http://jmscr.igmpublication.org/home/
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v8i5.06

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

**Research Article**

# Effective Ayurvedic management of Polycythemia Vera- A case study

Authors
**Dr Sarita Pradip Gaikwad[1*], Maj. Dr Pradip Gaikwad[2]**
[1]M.D. (Manovigyan and Manas rog), Ph.D. (Kayachikitsa)
Ex HoD, Ayurved Research Department, Sassoon General Hospitals, Pune and
Vol. Retired Assistant Director, AYUSH, Pune region, Pune. (Maharashtra state, India)
[2]M.D.(P.S.M.), D.P.H. (Calcutta), P.G.D.H.H.M.(I.G.N.O.U.), M.Sc. (D.M.), Retd. Joint Director of Health Services, (Leprosy & T.B.), Govt. of Maharashtra, Pune-411 007
*Corresponding Author
**Dr Sarita Gaikwad/Sonale**
Sarita's Punarnava Trimarm Chikitsalaya and Research Cernter, Nanded, India

**Abstract**
**Introduction:** *Polycythemia vera is commonest of Chronic Myeloproliferative neoplasms, resulting in Pancytosis. Management of this disorder is really a challenge for its complications like thrombosis, hyperuricemia or ocular migraine. Ayurved has lot of potential to treat such disorders.*
**Case Study:** *Here is a case study, a 54 year old female incidentally detected as a case of Polycythemia Vera, initially poorly managed by Modern therapy but was effectively managed by Ayurvedic line of treatment. Patient is well maintained on Ayurvedic therapy for last two years. All the blood cells, Hb and Haematocrit value are within normal range. This case study is a ray of hope to the thousands of sufferers, who are inadequately managed by costly modern Chemotherapy treatment and with lot of untoward effects of the treatment. Ayurved can provide them a better and cheaper alternative treatment without side effects.*
**Keywords:** *Polycythemia vera, Ayurvedic management, Chronic Myeloproliferative disorder, Raktadushti.*

## Introduction

Polycythemia vera (PV) is a clonal disorder characterized by increased production of all myeloid elements resulting in Pancytosis in the absence of any recognizable stimulus[1]. It is a slowly growing blood cancer[2]. All the blood cells i.e. RBCs, Leucocytes and platelets show increase in number. Major mechanism of pathogenesis is Tyrosine kinase JAK2 mutation which removes auto -inhibitory control and activates the kinases. The prevalence of Polycythemia vera is 22/100,000 population[3]. Incidence of Acute Nonlymphocytic Leukemia is higher in PV[4].

Polycythemia vera is diagnosed as per three major and one minor criteria advocated by W.H.O.[5].

**Three Major WHO criteria** are as follows:

1. Hemoglobin >16.5 g/dL in men and >16 g/dL in women, or hematocrit >49% in men and >48% in women, or red cell mass >25% above mean normal predicted value
2. Bone marrow biopsy showing hypercellularity for age with trilineage growth (panmyelosis) including prominent erythroid, granulocytic, and megakaryocytic proliferation with pleomorphic, mature megakaryocytes (differences in size)

3. Presence of *JAK2*V617F or *JAK2* exon 12 mutation

The **minor WHO criterion** is as follows:

Serum erythropoietin level is below the reference range for normal.

We are discussing herewith the Primary or Idiopathic Polycythemia vera and not Secondary Polycythemia or Erythrocytosis. None of the secondary causes of Polycythemia are associated with splenic enlargement or increased Leucocytosis which is the only characteristic feature of Polycythemia Vera[1].

Clinically there may not be any symptoms and incidentally the disease is diagnosed on routine blood test but bone marrow examination and genetic tests are confirmatory. However, few individuals may experience symptoms due to Hypervolaemia, hyperviscosity, hypermetabolism and decreased cerebral perfusion viz. Headache, vertigo, Tinnitus, Dizziness, Syncope, etc; increased risk of thrombosis due to accelerated atherosclerosis; Bleeding tendency-epistaxis, ecchymosis, GIT bleeding; Pruritus after bath, gouty swellings of joints, etc[6].

