

A CRITICAL INTERPRETATION ON *PANDU* (ANAEMIA) - A SILENT KILLER.

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Abstract: *Pandu* (Anaemia) is the most common nutritional deficiency disease in the world. It impacts all age ranges but the most affected are pre-school - age children, pregnant women and child-bearing non-pregnant mothers. *Pandu* (Anaemia) has the greatest incidence in the developing country. Statistics from the National Health Survey show that every second young girl and women is *Pandu* and one in five maternal deaths were directly induced by *Pandu*. *PanduRoga* was described by *Ayurved* which correlated with *Pandu* i.e. Anaemia. *PanduRoga* includes a loss of haemoglobin due to low intake of iron from dietary sources, poor absorption and digestive issues can often contribute to *Pandu*. Medical signs include lack of appetite, palpitation, *Pandutwa* and exhaustion.

Key words: *Pandu*, *Ayurved* literatual Causative factors, Pathophysiology, Signs & symptoms, Dietary. Types, Modern literature & Articles

Introduction

Indian Situation –

In India, *Pandu* (Anaemia) impacts an approximate 50 % of the population. The issue is getting more severe because it is impacting more young girls and women than men¹. It is estimated that about 20-40 percent of maternal deaths in India are caused by *Pandu* and one in two girls and women (56 percent) suffers from some form of *Pandu*². *Pandu* is defined as haemoglobin of less than 12 g / dl in females. *Pandu* (mild Anaemia) is characterized as haemoglobin level of 10-11.9 g / dl, mild *Pandu* as hemoglobin level of 7-9.9 g / dl, and extreme *Pandu* (Severe Anaemia) as haemoglobin level of less than 7g / dl among females. Data from the National Nutrition Monitoring Office³, surveys have shown that the prevalence of *Pandu* is very high (between 80 >90 percent) in pre-school, pregnant and lactating women and adolescent girls. Low birth weight babies, small children and women of childbearing age are especially at risk for *Pandu*.

Global Situation -

About 30 % of the world's population suffers from *Pandu* and the citizens in developed nations have endured further. A formulation that acts as a rejuvenating agent, an appetite, increases blood haemoglobin levels, helps in iron absorption, enhances RBC production and increases the bioavailability of iron may be used for the management of *Pandu*.

Methodology

This article is compiled from different papers, *Samhita's*, numerous literatures, authoritative websites such as PubMed, ICMR, WHO, etc., different magazines and journals.

Nidana Panchaka of *Pandu Roga*

1. Nidana of *PanduRoga*^{4,5}

The *Pandu Roga Nidana* is categorized into three groups.

1) *Aharaja Nidana*:

- i. Excessive intake if *Kshara*, *Ushna*, *Amla*, *Lavana*, *Viruddha Ahara*
- ii. *Nispava*, *Tila taila*, *Masha*,

(2) *Viharaja Nidana*

- i. *Divaswapa*
- ii. Heavy exercise
- iii. Substandard regulation of the *Ritucharya*.
- iv. Abolition of *Adharaniya Vegas*

3) The *Manas Nidana*

- i. Affliction of mind with *Kama, Krodha, Chinta, Bhaya and Shoka*.

2. *Samprapti of Pandu Roga*⁶

The intake of etiological factors. *Doshas* Aggravates with *Pitta Dosha* predominance and afflicts *Dhatus* primarily *Raktadhatu*, it also induces laxity and heaviness in the *Dhatus*. *Dhatus*'s heaviness occurs owing to *Dhatus*' disturbance of regular activity. Due to morbidity of *Dosha and Dushya*, *Pandu Rogi* lose their potency, presence, vitality, unctuousness and *Ojas*.

Aggravated *Pitta*, which was removed from *Hrudaya* by strong *Vata across* ten blood vessels or *Siras*, circulates in the body. It enters the area between *Twak and Mamsa* and results in unhealthy skin such as light yellow, dark yellow, and greenish discoloration. *Aggravated Pitta* is responsible for the decreased output of *Poshaka* from the *Rasa Dhatu* as a consequence of *Rakta* depletion and causes *Pandu Roga Vyadhi*.

