and *Balvardhak* medicated *Ghrit* should be used to bring strength to the body.

### 3.11. Upadrava

According to *Acharya Sushruta Aruchi, Pipasa, Vaman, Jwara, Murdharuja, Agnisada Shopha, Kan-thagata Abalatwa, Murcchha, Klama and Hruda-yapidana* are the *Updrava* of *Pandu Roga*.

#### 3.11.1. Pathya-Apathya

##### *Pathyahara*

According to *Acharya Charak*

- *Shalianna, Yava, Godhoom mixed with Yusha prepared from Mudga, Adhaki and Masur.*
- *Jangal Mamsa Rasa.*
- *Panchagavya Ghrit, Mahatiktaka Ghrit and Kalyanaka Ghrit used for Snehan Karma.*

According to *Acharya Susruta*

- *Pandu Rogi* must use *Arishta* prepared from *Guda, Sharkara (Sugar) and Shahad (Honey)*
- *Asava* prepared from *Mutra* and *Kshara* should be used
- *Jangala Mamsa Rasa* added with *Sneha (Fat)* and *Amalaka Swaras* should be used

#### 3.11.2. Apathyahara

In *Bhaisajya Ratnavali* following *Apathya Aahar* are mentioned:

- *Rakta Sruti, Dhoompan, Vaman Vega Dharan, Swedan and Maithoon* are to be avoided by *Pandu Rogi*.
- Avoid consumption of *Shimbi, Patrashaak, Ramath, Masha, Ambupaan, Pindyaak, Tambul, Sarshapa, and Sura.*
- Intake of water of rivers like those originating from *Vindhya* and *Sahyadri* Mountain.
- All types of salt, sour edibles, *Virudhha Anna* (incompatible foods), food that is *Guru* (heavy to digest) and *Vidahi* (cause a burning sensation).

### 3.12. Arishta Lakshana

*Acharya Sushruta* mentioned fatal signs and symptoms of *Pandu Roga* in *Sutra Sthana (S.Su. 33/23)* which are

- *Pandu Dhantnakha*
- *Pandu Netra*
- *Pandu Shangtadarshi*

#### 4. Discussion

*Pandu Roga* is *Pitta Pradhana Vyadhi*, *Pitta* is responsible for the normal colour of the body but when it gets vitiated, *Panduta* (Pallor) occurs. Though *Pitta* is *Pradhana Dosha* in *Pandu Roga*, *Vata Dosha* also plays a crucial role in the manifestation of *Pandu Roga*, mainly *Vyana Vayu* has a relation with *Samprapti of Pandu Roga*. *Pandu* is a *Rasavaha Srotas Vyadhi* from which a lot of people suffer. In *Samhitas* most of the *Acharyas* have described five types of *Pandu Roga* i.e. *Vatika, Paittika, Kaphaja, Tridoshaja and Mridabhakshhanajanya Pandu*. The daily faulty routine activity related to mental or physical, faulty dietary habits like *Mridikabhakshana*, taking food deficient in quality and quantity, *Nidanarthaka Roga* is some etiological agents of *Pandu Roga*. *Acharya Charaka* mentioned three premonitory Symptoms of *Pandu Roga* i.e. *Hridyaspandanam, Rokshyam and Shram* which indicate its future presence. Also in *Charak Samhita Samanya* and *Visheshrupa of Pandu Roga* is mentioned. *Pandu* is *Sadhya Roga* but in later stages due to chronicity, it develops some complications. Hence, it is necessary to treat it in the early stage. According to *Acharya Charak in Sadhya Pandu Roga* medicated *Teekshna Vaman and Virechan* should be done. For the diagnosis and effective treatment, a physician must have complete knowledge of *Pandu Roga* by different *Samhitas*.