On physical examination, following signs are notable[7]:

Splenomegaly (75% of patients)

Hepatomegaly (30%)

Plethora (Excess of body fluids particularly blood)

Hypertension

Such cases are generally managed by repeated Phlebotomy, Anticoagulant therapy to treat thrombosis, Chemotherapy by Cytotoxic drugs like Hydroxyurea to induce Myelosuppression, Uricosuric drugs for treating high level of Uric acid. Interferon-α (IFN-α) Psoralens with ultraviolet light in the A range (PUVA) therapy is promising in treating intractable pruritus[5]. The incidence of Acute Leukemia is higher with chemotherapy including Hydroxyurea in JAK2V617F- negative stem cells in PV[6].

Case study:- This 54 year old female C/o Weakness, Easy fatigability, retrosternal and epigastric burning, loss of appetite, Paresthesia in upper and lower extremities for 3 years. She underwent blood-CBC test and found raised value of Erythrocytes, Leucocytes and Thrombocytes. She consulted the physician cum Haematologist in Mumbai and was informed that she is a case of PV and need a long term treatment.

H/o Loss of appetite, Hyperacidity

Past history-She had severe menorrhagia for 3 years from 2008-2011.USG examination showed presence of uterine fibroids. Her Hysterectomy was carried in the year 2011. Bladder was ruptured during surgery and was repaired. H/o LSCS three times.

Family history: Her mother had breast cancer and died 20 years back.

Personal history- Appetite poor, Sleep-disturbed. She lived in a combined family and her life was very stressful.

She was placed on Cytotoxic drug Hydroxyurea 500 mg BD, Tab Ecosprin 75 mg OD as anticogulant. Tab Metoprolol succinate 50 mg + Amlodepin 5 mg OD. But her symptoms were not relieved in 6 months. She approached the author and her treatment was started from 18.2.2018 as shown in the treatment chart.

Clinical examination: Afebrile. Pulse- 79/min, Respiration-19/min, B.P. 150/100 mm of Hg.

Weight-35 Kg. RS, CVS -Normal

P/A- Liver not palpable, Spleen enlarged- 2 fingers palpable.

Investigations: CBC-Hb-20.1 %, HCT-57%, RBC-8.8 million/cc, WBC-22,000, DC-Neutrophils-80%, Lymphocytes 5 %, Eosinophil-1%, Monocytes-5%, Band forms-9%

Platelets-7,76000

Blood group- B +ve; TSH-2.9 µIU/ml. Uric acid-7.7 mg/dL

Bone marrow- Cellularity: Marked increased. M:E ratio- 3:1. Myeloid series: Hyperplasia orderly maturation. Erythroid series- Hyperplasia normoblastic.

Megakaryocytes- Increased, Plasma cells-1%, Lymphocytes-6%. Iron stain: No iron seen.

**Bone marrow is consistent with Polycythemia vera. Iron store depleted.**

**Serum -Erythropoietin-2.57 mIU/ml** (Normal range 8.9-29.5 mIU/ml)

**DNA PCR report-Mutant allele of JAK2V617F observed.**

USG: **Spleen is enlarged** in size 14 cm, shape and echogenesity normal. No other significant abnormality detected.