Anemia means a decreased amount of haemoglobin in the blood. This can be due to a decrease in the number of red blood cells (RBCs) in your blood or a decrease in the amount of haemoglobin in each RBC. Because the body uses oxygen to make energy, a person with anemia has less oxygen in their blood which can make them feel tired or short of breath.

Hemosiderin and red blood cells⁷

The blood contains many different types of cells. These cells include immune cells and red blood cells (RBC). RBCs are responsible for carrying oxygen from your lungs to the rest of your body and carrying carbon dioxide back to the lungs. They hold on to oxygen and carbon dioxide using a specialized protein called haemoglobin.

Normal red blood cells⁷

Red blood cells are made in a part of the bone called the bone marrow. As young RBCs mature in the bone marrow, they produce haemoglobin. Your body needs iron in order to make haemoglobin for RBCs. Once this process is complete, the RBCs are released into the bloodstream. Normal, healthy RBCs circulate in the bloodstream for about 120 days before they are removed, and their iron recycled to make new RBCs.

Extra iron is stored in a specialized protein called ferritin. The amount of ferritin will change as the amount of iron in your body changes. For example, a person with low levels of iron in their body will have low levels of ferritin in their blood.

Anemia can be caused by anything that decreases the number of RBCs in your blood or the amount of haemoglobin found in each RBC. In some situations, a person may have more than one reason for developing anemia.

The causes of anemia are often divided into three groups⁷:

Conditions where enough RBCs are not produced.

Conditions where RBCs cannot mature normally.

Conditions where RBCs are removed from the bloodstream faster than normal (less than 120 days).

Clinical presentation of *Pandu* can be correlated with anaemia of modern medical science. Anaemia is without blood/ pallor of the body. It is the most under diagnosed condition. The term *Lohita* probably indicates the importance of *LauhaDhatu* or Iron in its development. In *Garuda Purana*, there is a reference in which "*Takra*" mixed with *Lauha Churna* has been advocated for the treatment of *Pandu*. This shows that *Panduroga* was prevalent in that period and physicians were able to diagnose and treat it. It is therefore apparent that the use of Iron preparation for the treatment of *Panduroga* was well known since ancient

times. While describing the pathological aspect of the diseases, *Dhatu Pradoshaja Vikaras* have been mentioned. *Pandu* is the disease of *Rasavaha Srotas* according to *Charaka Samhita* and *Raktavahasroto-viddha Lakshana* and *Rasadoshaja Vikara* as per *Maharshi Sushruta*. Thus, it is related with both important *Dhatu Rasa* and *Rakta* Principal function of both these *Dhatuhas* been described as *Preenana* (providing nourishment) & *Jeevana* (life activity) *Karma*.⁸

Samprapti Ghataka of Pandu Roga⁸

Dosha -Pitta Pradhana Dosha

Dushya -Sarva Dhatus along with Oja

Type of Agni - Jatharagni, Dhatwagni

Type of Srotas -Rasavaha, Raktavaha

Type of Srotodushti - Vimargagamana

Udbhavasthana- Hridaya, Amashaya,

Sanchara - Sarva Sharira

Type of Roga Marga -Madhyama Roga Marga

3. Purvarupa

Purvarupa signs and symptoms are.^{9,10}

- i. *Tvakasphotanata*
- ii. *Mridabhakshanata*
- iii. *Vinmutrapitata*
- iv. *Avipakata*
- v. *Hridayaspandanata*
- vi. *Sthivanata*
- vii. *Gatrasadata.*
- viii. *Raukshya*
- ix. *Swedabhav*
- x. *Shram*

4. Rupa¹¹

The general indication and signs of Pandu Roga.

- i. *Durbalayata*
- ii. *Ati Nidra*
- iii. *Shramata*
- iv. *Bhrama*
- v. *Gatrashulata*
- vi. *Jwara, Swasa, Kasa Aruchi*
- vii. *Sheernaloma*
- viii. *Hataprabha*
- ix. *Shishirdweshi*



Bheda of Pandu Roga¹²

Pandu Roga is classified into 5 types.

