



A REVIEW ARTICLE ON HOLISTIC APPROACH TO PANDU ROGA

***Dr. Aman Y. Chhillar and Dr. Vikas B. Jaybhay**

PG Scholar, Dept of Kaumarbhritya, Tilak Ayurveda Mahavidyalaya, Pune.
Asst. Professor, Dept of Kaumarbhritya, Tilak Ayurveda Mahavidyalaya, Pune.

***Corresponding Author: Dr. Aman Y. Chhillar**

PG Scholar, Dept of Kaumarbhritya, Tilak Ayurveda Mahavidyalaya, Pune.

Article Received on 04/06/2022

Article Revised on 25/06/2022

Article Accepted on 14/07/2022

ABSTRACT

Pandu means pallor. In this disease there is predominance of paleness all over the body. Due to its similarity, it can be co-related with modern disease Anaemia. Pandu Roga is explained by almost all of our Acharyas. This article is based on Nidanapanchaka of Pandu Roga from Ayurvedic texts as Charak samhita, Susruta samhita, Astanga Hrudaya etc. with all commentaries. Rasavaha and Raktavahasrotas are chiefly involved in pathogenesis of Pandu Roga. The changing lifestyle of human being by means of Ahara and Vihar plays a major role in manifestation of various diseases. Pandu Roga is also one of them. Our faulty Dietary habits and lifestyle produces Ama which further causes Agnimandya and ultimately Amayukta Ahararasa produced. It hampers Rasa Dhatu Utpatti and manifests Pandu Roga. Aggravated Pitta is responsible for the production of Posaka (nutrient portion) from the Rasadhatu as a result depletion of Rakta takes place. The detail knowledge of Nidanapanchaka and types of Pandu Roga will help in its diagnosis and management in this modern era also.

KEYWORDS: Pandu Roga, Anaemia, Iron Deficiency Anaemia.

INTRODUCTION

Rakta has been considered as one of the Dhatu a key factor for the Jeevana, Prinana, Dharana and Poshana Karma of the body. Many times it is seen that Rakta gets vitiated by Doshas, mainly by Pitta Dosha as Rakta is Pittavargiya and disease like Pandu appear. There may be various modification of colour such as Harita, Haridra in the disease condition described under the Pandu Roga. Pandu is Pitta Pradhana and mainly Rasa Pradoshaja Vyadhi, the main Nidana's are Ati-Sevana of Kshara, Amla, Lavana, Ushna, Viruddha and Asatmyaahara.

The word Anemia in Greek means a lack of blood. Actually, it is a deficiency of hemoglobin and there are various types of this deficiency. The commonest type of Anemia observed is Iron Deficiency Anemia, Anemia can result from a large number of causes, including nutritional deficiencies, acute or slow loss of blood due to trauma or diseases, destruction of red blood cells due to various metabolic and immunological abnormalities or toxins, disease of the bone marrow, Hemorrhage general systemic diseases like infections, worm infestation and various varieties of cancers, kidney failure.

Materials Required

It is a literary review to study Pandu Roga in various Ayurvedic text, Ancient samhitas, modern text and various websites.

LITERARY REVIEW

Historical Background

Panduroga is known from the Vedic period. In latter period, in several Puranas description of Pandu Roga is available such as Garudapurana, Agnipurana etc. reference of Panduroga also available in Ramayana, Mahabharata, Yoga Vashishtha. The period of samhita which stands between Puranic kala and Vedic Kala has described this disease in detail. In this period, various authors of Ayurveda like Acharya Shushruta, Charaka, Vagbhata, Kashayapa, Madhava, Bhela, Sharangdhara, Harita, Bhavamishra etc. have used word in relation with Panduroga or Pandurogi or Pandu Varna at various place in their texts.

CHARAK SAMHITA

A comprehensive description of Panduroga can be found in Charak Samhita, chapter 16 /Chikitsasthana / 'Pandu Chikitsa Adhyaya' "which explains in detail the Nidana (Etiology), Samprapti (pathogenesis), Purvarupa (Prodromal symptoms), Rupa (symptoms) Sadhyasadyata (prognosis), & Chikitsa (treatment). Santarpanothavikara and Rasajavikara are enumerated in sutra sthana Pandu roga. In Sutrasthana 19th Adhyaya, i.e. "Ashtodariya Adhyaya," describes Pandu Roga.

