



Case Study

AYURVEDA IN MANAGEMENT OF IRON DEFICIENCY ANEMIA: A CASE REPORT

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Article info

Article History:

Received: 02-02-2022

Revised: 28-02-2022

Accepted: 09-03-2022

KEYWORDS:

Anemia, *Pandu roga*, hemoglobin, Iron deficiency anemia.

ABSTRACT

Nutritional iron deficiency anemia is the most common cause of anemia and a global public health problem among young children and pregnant women. Blood loss, mal-absorption is the common cause of iron deficiency anemia. *Pandu roga* is a clinical entity with great resemblance to iron deficiency anemia. *Pandu roga* is *Pitta pradhan vyadhi*. In *Pandu roga* tissue metabolism gets affected due to vitiated *Doshas* which in turn into *Dhatu- shyathilya* in all *Dhatu*. There is a predominance of paleness all over the body. *Rasavaha* and *Raktavaha srotasas* are chiefly involved in the pathogenesis of *Pandu*. So, here is a case report of 21 years old female patient with iron deficiency anemia who was given Ayurvedic formulations in the line of treatment of *Pandu roga* along with dietary supplements rich in iron for a period of one month and marked improvement in symptoms i.e., swelling was reduced, pallor absent, she was feeling energetic, hair fall (10 strands/day), palpitation had also decreased) with increase in hemoglobin level (i.e., from 8.6g/dl to 12.7g/dl) in a very short duration of time. The formulations help in breaking the *Samprapti* of *Pandu roga*. This shows the efficacy of Ayurvedic medicine in the treatment of iron deficiency anemia (*Pandu*).

INTRODUCTION

Around 30% of the total world population is anemic and half of these, some 600 million people, have iron deficiency. Iron deficiency anemia occurs when iron losses or physiological requirements exceed absorption. Blood loss, mal-absorption, physiological demands are the main causes for iron deficiency anemia. Worldwide, hookworm and schistosomiasis are the most common cause of gut blood loss.^[1] Iron is involved in the synthesis of hemoglobin and is required for the transport of electrons within cells and the number of enzyme reactions. Non-haem iron in cereals and vegetables is poorly absorbed but makes a greater contribution to overall intake, compared to well-absorbed haem iron from animal products.

Fruits and vegetables containing Vitamin C enhance iron absorption, while the tannin in tea reduces it. There is no physiological mechanism for the excretion of iron, so hemostasis depends on the regulation of iron absorption. This is one of the most important nutritional causes of ill health in all parts of the world.^[2] At times of rapid growth, such as infancy and puberty, the iron requirement increases and may outstrip absorption. The complications of iron deficiency anemia include: increased risk of infections, heart conditions, developmental delay in children, pregnancy complications, depression.^[3] The investigations that can be done in this disease are-CBC, Sr. Ferritin, iron, total iron-binding capacity (TIBC), etc. The management of iron deficiency anemia is oral iron replacement is appropriate (ferrous sulphate 200mg 3 times daily) for 3-6 months to replete iron stores. Many patients suffer gastrointestinal side effects with ferrous sulphate, including dyspepsia and altered bowel habit.^[4] The short-term prognosis for most patients is excellent. However, if the underlying cause is not corrected, the prognosis is poor.

Access this article online

Quick Response Code



<https://doi.org/10.47070/ayushdhara.v9i1.867>

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Considering *Panduta* (pallor) as the predominant sign, the disease is termed *Pandu roga*. The correlation of iron deficiency anemia (IDA) can be made with *Pandu roga*, because of the predominance of *Panduta* or pallor in the whole body.^[5]

Case Report

A female patient of 21 years old, non-diabetic, non-hypertensive, came to Patanjali Ayurveda Hospital, Haridwar on 29 Oct 2021 with complaints of swelling in bilateral feet off and on, paleness in the skin, lethargy, whenever bluish bruises in the skin appear after any injury it recovers within a month by itself, hair fall (50 strands/day), palpitation since 3 months. She has a normal menstrual history. On

Therapeutic Intervention

examination- the general condition of the patient is stable, pulse rate- 68/ min, BP-110/70mmHg, Palor- ++, icterus absent, weight-45kg, height-150cm, R/ S-AE= BE, CVS- S1, S2 normal, no abnormal sound, CNS- well conscious, oriented place, person, time. On her complete blood count- hemoglobin level (8.6g/dl) was found low. On given one-month Ayurvedic medicines she had found significant relief in symptoms (swelling was resolved, pallor decreased, she was feeling energetic, hair fall (10 strands/day, palpitation had also decreased), and increased in hemoglobin level (12.7g/dl). Here a case report was done by giving Ayurvedic medicines in the line of treatment of *Pandu*, marked improvement was noticed.