- 1) *Vataja Pandu Roga*
- 2) *Pittaja Pandu Roga*
- 3) *Kaphaja Pandu Roga*
- 4) *Sannipataja Pandu Roga*
- 5) *Mrudbhakshanajanya Pandu Roga*

Types of Panduroga according to different text

Types	Charak Sanhita	Sushrut Sanhita	Ashtanga Sangraha	Ashtanga Hridaya	Madhav Nidana	Bhavaprakash
<i>Vataja</i>	+	+	+	+	+	+
<i>Pittaja</i>	+	+	+	+	+	+
<i>Kaphaja</i>	+	+	+	+	+	+
<i>Sannipataja</i>	+	+	+	+	+	+
<i>Mrudbhakshanjanya</i>	+	-	+	+	+	+

+ Mentioned - Not mentioned.

In *Harit Sanhita* 8 types of *Panduroga* Described 1) *Vataja* 2) *Pittaja* 3) *Kaphaja* 4) *Sannipataja* 5) *Mrudbhakshanjanya* 6) *Kamla* 7) *Kumbhkamla* 8) *Halimak*¹³.

Acharya Charaka has mentioned *kamala* as a *pravardhaman awastha* of *panduroga*.

Ayurveda and Anaemia⁸

In *Sanskrit*, the word '*Pandu*' means pale (*swetapeet varna*). So, the disease in which, the whole body becomes pale (skin, nails, eyes) due to *rakta alpata* (deficiency of blood) is called *Pandu roga*.

The pathology of anemia finds its root in the imbalance of *Agni* (Fire element), which leads to the formation of *Ama* (toxin). This disruption is caused by *Pitta dosha* (biohumor associated with blood and Fire element) that is circulated around the body by aggravated *Vata* (biohumor associated with circulation and Air element).

Pitta dosha usually gets aggravated by eating foods that are too sour, salty, spicy or hot, eating uneasy food combinations (*viruddh ahar*), exercising or having sex during the process of digestion, suppression of natural urges, and negative emotions like fear, jealousy or anger.

This circulating *Pitta* imbalances the *Pitta* in the heart (*Sadhaka Pitta*) and liver (*Ranjaka Pitta*) which slackens and weighs down the tissues, especially affecting the blood, muscles and *Ojas* (vital fluid) with its sharp and hot qualities. *Vata* and *Kapha doshas* can also cause anemia and therefore *Pandu Roga* is classified according to the dominant *dosha*.

Types of Pandu Roga

Caused by *Vata dosha* – *Vataj*

Caused by *Pitta dosha* – *Pittaj*

Caused by *Kapha* – *Kaphaj*

Caused by all three doshas – *Sannipataj*

Caused by eating clay – *Mrttika bhakshan janya pandu roga*

Characteristics of the Various Types

Vata-type anemia: Dark and pale-yellow complexion, rough and dry skin, aches and pain, tremors, distaste in the mouth, cracking of joints, swelling, prickling pain, constipation, weakness and malaise

Pitta-type anemia: Yellowing of the eyes, fever and burning sensation, excessive thirst, sweating, develops a liking for cold things, pungent taste in the mouth, sour belches, indigestion, bad breath, sensitivity to light and loose stools

Kapha-type anemia: Swelling (edema), cold and clammy skin, drowsiness, heaviness of the body and mind, vomiting, whitish complexion, chills, giddiness, laziness, anorexia, cough, obstruction in speech and voice, sweet taste in mouth and whitishness of urine, eyes and feces

Tridoshic anemia: Mixed features of all the three kinds stated above

Mrudabhakshnaj : Anemia due to mud eating: Edema in the cheek, eye sockets, feet and pudendum, worm infection, loose motions and breathlessness.

Upadrava¹¹

Unless the disease is not controlled at an early stage, the following problems can occur-

- i. *Aruchi*
- ii. *Agnisada*
- iii. *Kanthashotha*
- iv. *Abalatva*
- v. *Murchchha*
- vi. *Pipasa*
- vii. *Chhardi*
- viii. *Jwara*
- ix. *Murdharuja*

5. Upashaya of Pandu Roga⁹

- Old Shali beans, food prepared by Purana Yava and Godhuma, with Yusha and Mudga and Jangala Mamsa, should be recommended.
- Panchagavya Ghrita, Tikta Ghrita and Kalyanakari Ghrita are effective, for the care of Snehana in Pandu Roga.

