


INTEGRATIVE APPROACH IN THE DIAGNOSIS AND MANAGEMENT OF IRON DEFICIENCY ANAEMIA W.S.R. TO VATIK PANDU – A REVIEW
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ABSTRACT

Iron deficiency Anaemia is global problem of immense public health significance. It is very common disease occurring in all ages without sex discrimination and all season. It may develop as separate disease as a consequence of much life-threatening diseases. *Pandu roga* is a disease entity described in Ayurveda which bears great resemblance to the clinical picture of anemia. *Pandu roga* is such a disease in which *vaivarna* (change in normal color of skin) such as *panduta* (mixture of white and yellow discolouration) i.e. paleness that also present in Iron deficiency anemia. Today *Pandu roga* is equated with Iron deficiency anemia, in deep study we can correlate it with *Vatik pandu*, type of *Pandu roga* due to similarity in causes and symptoms. Iron deficiency anemia is often associated with malnutrition producing interlinked factors many of which could be related to the morbidity and mortality risk. The ideal anti anemic regimen should be safe, cheap, well tolerated by patient and able to achieve a high cure rate and negligible side effect. This can be fulfilled by Ayurveda management due to multidimensional approach to diagnosis and management. The sequential administration of *shodhan* therapy and certain *shaman yoga* like *lauha kalpa* can effectively treat *pandu* and restore health by balancing *dosha*.

KEYWORD: *Vatik Pandu*, Anaemia, Iron deficiency anemia, *Shodhan*, *Shaman*.

INTRODUCTION

Anemia word is derived from 'greek' word which means lack of blood. Anemia is defined as haemoglobin concentration in blood below the lower limit of the normal range for the age and sex of the individual.^[1] Anemia may associate with various causes that may create health issues. Iron deficiency is a very common nutritional disorder worldwide and is known to affect approximately one third of the global population. While its incidence in affluent countries is low, the incidence of iron deficiency Anaemia in India is very high.

In 2021, the global prevalence of anemia across all ages was 24.3%.^[2] The WHO has recognized Iron deficiency anemia as most common nutritional deficiency anemia in the world, with 30% of population being affected with this condition.^[3]

A variety of etiology exists for anemia including; anemia due to blood loss, anemia due to impaired red cell formulation which may occurs as a result of various factors as cytoplasmic maturation defect, nuclear maturation defect, haemopoietic stem cell proliferation abnormal bone marrow failure and infiltration and

anemia due to increase red cell distribution. Nutritional Iron deficiency is the most common cause of anaemia all over the world. Iron Deficiency Anaemia, Thalassemia, Megaloblastic Anaemia, Haemolytic Anaemia, and other kinds of Anaemia are described in modern medicine. Iron deficiency is one of them.

Iron deficiency is the most frequent and widespread nutritional deficiency in the world. Iron deficiency anemia is caused by inadequate iron intake and poor iron absorption.^[4] Iron plays an important role in the formation of haemoglobin (which is important of oxygen carrying) as well as essential element in the body (e.g. myoglobin, cytoplasm, cytochrome oxidase, cytochrome oxidase, peroxidase, catalase). So, iron deficiency anemia is characterized by a defect in haemoglobin synthesis resulting in RBC that are abnormally small (microcytic) and contain a decrease amount of haemoglobin (Hypochromic). As a result, the capacity of the blood to deliver oxygen to body cells and tissue is thus reduced. Anemia goes undetermined in many cases symptoms can be minor and vague.

The pallor on the skin is a key diagnostic characteristic of *Pandu Roga* and is caused by a quantitative and

qualitative depletion of *Rakta Dhatu*, which might manifest as a lack of haemoglobin, less red blood cells (RBCs).^[5] Considering *Panduta* as the predominant sign, the disease is termed as *Pandu roga*. *Vachaspatyam* refers *pandu* as a mixture of white and yellow color which resembles with pollen grains of *ketki* flowers.

Vatik pandu is caused by *vat prakopak aahar, vihar* that are manifestation of nutrition deficiency (*Rasa* and *Rakta dhatu kshay*). So, the symptoms of *vatik pandu* can be correlate with iron deficiency anemia.

Iron deficiency is a relatively common problem in society, and the side effects of oral Allopathic iron preparations are extremely common. With the hope that herbal medication may be beneficial in treating iron deficient anaemia without causing any side effects.^[6] This conceptual study will highlight, evaluate, elaborate and discuss about iron deficiency anaemia with special reference to *Vatik Pandu Roga*.

AIM

Integrative Approach in the diagnosis and management of Iron deficiency Anemia w.s.r.to *Vatik Pandu*.