Susruta Samhita

In the 44th Adhyaya of Uttartantra, Panduroga pratishedha Adhyaya, Acharya Shushruta describes

Panduroga in detail, including its Upadrava and Chikitsa. Mrudbhakshanjanya Pandu is subtype not mentioned by Acharya Sushruta.

They have only mentioned four different types. Panduroga has different synonyms; according to Sushruta are Kamala, Panaki, Kumbhavhaya, Lagharak and Laghvak.

HARIT SAMHITA (1000-1500 B.C)

Pandu roga was described by Acharya Harita in Tritiya Sthana 8th Adhyaya. He mentioned eight different types of Pandu roga. In addition to Doshika and Mridbhakshanjanya Panduroga, he includes Kamala, kumbha kamala, and Halimaka as Panduroga types.

KASHYAPA SAMHITA

Kashyap samhita is the most important text book of ancient Ayurvedic paediatrics.

The reference to Pandu Roga in Kashyapa Samhita is found in Vedanadhyaya. In sutrasthana 25th Adhyaya, Vedanadhyaya, the Lakshanas of panduroga in children are nicely expressed.

In 'Rogadhyaya' five types of Pandu are described.

When describing the treatment of Pleeha- Halimaka, it has been stated the treatment should be carried out in the manner described in Pandu and Kamala.

The Gulmachikitsa Adhyaya explains Arunabhata, krisata, jwara, pitta and Aruci as Pandulakshana.

The intake of Apathya Ahara, Vihara after Sansarjana Karma is mentioned in 'Upakalpaniya Adhyaya' as a causative factor for Pandu and Kamala Roga. Among the disease brought on by Revati Graha are Pandu and Kamalaroga.

In Kashyap samhita Pandu appears several times in the text, including Sutra sthana, chikitsasthana, siddhi sthana, kalpasthana, and khilasthana.

ASHTANG SANGRAHA

In this classic Vridha Vagbhata has described pathology, aetiology; clinical features of Pandu roga and also treatment of all five types of panduroga are elaborated in 13th Adhyaya of Nidanasthana and also in 18th Adhyaya of chikitsasthana.

ASHTANG HRIDAYA

The Nidana, Purvarupa, Rupa, Samprapti, and Upadrava of pandu are described in Nidanasthanasthana chapter 13 'Panduroga shophavisarpa nidanam' while its Chikitsa (Treatment) is illustrated in Chikitsasthana chapter 16 'Panduroga chikitsam'.

Other reference to the word Pandu may be found in the text of sutra sthana, chikitsasthana, kalpasthana, and uttarasthana in various chapters.

MADHAV NIDANA

Pandu roga is described in chapter 8 of Madhav Nidana, the text book of Ayurveda diagnosis, as 'Panduroga kamala kubhakamala halimaka Nidanam'. Madhav kar, the author, has collectively repeated the description of

charaka and Shushruta. This book discussed five types of panduroga as well as pandu as a complication of other disease.

SHARANGDHAR SAMHITA (13th century A.D)

Purvakhanda chapter 7 categories Pandu Roga into five types. In Madhyamkhanda, many remedies such as Madhura Vataka, Lauhasava, and others are recommended for the treatment of panduroga. The word Pandu appears several times in text in Purvakhanda, Madhyamkhanda, and Uttarkhand.

BHAVAPRAKASHA

Madhyamkhanda chapter 8 'Panduroga - Kamala - Halimaka Adhikara has a detailed illustration of Pandu Roga. Panduroga is also mentioned in the Purva Khanda Pratham Bhaga, Purva khanda Dvitiya Bhaga, Madhyam khanda Pratham Bhaga, Madhyam khanda dvitiya Bhaga, and Uttara khanda.

BHELA SAMHITA (1000-1500 B.C)

This text does not depict Pandu Roga as a chapter, but descriptions are available. Pandu Roga is said to be of four types in sutra sthana Ch. 26 th. It is also mentioned as symptoms and complication of other disease in various places.

