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# A comparative clinical study of *Swarnamakshika Bhasma* and *Dhatri Lauha* in the management of *Pandu* w.s.r. to Iron Deficiency Anaemia

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## ABSTRACT

Anaemia, a silent condition without symptoms, can lead to chronic health issues such as impaired fetal development, delayed cognitive development, increased risk of infection in young children, and reduced physical capacity. Women of childbearing age need to absorb 2-3 times the amount of iron required by men or older women. In Ayurveda, *Pandu* is a specific disease with its own pathogenesis and treatment. In India, Anemia affects 50% of the population, with 20 - 40% of maternal deaths due to anemia. Allopathic treatment for mild to moderate anemia involves supplementation of ferrous sulfate, fumarate, or gluconate. *Ayurveda* can provide better management in this area. The objective of the study is to know the efficacy of *Swarnamakshika Bhasma* and *Dhatri Lauha* in *Pandu*. 40 patients of *Pandu* (iron deficiency anemia) were taken who fulfilled the inclusion criteria and divided into two groups randomly. Group A - 20 patients of *Pandu* (IDA) were given *Swarnamakshika Bhasma*. Group B - 20 patients of *Pandu* (IDA) were given *Dhatri Lauha* for 45 days. Both the groups are having similar effect on reducing the symptoms statistically. Among the subjective and objective parameters, the B group showed better results than Group A.

**Key words:** *Pandu Roga*, Iron Deficiency Anemia (IDA), *Dhatri Lauha*, *Swarnamakshika Bhasma*

## INTRODUCTION

*Rakta* has been considered a key factor for the *Jeevana*, *Preenana*, *Dharana*, and *Poshana karma* of the body. Many times, it is seen that *Rakta* gets vitiated by *Doshas*, mainly by *Pitta Dosh*, as *Rakta* is *Pitta Vargeeya* and diseases like *Pandu* appear. In Ayurveda, *Pandu* is considered a specific disease with its own pathogenesis and treatment. (Cha. Chi. 16th chap, Su.

Utt. 44th chap) *Pandu* is explained as *Rasapradoshaja Vikara* by *Charaka*,<sup>[5]</sup> but *Sushruta* considered it to be *Raktavaha Shrrhoto Dushti Vikara*. Thus, an attempt has been made to study the disease *Pandu Roga* according to Ayurvedic text in the context of iron deficiency anemia. Iron Deficiency Anaemia is a reduction of hemoglobin, the number of RBCs in millions/cmm of blood, and the quantity of Hb%, resulting in pallor of the skin. In Greek, anemia means 'Lack of Blood'. In India, anemia affects an estimated 50% of the population. The problem becomes more severe as more women are affected by it as compared to men. It is estimated that about 20 - 40% of maternal deaths in India are due to anemia, and one in every two Indian women (56%) suffers from some form of anemia. According to the National Family Health Survey (NFHS), the incidence of anemia was 71% in urban areas, 84% in rural areas, and overall, 79%. In allopathic, mild to moderate iron deficiency anemia is treated by supplementation of ferrous sulphate, ferrous

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fumarate, or ferrous gluconate. By these supplementations, side effects like upset stomach or darkening of stools and less amount of iron absorption along with food are experienced. No significant therapy is there for chronic anemia, which occurs due to metabolic defects. Ayurveda can provide better management of this area. *Dhatri Loha* is explained in the context of *Shoola Pratishedha* and is also indicated in *Pandu*. *Dhatriloha* is proved to be an effective formulation in the management of *Pandu*. *Swarnamakshika Bhasma* is explained in *Rasendra Sara Sangrah*, *Rasa Tarangani*, and *Rasa Ratna Samuchya*, mainly indicated in *Pandu Roga*. *Madhur*, *Tikta Kashaya Rasatmak*. *Laghu Gunatmak Sheet Virya & Madhur Vipak* pacifies all three *Doshas (Tridoshas)*, but it is more beneficial in *Pitta Dosh* and then *Kapha Dosh* dominance. Effectively acts on *Pandu Roga*.

## AIM AND OBJECTIVES

1. To evaluate the clinical efficacy of *Swarnamakshika Bhasma* in the management of *Pandu* with special reference to iron deficiency anemia.
2. To evaluate the clinical efficacy of *Dhatri Loha* in the management of *Pandu* with special reference to iron deficiency anemia.
3. To compare the efficacy of both groups.

## Hypothesis

**H0:** *Swarnamakshika Bhasma* and *Dhatriloha* either of drugs have same efficacy.

**H1:** *Swarnamakshika Bhasma* has more efficacy than *Dhatriloha*

**H2:** *Dhatriloha* has more efficacy than *Swarnamakshika Bhasma*

## Method of Collection of Data

The present study is a 'randomized clinical study.