#### 5. Conclusion

Now a days, number of patients suffering from *Pandu Vyadhi* are seen due to modern lifestyle, improper dietary habits in routine and the use of modern medicines. *Pandu* is a *Varnopalakshita* and *Pitta Pradhana Vyadhi* which is responsible for the normal colour of the body. *Pandu* can be correlated with Anaemia. In *Ayurvedic* literature vast description of *Pandu Roga* and *Chikitsa* is given. To treat a *Pandu Rogi*, a physician must have complete knowledge of different aspects of *Pandu* like *Nidan, Roopa, Poorvaroop, Samprapti and several Chikitsa Yoga, Sadhyaasadya, Arishtalakshan* etc. from all *Samithas, Nighantu* and other literature.

#### Compliance with ethical standards

##### Acknowledgments

I express gratitude to the Department of Kayachikitsa and Hospital Authority for giving me this opportunity to study this particular case of *Pandu*. Special thanks to Secretary of Maharashtra Arogya Mandal's Secretary, Hon'ble Mr. Anil Gujar, Hon'ble Principal Dr. Nilesh Phule and Faculty members for co-operating throughout to provide better management of the patients.

#### References

- [1] Agnivesh, Kashinath Shastri, Gorakhnath Chaturvedi, Re-edition, Varanasi; Chaukhambha Bharati Academy. 2004; II (16/4): 487.
- [2] Ambika Datta Shastri, Sushrut Samhita, Uttara Tantra, 7th Edition, Varanasi: Chaukhambha Sanskrit Sansthan, 1990; 286.
- [3] Pandey Ajay Kumar, Textbook of Kayachikitsa, First Edition, New Delhi; Chaukhambha Publications, 2019; 2(2): 167.
- [4] Urvi R. Dave, Anup Thakar. A clinical study of Panduroga w.s.r. to Iron Deficiency Anaemia and its management with Dhatriyarihta and Pandughna Vati. July-2015; 3(7): 1917.
- [5] Ralston H. Stuart et.al. Davidson's – Principle and Practice of Medicine, Edited by Christopher Haslett; 23rd Edition; Churchill Livingstone Elsevier Publication 2018, 923.
- [6] G Ramadevi, S Jonah, UN Prasad. A clinical study on the effect of Dhatri Lauha in Garbhini Pandu (I.D.A.) Int. J. Res. Ayurveda Pharma. 2014; 5(6); 708-712.
- [7] Parthibhan P, Chilambuselvi P, Sasireka R, Samraj K. Evaluation of haematinic activity of the Siddha Drug Pitha Pandu Maathirai on Phenyl Hydrazine induced Anaemic Rats International Journal of Research in Pharmacy and Biosciences. August 2015; 2(7): 23-27.
- [8] Kawaljit K. Anaemia 'a silent killer' among women in India: Present scenario. European Journal of Zoological Research. 2014; 3(1): 32-36.
- [9] Malhotra P, Kumari S, Kumar R, Varma S. Prevalence of Anaemia in adult rural population of North India. Journal of the Association of Physicians of India Jan. 2004; 52: 18-20.