CHAKRADATTA (11th Century A.D)

In the chapter 'Pandurogachikitsa' of Acharya Chakrapani Dutta's book Chakradatta, he describes Pandu Roga in detail and mentions various formulations for the treatment of panduroga.

YOGRATNAKAR

In Yogratanakar panduroga adhyaya explained about types of Pandu roga, lakshana and Chikitsa. In this chapter five types of Pandu explained which are Vataj pandu, Pittaj pandu, Kaphaj pandu, Tridoshaj pandu, Mridbhakshanjanypandu.

VANGASEN

Vangasen also explained about Pandu Roga Adhyaya. In this chapter Vangasen explained four types of Pandu roga which are same as Charak Acharya.

GADANIGRAHA

The chapter of 7th in Dvitiya khanda gives description of Panduroga.

BHAISHAJYA RATNAVALI

In Bhaishajya Ratnavali Pandu Roga described in 12th chapter named as 'Panduroga Chikitsa Prakaran'.

PANDU ROGANIDAN

The general aetiology or Samanya Nidana of Pandu Roga is described in Charaka Samhita. Which all factors mainly related to Aharaja, Viharaja and Nidanarthakara Roga. Pandu Roga is considered as Pitta Doshapradhana. The provoking factors of Pitta can also be taken as a cause of Pandu Roga.

Classification of Nidan of Pandu Roga in 3 categories.

1) Aharaja Hetu	Cha.	Su.	A.H.	Ha.	Bha.	M.N
Amalatisavana	+	+	+	-	+	+
Lavanatisavana	+	+	+	-	+	+
Vidagdhabhojana	+	-	+	-	-	-
Mrdbhakshanam	+	-	-	-	-	-
2) Viharaja Hetu	Cha.	Su.	A.H.	Ha.	Bha.	M.N
Atinidra	-	-	-	+		
AtiVyayam	+	+	-	-	+	+
AtiVyavaya	+	-	-	-	-	-
Krodha	+	-	+	-	-	-
Kama	+	-	-	-	-	-
Ratrijagarana	-	-	-	+	-	-
3) Roga	Cha.	SU.	A.H	M.N	HA.	Bha.
Grahani	-	+	+	-	-	-
Plihodara	-	+	+	-	-	-
Raktatipravartana	-	+	-	-	-	-
Raktakshaya	-	-	-	-	+	+
Rajaykshyma	-	+	-	-	-	+

Samprapti**According to Charaka**

Samprapti denotes the sequence of events that follows the etiology (Nidana sevena) and ends up in manifestation of the disease including Dosha-dooshya Sammoorchana. A detailed study of Nidana, Dosha, Dooshya, Srotas, Agni etc. are part of understanding the Samprapti in a better way. This alone enables us to efficiently manage or cure the disease.

Charaka considers Pandu as a Rasa-vaha sroto vikara and Susrutha says it as Rakta-vaha sroto vikara and both opine Pitta dosha as the major factor for the pathogenesis of Pandu. Due to the involvement of lymph (Rasa), blood (Rakta) and ojas the main presenting symptoms are pallor (Panduta), derangement of senses, strength, complexion and the essence of body tissues (Indriya-balavarnahani and Nissaratha).

According to Vagbhata

Vagbhatarya follows the Samprapti as per mentioned by Charaka. He explains Kopanirmalaha which means Kopana of the Doshas and the similar mechanism of disease manifestation is considered as like Charaka.

Samprapti Ghataka

Dosa - Pitta Pradhana Tridosha (mainly Sadhaka Pitta)
 Dusya - All Dhatus including Oja Agni - Jatharagni, Dhatwagni Srotas - Rasavaha, Raktavaha Srotodushti - Sanga, Vimargagamana Udbhavasthana - Amashaya, Hridaya Sanchara - Sarva Sharira Vyaktasthana - Twak Vyadhi Swabhava - Cirkari
 Roga Marga - Madhyama Roga Marga
 Purvarupa
 Prodromal signs and symptoms of Pandu Roga are as follows; Hridayaspandana (palpitation of heart)
 Rukshata (roughness) Swedabhava (absence of sweat)
 Twakasphotana (cracking of the skin) Gatrasada (general body malaise) Mridabhakshana (liking for mud intake)

Prekshanakutshotha (swelling over eyelid)

Vinmutrapita (yellowish discolouration of faecal matter and urine) Avipaka (indigestion)

Roopa

Durbalata (debility, malaise) Annadwesha (aversion towards food) Shrama (exhaustion)

Bhrama (giddiness) Hataprabha (loss of lustre)

Irritability, shishirdweshi (dislikes cold things)

Bheda (types) of Pandu Roga

According to Acharya Charak, Pandu is classified into 5 types.