**Table No.1:** Treatment chart

| Type of Treatment | From | To | Details of treatment |
|---|---|---|---|
| Deepan-Pachan<br>Shodhan Chikitsa | 18.02.2018<br>23.02.2018<br>24.02.2018 | 22.02.2018<br>------<br>28.02.2018 | Sitopaladi + Avipattikar churna Half TSF BD before meals twice daily<br>Saddhyo vaman<br>Sitopaladi + Avipattikar churna Half TSF BD before meals twice daily;<br>Sansajan kram- Laghu supachya aahar |
| Shaman chikitsa | 1.03.2018<br>1.03.2018 | 10.3.2018<br>31.5.2018 | Dadimadi-ghrit 10 ml on empty stomach<br>Guduchi 50 gm+ Gokshur 50 gm + Shatavari 50 gm + Musali 50 gm + Punarnava 50 gm+ Sunthi 20 gm. Mix it and take ½ TSF at 7 A.M. and at 5 P.M.<br>Guduchi Ghanvati 1 BD<br>Dashmool kashay 3 TSF BD along with warm water<br>SOS on fever :Mahasudarshan kadha 2 TSF BD; |
| | 1.06.2018 | 12.11.2019 | Siddha kshirpak 50 ml made from 1TSF of (Guduchi 50 gm+ Gokshur 50 gm + Shatavari 50 gm + Musali 50 gm + Punarnava 50 gm+ Sunthi 20 gm.) at 7 A.M. and at 5 P.M.<br>Guduchi Ghanvati 1 BD<br>Dashmool kashay 3 TSF BD along with warm water |
| Dr Gaikwad Shodhan Chikitsa Raktamokshan (Phlebotomy)<br><br>Treatment of Urinary Tract Infection | 20.03.2018<br>23.03.2018,<br>7.04.2018<br><br>22.04.2018,<br>7.05.2018<br>and<br>22.05.2018 | 22.03.2018 | Maha-Tiktaghrit 20, 30, 40 ml *Snehapan* in 3 successive days in the morning on empty stomach as Poorva karma before Raktamokshan<br>160 ml blood was withdrawn two times on shown dates.<br><br>Sarvang Abhyang (Body massage) by Chandanbalalakshadi tail with Mrudu swed/Light steam as Poorva karma, followed by Raktamokshan;<br>160 ml blood was withdrawn three times on shown dates. |
| | 13.11.2019 | 22.11.2019 | Chandansav 2 TSF BD<br>Tab K4 1BD<br>Tab Gokshuradi guggul 500 mg BD |
| Shaman chikitsa | 13.11.2019 | till date | Tab Madhumalini vasant 1BD<br>Guduchi Ghanvati 1 BD<br>Guduchi 50 gm+ Gokshur 50 gm + Ashwagandha 50 gm + Shatavari50 gm + Haridra 25 gm + Sunthi 25 gm mixture 1TSF to make 40 ml Siddha Kshirpak, consumed at 7AM and 5 PM |

**Table No. 2:** Date -wise Complete Blood Investigation chart

| Date | Hb% | HCT% | RBS million/mCL | WBC/mCL | Platelets/mCL |
|---|---|---|---|---|---|
| 18.2.2018 | 20.1 | 57 | 8.8 | 22,000 | 7,76000 |
| 14.4.2018 | 16.0 | 47.5 | 5.5 | 10,800 | 5,11000 |
| 20.8.2018 | 14.4 | 43.1 | 4.9 | 9,900 | 4,60000 |
| 5.1.2019 | 12.9 | 38.6 | 5.53 | 4,300 | 2,98000 |
| 15.2.2019 | 11.9 | 35.4 | 4.69 | 3,600 | 2,40000 |
| 13.5.2019 | 12.4 | 36.7 | 4.68 | 4,900 | 3,16000 |
| 9.8.2019 | 12.2 | 38.1 | 3.97 | 8,660 | 3,45000 |
| 12.12.2019 | 12.4 | 39.1 | 4.04 | 2,710 | 2,19000 |
| 8.4.2020 | 13.2 | 43.2 | 4.67 | 9,700 | 3,27000 |
| 26.4.2020 | 12.7 | 42.7 | 4.94 | 8.700 | 2,83000 |

**Discussion**

It was very clear from initial Blood report, Bone-marrow examination, DNA-PCR report, that patient was a confirmed case of PV. WHO diagnostic criteria- 3 major and one minor as mentioned above, substantiate the diagnosis. Her Erythropoietin value 2.57mIU/ml was subnormal. She was started modern treatment as mentioned

above, that did not reduce her symptoms and her raised Blood cells did not respond to the modern treatment. She approached the author for Ayurvedic treatment. She had severe nausea, vomiting and constipation due to Hydroxyurea, so that was asked to be slowly withdrawn.

The patient had combined family with stressful life.