- A comparative clinical study where in 40 patients presenting with *Lakshan* of *Pandu*, of either sex was randomly assigned into two groups; each comprising of 20 patients.
- A case proforma containing all necessary details pertaining to study was prepared. The parameters

considered for the study were scored as mentioned in the Proforma.

## Drug Requirements

**Table 1: Swarnamakshika Bhasma**

*Swarna Makshik* or *Chalcopyrite*, is composed of mainly following elements: Copper, Iron & Sulphur. So, the raw *Swarna Makshik* has Chemical formula of *Chalcopyrite*, which is  $CuFeS_2$ . According to X-ray Diffraction (XRD) analysis of prepared *Swarna Makshik Bhasma*, it contains:<sup>[1]</sup>

SN	Chemical Name	Chemical Formula	Proportion
1.	Ferrous oxide of Iron	$Fe_2O_3$	34.5%
2.	Iron (III) sulphide (ferric sulphide)	$FeS_2$	30.5%
3.	Copper sulphide	$CuS$	30.5%
4.	Silicon dioxide	$SiO_2$	

**Table 2: Dhatri Loha**

SN	Name of Plant	Botanical Name	Material used	Proportion
1.	<i>Dhatri</i>	<i>Emblica officinalis</i>	Fruit	4
2.	<i>Lohabhasma</i>	-	Ore	2
3.	<i>Yashtimadhu</i>	<i>Glycyrrhiza glabra</i>	Root	1
4.	<i>Guduchi (Amruta)</i>	<i>Tinospora cordifolia</i>	Stem, leaf	1

## Research Design

40 Patients of *Pandu* (Iron deficiency anaemia) are taken one who fulfilling the inclusion criteria and divided into two groups randomly.

## Group A

20 patients of *Pandu* (Iron Deficiency Anaemia) are given,

## Yoga: Swarnamakshika Bhasma

**Dosage:** According to *Rasatarangini*, the dose of *Swarnamakshika Bhasma* is  $\frac{1}{2}$  to 2 *Ratti* (60mg–250mg) considering the strength and disease condition of patient, half an hour before food.

**Duration:** For 45 days

**Follow Up:** For 15 days

**Anupana:** Madhu

**Group B**

20 patients of *Pandu* (Iron Deficiency Anaemia) are given,

**Yoga:** Dhatri Lauha<sup>[8]</sup>

**Dosage:** 250 mg to 500 mg in two divided dose half an hour before meal, considering the strength and disease condition of patient

**Duration:** For 45 days

**Follow Up:** 15 days

**Anupana:** Koshna Jala

**Inclusion Criteria**

1. Patients with cardinal symptoms of *Pandu* w.s.r. Iron deficiency anaemia.
2. Patients with HB % range of 7 to 10%
3. Patients of either sex
4. Patients age of 10 to 60 years
5. HB%, PCV, CBC.

**Exclusion Criteria**

1. Patients with history of systemic disorders like cardiac, renal, liver disorders, rheumatoid arthritis, diabetes mellitus and hypertension.
2. Congenital disorders like haematopoietic system like thalassemia, sickle cell anaemia, leukaemia.
3. One who is suffering from bleeding disorders like haemophilia.
4. Pregnant ladies

**Diagnostic Criteria**

Clinical signs and symptoms of *Pandu Roga*<sup>[5]</sup> / Iron Deficiency Anaemia

1. *Pandutha*
2. *Alasya*
3. *Durbalata*

4. *Aayasaja- Swash*

5. *Shiroruja*

6. *Hridayaspandana*

7. *Aruchi*

8. *Nidraluta*

9. *Shotha*

10. *Jwara*

11. *Rukshata*

**OBSERVATION**

**Table 3: Showing the distribution of patients on the basis of presenting complaints.**

Presentin g complaint	Group A		Group B		Total	
	Patien ts	%	Patien ts	%	Patien ts	%
<i>Panduta</i>	20	100 %	20	100 %	40	100 %
<i>Nidraluta</i>	15	75%	15	75%	30	75%
<i>Alasya</i>	16	80%	17	85%	33	82.5 %
<i>Daurbalya</i>	19	95%	19	95%	38	95%
<i>Hritspand an</i>	10	50%	11	55%	21	52.5 %
<i>Siroruja</i>	11	55%	10	50%	21	52.5 %
<i>Sotha</i>	13	65%	08	40%	21	52.5 %
<i>Rukshata</i>	16	80%	18	90%	34	85%
<i>Aayasaja- Swash</i>	5	25%	4	20%	09	22.5 %
<i>Aruchi</i>	7	35%	8	40%	15	37.5 %
<i>Jwara</i>	2	10%	3	15%	05	12.5 %