- Vataja Pandu
- Pittaja Pandu
- Kaphaja Pandu
- Sannipataja Pandu
- Mrityika Bhakshanajanya Pandu

Upadrava of Pandu Roga

Aruchi, Shopha, Swasa, Hrut Peedanam, Pipasa, Chardi, Abalatva, Agnisada, Jwara, Atisara, Shula, Avipaka, Murcha, Klama, Kasa

Sadhyasadhyata

The lakshanas indicating the incurability of Pandu Roga are as follows.

SN	Lakshana	C.S	S.S	B.P	Y.R
1.	Pramathya (Murcha)	-	+	+	+
2.	Jwarapidita	-	+	+	+
3.	Atisara	-	+	+	+
4.	Chirotpannapandu	+	-	-	-
5.	Kharibhootapandu	+	-	-	-
6.	Kalaprakarshatshoona	+	-	-	-

Arishta Lakshana of Pandu

Acharya Sushruta has mentioned certain specific symptoms which indicates the Imminent Death of the Patient. They are as follows.

Persons whose teeth, nails, eyes have become yellowish white and who see everything as yellow or white are going to die of Pandu Roga.

Those who faint (murcha) often, who suffer from loss of consciousness (purusha) and who are suffering from Diarrhoea (Malbheeda) and fever (jwara) are going to die.

Those who have the oedema of extremities, distention of abdomen, swelling of rectum, penis and scrotum are also going to die of Pandu.

Samanya chikitsa of Pandu Roga

In Ayurveda, three general principles of treatment have

Chikitsa Siddhant Pandu Roga

हरेच्च दोषान् बहुशोऽल्पमात्रान् श्वेदेदिध दोषेष्वतिनिहुतेषु।

(सु. उ. 44/18)

तत्र पाण्ड्वामयी स्निग्धस्तीक्ष्णैरूध्वानुलोमिकैः।

(च. चि 16/40)

यथादोषं विशिष्टं च तयोर्भेषज्यमाचरेत्।।

पञ्चगव्यं महातिक्तं कल्याणकमथापि वा।

स्नेहनार्थं घृतं दद्यात् कामलापाण्डुरोगिणे।।

(च. चि. 16/42-43)

वातिके स्नेहभूयिष्ठं, पैत्तिके तिक्तशीतलम्।।

शलैष्मिके कटुतिक्तोष्णं, विमिश्रं सान्निपातिके।

(च. चि 16/116-117)

Chikitsa Karma of Pandu Roga**Nidana Parivarjana**

The Katu, Amla, Ushna, Tikshna and Vyayama, Vyavaya etc. Viharas are the causative factors Pandu Roga should be avoided.

Shodhana Karma

According to Acharya Charaka, the treatment of Sadhya patients of Pandu Rogais.

- Shodhana
- Pathya Sevana
- Shamana Aushadhi Prayoga according to Dosha predominance.

Shodhana

Acharya Charaka has described the Urdhwa as well as Adhoshodhana in the treatment of Panduroga.

been mentioned in Charak Samhita. They are,

- Daivavyapashraya
- Yuktivyapashraya
- Satvavajaya

In Panduroga, Yuktivyapashraya chikitsa has been mentioned which is as follows. In the treatment of Panduroga Acharya have mentioned Shodhana as well as Shamana Chikitsa.

Acharya Charaka has described that the disease found in adult is almost same in children, but there is only difference is that the Bala of Dosha, Dushya and Dhatus hence Saumya and Mridu Chikitsa of disease should be performed in children.