Anupashaya of Pandu Roga¹²

In Pandu Roga can be stopped according to etiological considerations.

- Pandu Rogi should stop eating Patrashaka, Urada, Tiladi Khali, Tambula, Sura, Mrutika, Divaswapa, and salty and spicy products.
- Patients can avoid staying around heat, hard work and exercise, natural Vegas suppression.

Sadhyasadyata of Pandu Roga^{13,14}

The signs, symptoms and other conditions indicate incurability of *Pandu Roga* are –

- i. *Daurbalyata*
- ii. *Chhardi*
- iii. *Murchchhata*
- iv. *Trishna* .
- v. *Asrikakshaya*
- vi. *Chirotapanna*
- vii. *Kharibhutata*
- viii. *Kalaprakarshashuno*
- ix. *Atisara*

Pandu as a Nidan arthkar Roga

If patient of *pandu roga* excessively follows *pitta* vitiating diet and regimen, the *pitta* so aggravated by involving the *rakta* and the *mamsa* cause *Kamala*.¹⁵

Pandu further leads to *Kamla*, *Kumbhkamala*, *Halimak*, *Hrudroga* and *Arsha*.

Pandu Arishtha¹⁶

The patient suffering from *Panduroga* does not survive if has following sign and symptom.

1. Teeth, Nail, Eyes, and body of *Pandu* colour
2. Sighting pale around yellow vision everywhere.
3. when he saw yellowness/paleness in vision/object everywhere in his skin as well as eyes turn yellow/pale.

Laboratory investigations¹⁷

- Complete hemogram Count: Haemoglobin Percentage, total leucocyte count, differential leucocyte count, erythrocyte sedimentation rate, and packed cell volume, mean corpuscular volume, mean corpuscular haemoglobin, mean corpuscular haemoglobin concentration and total platelet count.
- Blood biochemistry: Total iron binding capacity.
- Serum glutamic pyruvic transaminase, blood sugar (DM), blood urea and serum creatinine.
- Urine and stool: Routine and microscopic examination of urine and stool.

Pandu (Anaemia) act as Silent killer

In a milder type, *Pandu (Anaemia)* is "silent," with no symptoms. Throughout its extreme type, *Pandu* is correlated with symptoms such as exhaustion, nausea, dizziness and somnolence. It may also include a loss of normal color in the skin (in fair-skinned people) and also in the lips, tongue nails, beds and blood vessels in the white of the eye. If not treated, *Pandu* may worsen and become the root cause of chronic disease, such as impaired fetal development during pregnancy, delayed cognitive development and increased risk of infection in young children, and decreased physical capacity in all people.¹⁷. (http://www.who.int/water_sanitation_health/diseases/Anaemia/en/.) Retrieved on July 17th, 2012).

DISCUSSION¹⁸

According to WHO, *Pandu* is linked to a larger community than generally known classes of pregnant and lactating women and children, with the advent of menstruation and subsequent blood loss, the incidence and frequency of *Pandu* in teenage girls tends to increase. There is an immediate need to enhance the overall nutritional health of teenagers through nutrition education, group recognition and supplementation programs. The need for routine blood checks to evaluate the amount of hemoglobin is emphasized. The nutrition component needs to be included in the curriculum of the school. Focus is required for remedial steps of *Pandu* and iron deficiency in girls before they reach the adolescent age group.

Conclusion

Pandu appears to be literally a physical ailment arising from inadequate consumption of iron and protein, likely exacerbated by hookworm, malaria or haemorrhage. This is a symptom of serious socio-economic and political illness. Most of the time, girls and women are not only breastfed for a shorter period of time, but their dietary supplementation is also delayed. Most girls are not trained to make decisions about their life, health, education or marriage. The Societies must be aware and eliminate this type of *Roga* and illness permanently.

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