- [10] Pandey Ajay Kumar, Textbook of Kayachikitsa, First Edition ; New Delhi; Chaukhmbha Publications; 2019; page no. 167.
- [11] Taranath Tarkavachaspati. Shabdasthome Mahanidhi. Veedanyantra Press, Calcutta 1976.
- [12] Pandey Ajay Kumar, Textbook of Kayachikitsa, Vol. 2, Chapter 2, First Edition. New Delhi; Chaukhmbha Publications, 2019; 168.
- [13] Shastri Ambikadatta, Susruta Samhita, Ayurvedatatva Sandeepika Hindi commentary. Chaukhambha Sanskrit Sansthan, Varanasi; reprint edition. 2014; II (44/15): 365.
- [14] Ambika Datta Sastry, Sushruta Samhita, Uttara tantra, 7th Edition, Varanasi: Chaukhambha Sanskrit Sansthan, 1990; 286.
- [15] Rani Khushboo, Gujjarwar Vidula, Gujjarwar Shriniwas; Acta Scientific Nutritional Health, "Mridabhakshanjanya Pandu-Review Article. 2019; 3(4): 66-69.
- [16] Shastri S.N. Panduroga Chikitsa Adhyayah". In Charak Samhita 1st edition. Varanasi, IN: Chaukhamba Bharati Acadamy. 2013; 2: 486
- [17] Shastri A. D. Pandurogpratishedhoupkram Varnan Susruta Samhita Part II. Varanasi: Chaukhamba Sanskrit Sansthan. 2013; 365.
- [18] Tripathi Pt. Harihara Prasad. Harita Samhita Hindi Vyakhya Sahita, Tritiya Sthana, Chapter; 2nd Edition; Varanasi: Chuakhambha Krishna Das Academy, . 2009; 21: 358.
- [19] Agnivesha, Charaka, Dridhabala, Pt. Kashinatha Shastri and G. Pandeya. Charaka Samhita, Vidhyotini Hindi commentary, Chikitsa Sthana,16/7-9; 6th edition; Varanasi; Chaukhamba Sanskrit Sansthan; 2000; 415.
- [20] Shastri Ambikadatta, Susruta Samhita, Ayurvedatatva Sandeepika Hindi commentary. Chaukhambha Sanskrit sansthan, Varanasi; reprint edition. 2014; II (44/3): 364.
- [21] Agnivesha, Charaka, Dridhabala, Pt. Kashinatha Shastri and G. Pandeya; Charaka Samhita, Vidhyotini Hindi commentary, Chikitsa Sthana,16/12, Chaukhamba Sanskrit Sansthan, 6th edition 2000; 416.
- [22] Sushruta A. Shastri, Sushruta Samhita, Ayurvedatatva Sandeepika Hindi commentary, Uttartantra 44/5, Chaukhambha Bharti Academy, Varanasi, Reprint. 2013; 366.
- [23] Agnivesha, Charaka, Dridhabala, Pt. Kashinatha Shastri and G. Pandeya; Charaka Samhita, Vidhyotini Hindi commentary, Chikitsa Sthana, Chaukhamba Sanskrit Sansthan, 6th edition. 2000; 16/13-16: 416.
- [24] Agnivesh, Charaka, Dridhabala, Pt. Kashinatha Shastri and G. Pandeya; Charaka Samhita, Vidhyotini Hindi commentary, Chikitsa Sthana, Chaukhamba Sanskrit Sansthan, 6th edition. 2000; 16/3; 414.
- [25] Agnivesha, Charaka, Dridhabala, Pt. Kashinatha Shastri and G. Pandeya; Charaka Samhita, Vidhyotini Hindi commentary, Chikitsa Sthana, Chaukhamba Sanskrit Sansthan, 6th edition. 2000; 16/19-22: 417- 418.
- [26] Agnivesha, Charaka, Dridhabala, Pt. Kashinatha Shastri and G. Pandeya; Charaka Samhita, Vidhyotini Hindi commentary, Chikitsa Sthana, Chaukhamba Sanskrit Sansthan, 6th edition. 2000; 16/9-11; 415.
- [27] Byadgi S. Parameswarappa, Textbook of Vikriti Vijnana & Roga Vijnana, Chaukhmbha Publications, New Delhi, Reprint Edition. 2019; 2(1/17): 64.
- [28] Tripathi Brahmanand, Charaka Samhita, Hindi commentary, Chaukhambha Surbharati Prakashan, Varanasi. 2015; II (16/31-32): 595.
- [29] Tripathi Brahmanand, Charaka Samhita, Hindi commentary, Chaukhambha Surbharati prakashan, Varanasi. 2015; II (16/41-42): 598.
- [30] Shastri Ambikadatta, Sushruta Samhita, Ayurvedatatva Sandeepika Hindi commentary. Chaukhambha Sanskrit Sansthan, Varanasi; reprint edition 2014; II (44/20): 373.