Ghrita for Snehana before Shodhana

In Panduroga there is natural reduction in Snehabhava of the body. Along with Raktalpatra, Alpamedosaka, Nissarata, Ojakshaya etc. Rukshata appears on whole body. Therefore, there is great need of Snehana. Commonly prescribed Snehan kalpa are Panchgavya Ghritam, Mahatikta Ghritam, Kalayan Ghritam, Dadimadya Ghritam, Katukadya Ghritam, Draksha Ghritam, Haridradi Ghrita etc.

Vamana

According to Acharya Charaka, Tikshna Guna yukta Dravyas are generally used in the Vamana of Pandu Roga. As per Acharya Sushruta, vitiated Doshas should be removed from body in small quantity but frequently by Shodhana methods.

Acharya Dalhana advised Mridu Vamana in Pandu Roga when Rutu, Desh, Kala, is in favors.

Dhamargava and Ikshwaku are mentioned in Vaman

Karma of Panduroga.

Virechana

For the Virechana Karma Snigdha, unctuous and Tikshana drugs are used, it causes the cleansing of body. Haritaki is mentioned for Virechana Karma along with drugs like Gomootryukta Dugdham, Dantiphala Rasa etc.

Basti

In Siddhithana of Charak Samhita, Acharya has mentioned Rakta Basti with Aja Rakta in Jeevadhana Avastha.

Pathya

Jeerna Shali, Yava, Godhuma, Mudga, Jangla Mansa sevan.

Line of treatment in specific type of Pandu

Acharya charaka has also described the management Doshik Pandu.

- Vataja Pandu treated with Snigdha Dravyas.
- Pittaja Pandu is treated mainly with Tikta and Sheetala dravyas.
- In the treatment of Kaphaj Pandu, Tikta, Ushna dravyas should be used.
- Mixed treatment should be used in Sannipataj Pandu.

In the Ayurvedic text various form of drugs which have been used in the treatment of Pandu Roga.

Acharya Charaka

- Gomutraharitaki
- Navayasa Churna
- Mandoor Vataka
- Shilajatu Vataka
- Punaranava Mandoor
- Darvyadiavleha
- Dhatriavleha
- Beejakerishta
- Triphala Yoga
- Dhatriyarshitha.

Acc to Acharya Sushruta

- Vidangadyavleha
- Madoora Prayoga
- Bhibhitakadi Vataka.

Acc to Acharya Vagbhatta

- Vasadi Kwatha
- Tapyadi Churna
- Vyoshadi Ghrita.

Anupana (Adjuvants)

The substance that is consumed along with or after the intake of Aushadhi Dravya is called Anupana. This may be either solid or liquid in nature.

Following Anupana are mentioned by Acharyas in the treatment of Panduroga. This may be either solid or liquid in nature.

- Takra
- Madhu
- Godugdha
- Dadimambu
- Goghruta
- Triphala Kashaya.

Types of Anaemia as per Modern Texts

There are several types and classifications of anemia. The occurrence of anemia is due to the various red cell defects such as production defect (aplastic anemia), maturation defect (megaloblastic anemia), defects in hemoglobin synthesis (iron deficiency anemia), genetic defects of hemoglobin maturation (thalassemia) or due to the synthesis of abnormal hemoglobin (haemoglobinopathies, sickle cell anemia and thalassemia) and physical loss of red cells (hemolytic anemias).

Iron-Deficiency Anemia

Iron is essential for the various activities of the human body especially in the hemoglobin synthesis. The following figure shows the distribution and storage of Iron (Fe) in the various parts of the human body. Iron deficiency anemia is a condition in which the body has too little Iron in the bloodstream. This form of anemia is more common in adolescents and in women before menopause. Blood loss from heavy periods, internal bleeding from the gastrointestinal tract, or donating too much blood can all contribute to this disease.

A low level of Iron, leading to anemia, can result from various causes. The causes of Iron-deficiency anemia are pregnancy or childhood growth spurts, Heavy menstrual periods, Poor absorption of iron, Bleeding from the gut (intestines), dietary factors (iron poor or restricted diet), medication (aspirin, ibuprofen, naproxen and diclofenac), Lack of certain vitamins (folic acid and vitamin B12), Bleeding from the kidney, Hookworm infection, Red blood cell problems, Bone marrow problems.