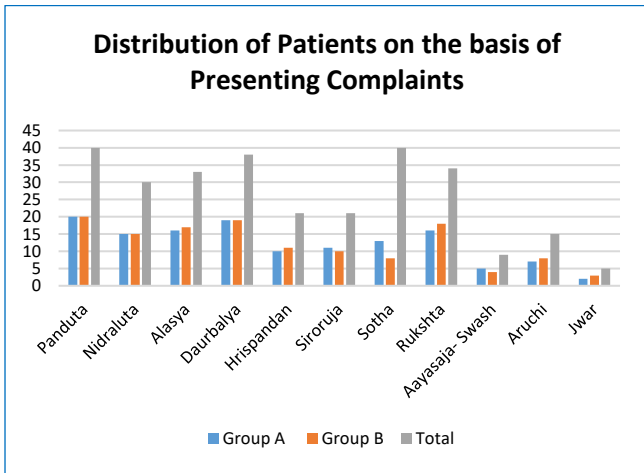


Table 4: Showing improvement Percentage wise in Both Group A and Group B

Effects on	Group A	Group B
Panduta	60%	66.6%
Nidraluta	66%	76%
Alasya	84%	94%
Daurbalya	85%	100%
Hritspandan	61.5%	66.5%
Siroruja	61%	84%
Rukshata	77%	94%
Aayasaja-Swash	75%	54%
Aruchi	100%	100%
Jwara	60%	100%
Haemoglobin	10%	24%
PCV	11%	14%

RESULT

Unpaired t Test

Table 5: Showing the statistical analysis of Group A and Group B after treatment.

Parameters	Group A			Group B			t	d f	p	Remarks
	N	M	S	N	M	S				
Panduta	20	0.6	0.5	20	0.75	0.55	0.9002	38	>0.05	NS

Alasya	20	0.0	0.0	20	0.2	0.4	2.17	38	<0.05	SS
Daurbalya	20	0.0	0.0	20	0.25	0.44	2.54	38	<0.05	SS
Nidraluta	20	0.13	0.31	20	0.35	0.49	1.94	38	>0.05	NS
Shiroruja	20	0.25	0.55	20	0.55	0.77	0.67	38	>0.05	NS
Hritspandan	20	0.04	0.11	20	0.30	0.47	0.76	38	>0.05	NS
Rukshata	20	0.13	0.31	20	0.00	0.22	0.58	38	<0.05	SS
Shotha	20	0.0	0.0	20	0.15	0.37	1.83	38	>0.05	NS
Shwas	20	0.0	0.0	20	0.0	0.0	0.0	38	>0.05	NS
Aruchi	20	0.66	0.66	20	0.25	0.44	2.1006	38	<0.05	SS
Jwara	20	0.2	0.4	20	0.0	0.0	2.17	38	0.0269	SS
Hb	20	1.48	0.53	20	2.08	0.51	5.892	38	<0.001	HS
PCV	20	2.47	3.77	20	5.73	4.99	2.59	38	<0.05	SS
RBC	20	0.63	0.33	20	0.92	0.42	1.24	38	>0.05	NS

Based on the results obtained from unpaired t test the overall improvements seen in Group B are more significant than that of Group A.

## DISCUSSION

The present study has facilitated the proper understanding of the importance and gravity of *Pandu Roga*. It is *Pitta* predominant disorder. Vitiated *Pitta* with *Vayu* enters between *Mamsa* and *Twak*, and vitiates *Tridoshas*, *Twak*, *Rakta*, and *Mamsa* produces *Panduta*, *Harita*, *Haridra* etc. *Varna*. The three-fold approach in treatment of *Pandu* viz. *Shodhana* – *Shamana* – *Brimhana*, is unique to *Ayurveda* in comparison to other contemporary medical systems. The scientific approach of our *Acharyas* in prescribing Iron compounds is awe- inspiring. Iron is not administered in its inorganic elemental form, but processed with organic herbs to make it readily acceptable by the body. Further, the presence of *Amalaki*, a rich source of Vitamin C which is essential for iron absorption, in most of the *Loha Yogas* portrays the deep insight and wisdom of our *Acharyas*. Anemia is defined as a state in which the blood HB% is below the normal range, with relation to patient's age and sex. Iron deficiency occupies an unusual classification of anemia, moderate form, it presents itself with symptoms like fatigue, loss of appetite, weakness, breathlessness, and palpitation, particularly with physical appetite, weakness, breathlessness, and palpitation, particularly with physical exertion and pallor of the skin and the mucous membrane.

## CONCLUSION

The statistical analysis of the results obtained in the present clinical work suggests that the interventions of both Group A and Group B are effective in the management of *Pandu Roga*. But Group B (*Dhatri Loha*) showed significantly better response than Group A (*Swarnamakshika Bhasma*). The study reiterates the efficacy of *Dhatri Loha* in the management of *Pandu Roga*. The study shows that *Swarnamakshika Bhasma*

is also useful in the management of *Pandu Roga* with special reference to iron deficiency anemia.

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