Patient was given following oral formulations

Sr. No.	Formulation	Dose, frequency and time	Adjuvant	Duration
1.	<i>Amalki rasayan</i> <i>Navayas lauh</i> <i>Kasis bhasma</i> <i>Swarnamakshik bhasma</i> <i>Giloy sat</i>	1gm twice daily 333mg twice daily 166mg twice daily 83mg twice daily 166mg twice daily	With honey or lukewarm water	1month
* Mix all and take 1 teaspoon, twice daily on an empty stomach				
2.	<i>Vidangasav</i>	20ml of <i>Asava</i> , twice daily, after meal	20ml of normal water	1 month
3.	<i>Abhralauh</i> **	1 tab twice a day after meal		1 month

** *Abhralauh*- Sri. Dhootpapeshwar limited.

Clinical Assessment

The following clinical findings were assessed before and after the treatment of one month: *Vaivarnata* (pallor), *Daurbalyata* (weakness), *Shrama* (fatigue), *Aruchi* (anorexia), *Kopana* or *Adhirata* (irritability), *Shwasa* (dyspnea), *Hridayaspandana* (palpitation), and *Shotha* (edema).^[6]

Laboratory Assessment

Complete blood count was assessed pre and post treatment.

Grading of Clinical Features

- G0 (grade point 0)- No clinical feature/symptom
- G1 (grade point 1)- Mild clinical feature/symptom
- G2 (grade point 2)- Moderate clinical feature/symptom
- G3 (grade point 3)- Severe clinical feature/symptom

Grading of Blood Hemoglobin Level

- G0- Hemoglobin level > 11g/dL
- G1- Hemoglobin level 9.5g/dL to <11g/dL
- G2- Hemoglobin level 7.5g/dL to <9.5g/dL
- G3- Hemoglobin level 6g/dL to <7.5g/dL

Overall Assessment of Result

The results were assessed on the basis of observations of clinical features and laboratory findings before and after treatment.

Very good- Improvement 75% and above

Good- Improvement 50% and above but <75%

Fair- Improvement 25% and above but <50%

Poor- No improvement or marginal improvement <25%

Assessment	Before treatment	After treatment
Clinical Assessment	G2	G1
Laboratory assessment	G2	G0
Overall assessment	-	Very good

The reports of complete blood count are mentioned below

Test	Pre (29/10/2021)	Post (10/12/2021)	Normal Range
Hb	8.6 g/dl	12.7 g/dl	12.0-17.0
WBC	6.07/ uL	5.37/ uL	4,000-11,000
NEUT	64.5%	61.9%	40-80
LYMPH	28.3%	30.7%	20-40
MONO	6.1%	6.1%	2.0-10.0
EO	0.8%	1.1%	1.0-6.0
BASO	0.3%	0.2%	0.0-2.0
RBC	4.92/uL	5.62/uL	3.8-5.50
HCT	29.6%	40.7%	36.0-50.0
MCV	60.2 fL	72.4 fL	83.0-110.0
MCH	17.5 pg	22.6 pg	33.0-37.0
MCHC	29.1g/dL	31.2g/dL	31.0-37.0
PLT	330/uL	259/uL	150-400

Diet- Carrot, beetroot, green leafy vegetables, tomato, egg, meat, *Gud* (jaggery), *Draksha*, *Munakka*, raisins, Kharjur, prepare food in *Lauh patra* etc

As 100m of *Gud* (jaggery) contain- iron- 11mg

DISCUSSION

Pandu means pallor or whiteness. In this disease, there is pallor on the skin, due to deficiency of blood tissue either in form of haemoglobin or red blood cells, hence called anemia^[7]. The causative factor of *Pandu* are- excessive intake of alkaline, sour, pungent and salty, too hot, incompatible and unsuitable food, suppression of natural urges, *Manas Bhav*- anxiety, fear, anger causes *Pitta* vitiation and is propelled to the body by aggravated *Vata*.^[8] Palpitation in the heart, dryness of skin, absence of perspiration, fatigue, cracks in the skin, salivation, looseness in the joints and whole body, urge for eating mud, edema under the eye lids, slight yellowish color to urine and feces.^[9] *Agni vaishmya* is caused by two factors- *Nija* that can be due to improper absorption, *Agantuja* that can be due to blood loss. *Agni vaisamyia* leads to *Vata vridhi* and *Oja kshya* and ultimately *Dhatu shaithilya*. Poor absorption is the main cause of iron deficiency anemia. Based on the principle of Ayurveda substances of like properties will cause increase of the same attributes. According to this principle, *Lauha* (Iron) can be used in the treatment of iron deficiency anemia, considering it to be best among haematonic preparations.^[10]