Symptoms

Tiredness, lethargy, feeling faint and becoming breathless easily, headaches, irregular heartbeats (palpitations), altered taste, sore mouth and ringing in the ears (tinnitus). Anemia in pregnancy increases the risk of complications in both mother and baby such as low birth weight baby, preterm (premature) delivery and postnatal depression. Low iron reserves in the baby may also lead to anemia in the newborn baby.

Pernicious Anemia

Pernicious anemia is the most common cause of Vitamin B12 deficiency. Vitamin B12 is essential for life. It is needed to make new cells in the body such as the many new red blood cells which are made every day. Vitamin

B12 is found in meat, fish, eggs, and milk. A lack of vitamin B12 leads to anemia and sometimes to other problems. A lack of vitamin B12 (B12 deficiency) is one cause of anemia. Pernicious anemia usually develops over the age of 50. Women are more commonly affected than men, and it tends to run in families. It occurs more commonly in people who have other autoimmune diseases. Certain medicines used also may affect the absorption of vitamin B12. The most common example is metformin, colchicine, neomycin, and some anticonvulsants used to treat epilepsy.

Symptoms

Psychological problems like depression, confusion, difficulty with memory or even dementia and Nervous problems like numbness, pins and needles, vision changes and unsteadiness. can develop. Prolonged or severe vitamin B12 deficiency may therefore cause permanent brain or nerve damage.

Hemolytic Anemia

Hemolytic anemia is a condition in which red blood cells are destroyed and removed from the bloodstream before their normal lifespan is up. Hemolytic anemia can affect people of all ages, races and sexes. Hemolytic anemia can lead to various health problems such as fatigue, pain, arrhythmias, an enlarged heart and heart failure. Inherited hemolytic anemias include Sickle cell anemia, Thalassemia, hereditary spherocytosis, hereditary elliptocytosis, Glucose-6-phosphate dehydrogenase (G6PD) deficiency, Pyruvate kinase deficiency. Acquired hemolytic anemias include Immune hemolytic anemia, Autoimmune hemolytic anemia, Alloimmune hemolytic anemia, Drug-induced hemolytic anemia, Mechanical hemolytic anemias, Paroxysmal nocturnal hemoglobinuria, Certain infections and substances can also damage red blood cells and lead to hemolytic anemia.

Symptoms

The most common symptom of anemia is fatigue. A low red blood cell count can also cause shortness of breath, dizziness, headache, coldness in your hands or feet, pale skin, gums and nail beds, as well as chest pain. Symptoms of hemolytic anemia include Jaundice, Pain in the upper abdomen, Leg ulcers and pain, A severe reaction to a blood transfusion. Treatments for hemolytic anemia include blood transfusions, medicines, plasmapheresis, surgery, blood and marrow stem cell transplants and lifestyle changes.

Sickle cell Anemia

Anemia in which the body makes sickle-shaped ("C"-shaped) red blood cells is called Sickle Cell anemia. It contains abnormal hemoglobin which causes sickle shape and can't move easily through the blood vessels. The clumps of sickle cells block blood flow that leads to the limbs and organs. Blocked blood vessels cause pain, serious infections, and organ damage. Sickle cells usually die after about 10 to 20 days and the body can't reproduce

red blood cells fast enough to replace the dying ones, which causes anemia.

Symptoms

Sickle cell anemias is an inherited, lifelong disease and most common in Africa, South or Central America, Caribbean islands, Mediterranean countries, India and Saudi Arabia. symptoms include Fatigue, Shortness of breath, Dizziness, Headache, Coldness in the hands and feet, Pale skin, Chest pain.

Thalassemia

Thalassemia is an inherited blood disorder which cause the body to make fewer healthy red blood cells and less hemoglobin. The two major types of thalassemia are alpha- and beta thalassemia. The most severe form of alpha thalassemia is known as alpha thalassemia major or hydrops fetalis, while the severe form of beta thalassemia is known as thalassemia major or Cooley's anemia. Thalassemia affects both males and females and occur most often in people of Italian, Greek, Middle Eastern, Asian, and African descent.

Symptoms of thalassemia are caused by a lack of oxygen in the blood stream. The severity of symptoms depends on the severity of the disorder. People who have alpha or beta thalassemia can have mild anemia, People with beta thalassemia intermedia have mild to moderate anemia. They may also have other health problems including slowed growth and delayed puberty, bone problems and an enlarged spleen.