OBJECTIVE

To study Anemia and Iron deficiency anemia in detail.

To study *Pandu roga* and *Vatik Pandu* in detail.

To study co-relation between Iron deficiency anemia and *Vatik Pandu*.

MATERIAL AND METHOD

Material related to *Vatik pandu roga* and iron deficiency anaemia collected from text book of Ayurveda, commentaries and modern medicine respectively. Index Journals, articles, has also referred to collect information of relevant topic.

Conceptual Study

Anaemia- Human blood includes haemoglobin, a crimson pigment that is high in iron. It transports oxygen to many regions of the body. Iron deficiency in the diet reduces the quantity of haemoglobin in the blood, making

it thinner and less red in colour, resulting in a lower delivery of oxygen to different regions of the body; this is known as anaemia.^[7]

Classification

On the basis of cause (pathophysiology)

- Blood loss- acute or chronic
- Impaired red cell production-
- Fe deficiency
- Megaloblastic anaemia
- Aplastic Anaemia
- Anaemia due to chronic systemic disorders
- Increase red cell destruction (Haemolytic anaemia)

On the basis of morphology

- Normocytic Normochromic-
- Microcytic Hypochromic-
- Macrocytic Normochromic

Symptoms

- Fatigue, Dyspnoea, body ache, decreased exercise tolerance, palpitations.

Sign

- Paler
- Koilonychia
- Cheilosis
- Inadequate growth in children^[8]

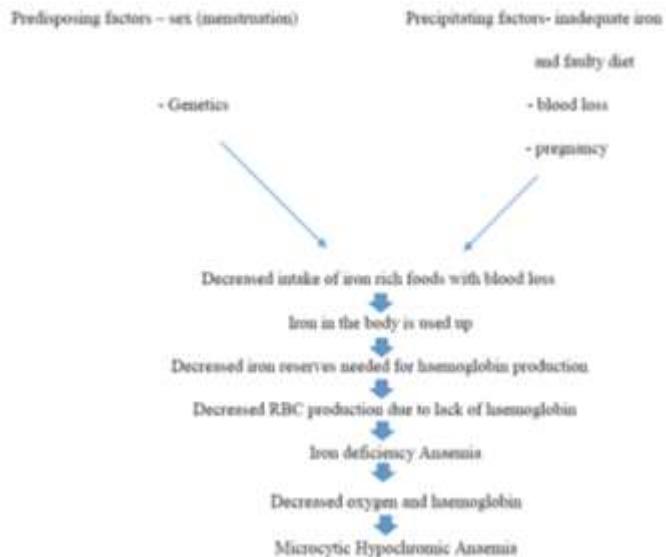
Iron Deficiency Anaemia - Iron deficiency is the most frequent nutritional deficiency condition worldwide; however, its incidence is higher in underdeveloped nations. Iron is required for several actions in the human body, including haemoglobin formation. Iron deficiency anaemia occurs when the body lacks insufficient iron in the circulation. This kind of anaemia is more prevalent in teens and women before to menopause. This condition can be caused by blood loss from heavy periods, internal bleeding from the gastrointestinal tract, or giving too much blood.^[9]

1.1 Table showing Nidan (causes) of Iron deficiency anaemia and *Vatik pandu*

Sr. no.	Factors	Iron deficiency Anemia	<i>Vatik Pandu</i>
1	<i>Aaharaj</i>	1. Dietary Variable 2. Poor iron intake 3. Deficiency in particular vitamin 4. Some Medicine	<i>Vata prakopak aahar</i> ^[10] <i>Excessive intake of Kshaar, Amla, Lavan, Ushna and Teekshna Ahar.</i> <i>Virudha aahar</i> ^[11]
2	<i>Viharaj</i>	-----	1. Exercise and sexual intercourse during digestion of food 2. Faulty administration of <i>Panchakarma</i> 3. Faulty Management of <i>Ritucharya</i> 4. Suppression of <i>Adharaniya Vega</i> ^[11]
3	<i>Mansik</i>	Tension, Stress	<i>Kama, Chinta, Bhaya, Krodha and Shoka.</i> ^[11]
4	Other	1. Pregnancy 2. Growth period in children 3. Heavy menstrual cycle 4. Sudden blood loss	<i>Raktarsha, Krumi, Jvara, Pliharoga</i> etc.

		5. Gastrointestinal or kidney related bleeding 6. Poor iron absorption 7. Hook worm infection 8. Bone marrow disorder	
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Pathophysiology



Symptoms- skin that paler than usual, unusual tiredness, lethargy, feeling faint and shortness of breath, headaches, malaise, lightheadedness, irritability, irregular heartbeats (palpitations), altered taste, sore mouth, dry and damage hair, ringing in the ears (tinnitus).