..... Vishado Rog Vardhananam Shreshtah.....I [8] Cha Su. 25/40

It is documented that *Chinta, Bhay, Vishad* may produce various diseases. Her stress and strain might have triggered the mutation of JAK2 gene. Her mother had breast cancer. That might be an additional risk factor for her blood cancer.

"....Shonita-Vahananam Srotasam Yakrutmoolam Pleeha cha.... "I[9] Cha. Vi. 5/8

Charakacharya explained the Mool sthan of Raktavahsrotas as Yakrut (Liver) and Pleeha (Spleen). In PV, which is a disorder pertaining to blood, we notice Splenomegaly markedly and Hepatomegaly in 30% subjects[7].

This disorder may be called as Raktagat Vata. as per Ayurved, occurs due to *Raktadushti*. *Pitta* is *Raktagat* (Part and parcel of Rakta). Therefore in *Raktadushti*, the treatment for *Rakta-Pitta* has to be made.

Charakacharya advocated the line of treatment of vitiated Rakta, mentioned in this shloka,

"Kuryat Shonit rogeshu Rakta-Pittahari Kriyam I
Virekam Upavasam cha Stravanam Shonitasya cha" [10]II Cha. Su.24/18 II

While treating vitiated Rakta, as per the Doshas, *Virechan, Upavas, Raktamokshan* (Phebotomy) may be considered. It is worth mentioning that *Raktamokshan* was a known procedure nearly 5000 years back, its indications, what is the best time suitable for *Raktamokshana*, which Poorva karmas to be carried before *Raktamokshana*, how much blood is to be removed depending on the doshas, was clearly spelt out by Sushrutacharya, on which Dalhan also commented (Su. Su.13/20).

**Treatment**

*Nidan parivarjan* was adviced to make suitable changes in her life style. She was asked to avoid *Ushna,Vidahi, Ati Snigdha, Ati Ushna and Ati Drava* aahar like Spicy, Salty, oily food, Cold drinks, Excess of water, fermented food-Idly, Dosa, etc. That was essential to treat her Hyperacidity, which was also cause of *Raktadushti*. We carried out counselling of her and her family to avoid stress and strain.

We first carried out *Deepan and Pachan* for removing *Ras-Raktagat Samata*, by using Sitopaladi with Avipattikar churna. *Sadhyo vaman* was carried out to remove doshas from *Rasa dhatu*. From *Rasa dhatu, Rakta dhatu* is formed. Once the doshas from *Rasa dhatu* removed, the way for formation of healthy *Rakta dhatu* was made clear. *Raktamokshan* was the preferred treatment in this vyadhi. Granthakaras advocated Snehan as a Poorva-karma. The *Snehan* was achieved by *Maha-Tikta Ghrita* orally. We carried out *Raktamokshan* by phlebetomy of Median Cubital vein and 160 ml blood was withdrawn and disposed off sanitarily. We repeated it after 15 days, for 4 more occasions. Every Raktamokshan was preceded by *Poorvakarma* as shown in Table No. 1. She was given *Shodhan chikitsa*, which itself was a *Apunarbhav chikitsa*.

Granthkaras have stated that "***Balam Hi Alam Dosh haram***!", When the disease is of long duration/ Chronic/ *Sahaj*, the *Dosh bala* is strong while *Dhatu bala* has become *Kshin*, therefore, for treating such Chronic disease like blood cancer, *dosha bala* has to be alleviated & *Dhatu bala* has to be increased. When *Dhatu bala* is strong, *Dosha bala* cannot produce any disease. The *Aarogya* is dependent on *Bala & Bala* is dependent on *upchay of Dhatus*. By increasing *Dhatwagni, Dhatu bala was increased.*

....Kshir-Ghritabhyaso Rasayananam.... I[8] Cha. Su. 25/40

There are two Rasayan- *Kshir* (Cow-milk) and *Ghrita* (Cow's ghee). *Kshir* is excellent as *Oajvardhak*, dispel *Chinta, Bhaya, Shok* (Stress and Strain). We used it for making *Siddha kshirpak* from mixture made of Guduchi (*Tinospora cordofolia*) 50 gm+ Gokshur (*Tribulus*