People with hemoglobin H disease or beta thalassemia major have severe thalassemia and other serious health problems Pale and listless appearance, Poor appetite, Dark urine, slowed growth and delayed puberty, Jaundice, Enlarged spleen, liver and heart, Bone problems. Three "standard treatments" are used to treat moderate and severe forms of thalassemia, these include blood transfusions, iron chelation therapy, and folic acid supplements.

Aplastic Anemia

Aplastic anemia is a blood disorder in which the body's bone marrow doesn't make enough new blood cells. This may result in a number of health problems including arrhythmias, an enlarged heart, heart failure, infections and bleeding. Damage to the bone marrow's stem cells causes aplastic anemia.

A number of acquired diseases, conditions, and factors can cause aplastic anemia including Toxins, such as pesticides, arsenic, and benzene, Radiation and chemotherapy, Medicines such as chloramphenicol, Infectious diseases such as hepatitis, Epstein-Barr virus, cytomegalovirus, parvovirus B19, and HIV, Autoimmune disorders such as lupus and rheumatoid arthritis. Inherited conditions, such as Fanconi anemia, Schwachman-Diamond syndrome, dyskeratosis and Diamond-Black fan anemia may also cause aplastic anemia.

The most common symptoms of aplastic anemia are Fatigue, Shortness of breath, Dizziness, Headache, Coldness in your hands or feet, Pale skin, gums and nail beds, Chest pains. Treatment for aplastic anemia includes blood transfusions, blood and marrow stem cell transplants, and medication. These treatments can prevent or limit complications, relieve symptoms, and improve quality of life. Blood and marrow stem cell transplants may cure the disorder.

DISCUSSION

Pandu is a Varnatmaka Shabda and denotes destruction of colour. Shweta Varna, Ketaki Dhuli Sannibha and Peeta Varna are the given references in Ayurvedic classics. Pandu is a Rasa Raktavaha Sroto Vikara in which paleness of skin, nails, eyes, face etc are seen and Lakshanas like Alparakta, Alpamedas, Balaheena, Varnaheena, Alasya, Nisara, diminished sensory and motor activity, lack of enthusiasm etc. are found. Pandu Rogi loses lusture and became victim of dryness of body. Balakshaya and Ojogunakshaya are also seen in Pandu Rogi. It is a Pitta Pradhana Vyadhi with involvement of another Dosha. Charaka describes skin colour in Pandu like Harita, Haridra, Bahuvridha Varna, Krishna Pandu, Arunangata, Svetata and Svetavabhasta. Panduta of Danta and Nakha is told in Susruta. Sveta, Akshi, Nakha Vakrata in Pandu is mentioned in Kashyapa Samhita.

Hrudaya Spandanam as the Purvarupa of Pandu told in Ayurvedic classics can be equated with the symptom palpitation told in Anaemia in modern medicine. Other symptoms like Rukshata, Swedabhava, Shrama, Mrudbhakshana, Akshi Kutha Shotha, Avipaka are seen in Pandu. Rukshata is seen in Pandu because of Rasa Dhatu Dushti and Twak is the Upadhatu of Rasa Dhatu. As Medovaha Srotas and Raktavaha Srotas are involved symptoms like Swedabhava, Shrama are given in Pandu. Akshikutha Shotha may be Papilloedema told in anaemia and Angular stomatitis (Avipaka) is a major symptom in moderate anaemia.

Mrudbhakshanjanya pandu mentioned as a type of Pandu, is mostly due to unhygienic conditions and contaminated foods, various types of parasites enter into the body and absorbs food and nutrients. Especially Hook worms sucks directly blood from the human being and it is considered as the major cause of Iron deficiency anaemia in undeveloped countries.

All the Acharya agree with the opinion of Charaka and considers the 5 types of Pandu except Susruta and Harita. According to Susruta, Mrudbhakshana is a Nidana rather than a variety of Pandu Roga. All others taking it as a separate class, as the signs and symptoms and management of Mrudbhakshanjanya Pandu is different from other varieties. Susruta includes Kamala and its varieties in Pandu Roga.