Investigation

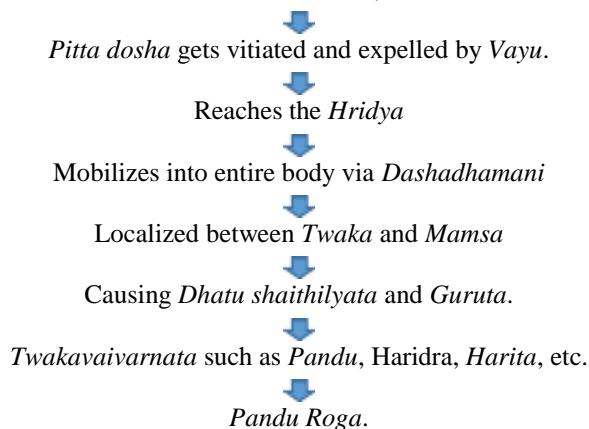
1. CBC
2. Serum Ferritin
3. Serum Iron Concentration
4. Serum Iron Binding Capacity

Pandu roga

Nirukti- 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.

Samrapati of Pandu Roga^[12]

Due to *Nidana*,



Samprapti Ghatak^[13]

- *Dosha -Pitta pradhana Tridohsaja*
- *Pitta- Sadhak, Ranjak, Bhrajak*
- *Kapha- Avalambak, Kledak*
- *Vata- Vyana Vayu*
- *Dushya- Twak, Rasa, Rakta, Mamsa*
- *Agni-Jatharagni, Dhatvagni*
- *Agnidusti- Mandagni*
- *Srotas-Rasavaha, Raktavaha*
- *Srotodusti- Sanga, Vimargagaman*
- *Udbhavasthana- Amasayottha*
- *Vyakti Sthan- Twak*
- *Sancharsthana- Twak and Mamsantar*
- *Svabhava- Cirakari Sadhya*

Poorvaroop of Pandu Roga - Premonitory symptoms are warning signs of an upcoming illness. They warn us that a series of unfortunate occurrences will occur in the near future, culminating in full-fledged sickness. *Poorvaroop* is the first sign of sickness. These are *Hritspandan*, *Raukshya*, *Swedabhav*, *Shram*.

Samanya Lakshana of Pandu – *Karnakshweda* (tinnitus), *Hatalan* (loss of digestion), *Durbalata* (General debility), *Annadwesha* (Anorexia), *Shrama* (Fatigue), *Bhrama* (giddiness), *Gatrashula* (body ache), *Jwar* (fever), *Shwasa* (dyspnoea), *Gaurava* (heaviness), *Shthivan* (Salivation), *Aruchi* (anorexia), *Shunakshikuta* (swelling over orbit), *Harita* (complexion become greenish), *Shirnaloma* (Brittle Hair), *Hataprabha* (loss of luster), *Shishirdweshi* (Intolerance to cold), *Nidralu*

(Sleepiness), *Alpa Vaka* (diminished speech), *Pindikodweshtan* (Cramps in calf muscles), *Kati-Uru-Pad Ruk* (Patient suffers from pain in waist, thighs and legs), *Arohana Ayase* (Patient feels exhausted while climbing stairs). C.Chi.16

Rudhirspruh (Desire for Blood), *Nakha Vakrata* (Koilonychia) -Kashyap Su.25

Types of *Pandu Roga*

- *Vataj Pandu*
- *Pittaj Pandu*
- *Kaphaj Pandu*
- *Sannipatataj Pandu*
- *Mridbhakshanjanya Pandu*

1.2 Table showing the comparison of symptoms in Iron deficiency Anaemia and Types of *Pandu*.^[14-17]

Sr. no.	Symptoms of Iron deficiency Anemia	Vatik Pandu	Pittaj Pandu	Kaphaj Pandu	Mritbhakshananya Pandu
1.	Pallor	✓	✓	✓	✓
2.	Poor appetite	✓	✓	✓	✓
3.	Unusual tiredness	✓	X	X	X
4.	Lethargy	✓	X	✓	X
5.	Feeling faint	✓	✓	X	X
6.	Shortness of breath	✓	X	X	X
7.	Palpitation	✓	X	X	X
8.	Headaches	✓	X	X	X
9.	Lightheadedness	✓	✓	X	X
10.	Malaise	✓	X	X	X
11.	Restless leg syndrome	✓	X	X	X
12.	Irritability	✓	X	X	X
13.	Altered taste	✓	X	X	X
14.	sore mouth	✓	✓	X	X
15.	Coldness of hand and feet	X	X	✓	X
16.	Dry and damage hair	✓	X	X	✓
17.	Tinnitus	✓	X	X	X
18.	Unusual craving for eating ice or clay	X	✓	X	✓