S. No.	Drug	Scientific name	Name of Formulations		
			<i>Navayas lauh</i> ^[11]	<i>Abralauh</i>	<i>Vidangasav</i> ^[12]
1.	<i>Lauh bhasma</i>	-	✓	✓	-
2.	<i>Pippali</i>	<i>Piper longum</i>	✓	✓	✓
3.	<i>Maricha</i>	<i>Piper nigrum</i>	✓	✓	✓
4.	<i>Shunthi</i>	<i>Zingiber officinale</i>	✓	✓	✓
5.	<i>Haritaki</i>	<i>Terminalia chebula</i>	✓	✓	-
6.	<i>Bhibhitaki</i>	<i>Terminalia bellerica</i>	✓	✓	-

7.	<i>Amalki</i>	<i>Embelica officinalis</i>	✓	✓	✓
8.	<i>Mustaka</i>	<i>Cyperus rotundus</i>	✓	✓	-
9.	<i>Vidanga</i>	<i>Embelia ribes</i>	✓	✓	✓
10.	<i>Abhrak bhasma</i>	-	-	✓	-
11.	<i>Shatavari</i>	<i>Asparagus racemosus</i>	-	✓	-
12.	<i>Kanchanar</i>	<i>Bauhinia variegata</i>	-	-	✓
13.	<i>Lodhra</i>	<i>Symplocos racemosa</i>	-	-	✓
14.	<i>Ela</i>	<i>Elettaria cardamomum</i>	-	-	✓

Amalki rasayan, *Amalki* (*Phyllanthus emblica* L.) has *Tridoshahara*, especially *Pittashamak* (pacifying *Pitta*), *Rasayan* (rejuvenative) and *Shonitsthapana* properties, thus nourishes the *Dhatu*s and is also known to enhance the absorption of iron.^[13] *Amalki* is also having antioxidant properties by virtue of antioxidants present in it which include Vitamin C, bioflavonoids, flavones, polyphenols, and carotenoids.^[14] Supplementation of antioxidant vitamins with iron supplementation may offer a better response in the management of IDA.^[15]

Swarna Makshika Bhasma has been used for *Pandu* (anemia), *Mandagni* (poor digestion) etc^[10] as well as a potent *Rasayana* drug.^[16]

Amruta (*Tinospora cordifolia*) contains vitamins B, C and E, ferrous (iron), calcium, copper, and potassium.^[17] Vitamin C helps in absorption of iron and increases the bioavailability of body.^[18] *Giloy sat* enhances the formation of haemoglobin and red cells.

Abhralauh is a herbomineral Ayurvedic proprietary medicine, which is extremely effective as *Raktavardhak* and *Balya* as it increases *Rasa* and *Raktadhatvagni*. *Abhra loha* is equipotent as ferrous sulphate in treatment of iron deficiency anemia.

As one of the cause of *Pandu roga* is *Krimi* (worm infestations) *Vidangasav* is used to treat worm infestation as well as do *Shodhan*. All the formulations help in breaking the pathogenesis of *Pandu roga* thus, helpful.

CONCLUSION

Pandu roga is *Pitta pradhan vyadhi* of *Rasvah* and *Raktavaha srotas*. By the Ayurvedic formulations (*Amalki rasayan*, *Navayas Lauh*, *Kasis bhasma*, *Swarnamakshik bhasma*, *Giloy sat*, *Vidangasav*, *Abhralauh*) by their properties and actions work in breaking the pathogenesis of *Pandu*. As the drugs are highly potent in *Lauha* (iron) preparations along with other ingredients which help in increasing haemoglobin level and general symptoms in the patient effectively in just one month duration. So, Ayurvedic formulations should be used as primarily intervention in iron deficiency anaemia (*Pandu*) without any side effects.

Declaration of Patient Consent

It is certified that I have taken appropriate patient consent. In the form the patient has given her consent for clinical information and laboratory to be reported in the journal. The patient understood that their name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Cite this article as:

Shreya Joshi, Abhishek Bhushan Sharma. Ayurveda in Management of Iron Deficiency Anemia: A Case Report. AYUSHDHARA, 2022;9(1):46-50.

<https://doi.org/10.47070/ayushdhara.v9i1.867>

Source of support: Nil, Conflict of interest: None Declared

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