Panduta (pallor) can be considered as the Pratyatma Lakshana of Pandu. Acharya Charaka has mentioned

Arohana Ayasa as the Vishesha Lakshana of Pandu. Raktalpata can be also considered as the Pratinityata Lakshana of Pandu. Both qualitative and quantitative decrease of Rakta is seen in Pandu.

Discussion of Samprapti of Pandu needs the assessment of various Nidana, involvement of Dosha, Dushya, Srotas, Agni, etc. Acharya Charaka considers Pandu as a Rasa Pradoshaja Vikara and Susruta considers it as Rakta Pradoshaja Vikara. But both opine the major involved Dosha is Pitta. In our classics it is explained that Ranjaka Pitta gives colour to the Rasa Dhatu and helps to form Rakta Dhatu. Due to the Nidana, when the Pitta Vruddhi takes place, especially the Dravatwa of Pitta Dosha gets aggravated and further it subsides the Jatharagni, exactly like that of hot water poured over burning charcoal, that leads to Raktaposhaka Rasa Dhatu Anutpadana. The Vitiated Dosha got Sthana Samsraya in Twak as it is the Upadhatu of Rasadhatu. Chirotpanna Pandu Rogi is Asadhya due to the extreme loss of Ojus resulted due to the Dhatu Kshaya.

CONCLUSION

Based on Nidana, and Lakshana Pandu can be correlated to Iron deficiency anemia of modern science. Pandu Roga showed its direct impact on Rasa Raktavaha Sroto Dushti Lakshana due to Rasa Dhatvagni Mandyata. Vata Pitta Prakruti persons and those who follow Pittakara Nidana persons are more susceptible to Pandu. Present lifestyle that has disturbed the food habits giving rise to agnimandya, vidhagdhaajirna, and finally leads to Pandu Roga. Poor Socio-economic condition, mental stress and strain play an important role in causing and aggravating the Pandu Roga. Pandu Roga is a Pitta Pradhana Vyadhi with the involvement of Vata and Kapha Dosha. In acute stage all Pandu Roga are curable or manageable but in chronic stage they are incurable. The study of Nidana Panchaka will be helpful in accurate understanding of Nidana, Purvarupa, Rupa, aggravating factors, relieving factor of Pandu Roga.

REFERENCES

1. Vrddha Vagbhata. Ashtanga Samgraha- Sasilekha by Indu, prologue in Sanskrit and English by Prof. JyotirMitra. Varanasi: Chaukhambha Sanskrit Series Office, 1998; 965.
2. Sri Brahmasankara Misra, Sri Rupalalaji Vaisya. Bhavaprakasa of Sribhava Misra including Nighantu portion-edited with the Vidyotini Hindi Commentary. 11th ed. 2004. Varanasi: Chaukhambha publications, 1992.
3. Yogaratnakara- 'Vidyotini' Hindi commentary by Vaidya Lakshmiapati Shastri. Edited by Bhisagratna Bramhananda Shastri. 7th ed. Varanasi: Chaukhambha Sanskrit Sansthan, 1999.
4. Sharangadhara Acharya. Sharangadhara Samhita- Deepika of Adhamalla and Gudhartha Deepika of Kashirama. Varanasi: Krishnadas Academy.
5. Shree Charkrapanidatta, Chakradatta, with Vaidyaprabhahindi commentary by Dr Dwivedy I, Choukhambha Sanskrit bhavan, edition Reprint,

2014; Chapter no 8, Pageno 79, Shloka no 8.

6. Aacharya Tripathi B, Charaksamhita, Chaukhambha Surbharati Prakashan, Edition reprint 2014, Uttarardha, Chikitsasthan, Chapter no 16, page no 408, Shloka no101.
7. Ghai O.P, Essential Pediatrics, Editor Paul Bagga, CBC Publisher, 7th edition, Reprint in 2010, Chapter Hematological disorder – Anemia Page no 329.
8. Ghai O.P, Essential Pediatrics, Editor Paul Bagga, CBC Publisher, 7th edition, Reprint in 2010, Chapter Hematological disorder – Anemia Page no 330, Table cutoff Hb% & HCT by WHO.