From the above table when we compare types of *Pandu* with Iron deficiency anaemia, we can conclude that the symptoms of Iron deficiency anaemia and *Vatik pandu* are mostly same

1.3 Table representing the management of iron deficiency anaemia and *Vatik pandu*

Sr. no.	Iron deficiency anemia	<i>Vatik pandu</i> ¹⁸
1.	Avoid the cause	<i>Nidanparimarjan</i>
2.	Diet- Food rich in heme iron- red meat, liver. Non heme iron- Green leafy vegetables, nuts, dates, custard apple, egg yolk	<i>Ahar-</i> <i>Snehapan, Aruksha, snigdha aahar sevan. Godhum, shalishashistik, yay, masoor dal, tur dal yush, jangal maas, ghrat, dadim sevan</i>
3.	Iron Therapy- a) Oral- Iron salt suchas-ferrous sulphate, ferrous fumarate, ferrous gluconate and polysaccharide iron. b) Parental- Iron gluconate, ironsucrose, Ferric carboxymaltose, ferumoxytol.	<i>Shodhan -</i> <i>Bahaya Snehan, Tikshna Shodhana (vaman, virechan, b asti)</i> <i>Shaman Yog-</i> <i>Snehapan- Dadimadyaghrit, panchgavya ghrat, Mahatikt ghrat, kalyanak ghrat</i> 1• <i>Chyavanprash-</i> 1 tsf BD, can also give with <i>tapyadi loha</i> for better result. 2• <i>Darvyadi leh-</i> 4 ratti with half tsf ghiee & 1tsg honey 3• <i>Ashvagandhayleh-</i> 1tsf BD 4• <i>Kushmandavleh-</i> 1tsf BD <i>Lauha yog</i> 5• <i>Yograj-</i> 4 ratti BD 6• <i>Lauha bhasma-</i> 2 ratti BD with milk 7• <i>Tapyadilauha-</i> 250 mg + <i>Suvarnamakshik bhasma-</i> 250mg + <i>Abhrak bhasma-</i> 60 mg

		8• <i>Vanga bhasma- oja bruhanarth</i> 9• <i>Navayasa Churna</i> - 4 ratti BD with 6gm ghiee & 10 gm honey 10• <i>Mandura vataka- 2tab BD with butter milk</i> 11• <i>Shilajatu vata- 1 karsh BD with pomegranate juice/ cow milk/ water</i> 12• <i>Punarnavamandura- with buttermilk</i> 13• <i>Suvarnakshiryadi yog- for doshanuloman</i> 14• <i>Shatavari kalp- 1tsf BD with milk</i> 15• <i>Dhatryarishta- 10 ml BD.</i>
4.	Blood Transfusion	Rakta Basti

Complication of Iron therapy- Difficult to absorb, Metallic taste, Nausea, Abdominal discomfort, Diarrhoea, Constipation, pruritis, urticarial flushing, back or thoracic pain etc.

Pathya- *godhum, shalishashtik, yav, masoor dal, tur dal yush, jangal maas, ghrat, dadim.*

Apopathy- *Adhyashan, pittavardhak aahar, divaswap, ratri jagran, agnitap, aatap, aayas, maithun, krodh.*

DISCUSSION

- Anaemia is described as the destruction of RBCs owing to a lack of oxygen, resulting in tissue hypoxia and a haemoglobin concentration below the normal range.^[19] Iron deficiency is the most prevalent cause of anaemia among all nutritional diseases. Iron deficiency anaemia occurs when the reduction in total iron body content is significant enough to impair erythropoiesis and result in anaemia same with *Vatik pandu* aetiology, it develops when *vata dosha* is aggravated to its normal by *vata prakopak aahar vihar*, it leads to nutrition deficiency (*rasa* and *rakta dhatukshay*) as said by our aacharyas.
- When we compare symptoms of iron deficiency anaemia with types of *pandu* as shown in table number 1.2, we can say that symptoms of *Vatik Pandu* is mostly same, so they are co-related to each other.
- The management of Iron deficiency anaemia is Diet, Iron therapy and blood transfusion only. Also, the complications of above treatment are many such as Difficult to absorb, Metallic taste, Nausea, Abdominal discomfort, Diarrhoea, Constipation, Pruritis, Urticarial flushing, back or thoracic pain etc. so there is always need for Herbo-mineral compound which are safe, cheap, well tolerated by patient and able to achieve a high cure rate and negligible side effect. This can be fulfilled by Ayurveda management due to multidimensional approach to diagnosis and management.
- In Ayurveda text management (chikitsasutra) for *Vatik pandu* are elaborately explained. *Samanya chikitsa* for *vatik pandu* and any other *pandu* types are *Snehan, Shodhan, Shamana chikitsa* is explained. *Shodhan* therapy is used to balance *dosha* that are disturbed in disease, this result in *Apunarbhav chikitsa*.
- *Snehan* is very important to reduce *Vata*. For *snehan* various *Ghrat* are mentioned such as

Dadimadya ghrat, Panchgavya ghrat, Mahatikt ghrat, Kalyanak ghrat. As *Ghrat* has tremendous good properties like good *Tridoshhar, Snehan, Agnidipak, Ruchya, Rasayan, Kantiprada, Tvachya*.^[20] In *Dadimadi ghrat, ghrat* has *Agnidipak* property which digest consume food very well so the good quality of *Ahararas* is produced without *Aam* and *Ahararas* is well absorb in stomach so the iron absorption is good. *Dadim* is *hridya* and *raktvardhak, Shunthi* is *aampachak, Chitrak* and *Pimpli* are good *dipak pachak*. And hence, *Dadimadya ghrat* is very good in iron deficiency anaemia in pregnancy^[21] (*garbhini pandu*) as well as in other nutritional deficiency anaemia as it has good effect on digestive power which work to nourish *rasa dhatu* and *rakta dhatu*. Also, it is observed that a substantial portion of these *ayurvedic* formulation contain organic matter that includes ascorbic acid, sugars, amino acids and organic acid which cause better absorption of haem iron.

- *Ayleh kalpana* mentioned in *Pandu vyadhi chikitsa sutra* are *Chyavanprash, Darvyadi leh, Ashvagandhavle, Kushmandavle* are good in *dhatu poshak, ojavardhak*. *Amalki Rasayan* show the high significant relief in *lakshanas*.
- *Loha kalp* mentioned in our ancient Ayurveda text these are *Loha bhasma, Navayas churna, Mandur vataka, Yograv, Punarnava mandur*. These are good source of iron and other nutrients. These *kalpa* not only recover iron deficiency but also other nutrition deficiency. These *kalpa* has also digestive, purgative, antiemetic, ingredients that help to reduce side effect of direct consumption of iron salt, these are also palatable.
- Most of the *ayurvedic* formulations are administered with some *Anupana* as in the case of *Navayasa Lauha* and *Dhatri Lauha*. These two formulations are administered with honey as *Anupana* which is mixture of glucose and fructose and iron may combine with these sugars for absorption. *Punarnavadi Mandur* and *Dhatri lauha* are also administered with butter milk which helps in the absorption of iron in the gastrointestinal tract by the process of *Deepan* and *Pachana*. *Punarnavadi Mandur* is currently used as an anaemia correcting agent at the community level promoted by National

Rural Health Mission and it is included in the Accredited Social Health Activist's drug kit.

➤ These modern days medicine has many side effects as it give direct iron therapy, this can give integrative approach to the management of iron deficiency anaemia in this modern era to reduce side effect and for the better result.

CONCLUSION

Anemia is major nutritional global health problem affecting person of all ages, groups, and sex. The prevalence rate of iron deficiency anemia is high in developing countries. Iron deficiency Anemia is often associated with malnutrition, producing interlinked factors many of which could be related to the morbidity and mortality risk. Vatic *pandu* is caused by *vata prakopak aahar, vihar* that are manifestation of nutrition deficiency (*rasa* and *rakta dhatukshay*). Also, the Symptoms of *vatic pandu* can be correlate with iron deficiency anemia. The ideal anti- anemic regimen should be safe, cheap, well tolerated by patient and able to achieve a high cure rate and negligible side effect. Iron preparations available and used in the treatment of iron deficiency anemia only supply direct iron, these are difficult to absorb and has many side effects so, the patient avoids to take treatment and patient get chronic. Therefore, there is always need of Herbo-mineral drugs that fulfill the above criteria, and this can be fulfill by Ayurveda and its texts (the Indian medicine). As the Iron deficiency anemia can correlate with vatic *pandu* as mention above, *chikitsasutra* of vatic *pandu* can give integrative approach for iron deficiency anemia. In Ayurveda text various herbs and Herbo- mineral formulation described for treatment of *pandu roga* possess significant anti-anemic activity in experimental and clinical trial and has negligible side effect due to presence of iron in *bhasma* form, which is palatable and also the Presence of digestive, purgative and antiemetic ingredient. Integrative approach towards diagnosis and management of iron deficiency anemia is more effective and less complicated.

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