*terrestris*) 50 gm + Shatavari (*Asparagus racemosus*) 50 gm + Musali (*Chlorophytum borivilianum*) 50 gm/ Ashwagandha (*Withania somnifera*) + Punarnava (*Boerhavia diffusa*) 50 gm+ Sunthi (*Zingiber officinale*) 20 gm. Guduchi specially acts on Rakta-dhatu, effective in *Deepan-Pachan, Jwar-nashak, Vata-Pitta nashak and Bhramanashak.* It removes *Rakta and Meda dushti.*

Gokshur is having *Snigdha-Sheet, Vata-Pitta shamak* properties, does not cause *Kapha-vriddhi*. It improves function of *Mauns, Majja, Shukra dhatus*. Ashwagandha has *Vata-Kaphaghna* properties, gives *Balya*/ Strength to dhatus and reduces *Vatavikaras*. It specially improves functioning of *Mauns* and *Shukra dhatu*. Shatavari is *Vata-Pitta-nashak* and improves functioning of *Rasa, Rakta, Mauns, Majja and Shukra dhatu*. It removes all *Pitta vikaras*. Sunthi and Haridra are *Kaphaghna* and also has *Deepan-Pachan* properties[11]. This was the combined *Rasayan* therapy/ *Apunarbhav chikitsa* that controlled Pancytosis and clinically also she experienced feeling of wellbeing.

She responded to treatment very well. Her raised blood cell count reduced within 2 months of treatment to nearly normal range. During her treatment she suffered from Urinary Tract Infection. Her Urine microscopic exam revealed 60-70 pus cells/HPF and that was very well treated by Ayurvedic medicines for 10 days, as shown in the treatment chart.

Her CBC is still maintained in normal range after more than 2 years of treatment. Her appetite is very good; she has a weight gain of 6 kg. She has no symptoms, fully energised, doing all the household work without experiencing any difficulty, with full quality of life. No more Phlebotomy was required after initial 5 episodes. She was given Shodhan chikitsa, and Rasayan chikitsa which itself was a Apunarbhav chikitsa. That was the reason that no relapse took place and the pathology was mostly reversed.

**Conclusion**

Ayurvedic treatment successively and effectively managed PV, a blood cancer case for more than 2 years, fully maintaining Quality of life.

**References**


1. Harsh Mohan. Disorders of Leucocytes and Lymphoreticular tissues: Polycythemia Vera. Chapter No. 12 in Textbook of Pathology. 17th edition. The Health Sciences Publishers.2015.p 338-339.
2. Polycythemia Vera. https://www.mayoclinic.org/diseases-conditions/polycythemia-Vera/symptoms-causes/syc-20355850.
3. Ma X, Vanasse G, Cartmel B, Wang Y, Selinger HA. Prevalence of Polycythemia vera and Essential Thrombocythemia. Am J Hematol. 2008 May;83(5): 359-62. doi: 10.1002/ajh.21129.
4. Y. Najean, A. Deschamps, C. Dresch, M.T. Daniel, et al. Acute Leukemia and Myelodysplasia in Polycythemia Vera -A Clinical Study With Long-Term Follow-Up. Cancer. Vol. 61. Jan 1988: 89-95.
5. World Health Organization (WHO) Diagnostic Criteria for Primary Myelofibrosis (PMF), Polycythemia vera (PV), and Essential Thrombocythemia (ET)1 (Continued). https://www.mpnconnect.com/pdf/who-diagnostic-criteria-mf-pv-et.pdf.
6. Jerry L. Spivak. Polycythemia Vera. Chapter no.131 in Harrison's Principles of Internal Medicine, Vol-2. 19th edition. Mc Graw Hill Education (2015) : 672-674
7. Polycythemia Vera. https://emedicine.medscape.com/article/205114-overview.
8. Editors Pt. Rajeswardatta Sastri, Pt. Yadunandana Upadhyaya et al . 'Caraka Samhita of Agnivesa' Part -I. Sutra sthan. Chapter 25, Verse 40. Chaukhambha

Bharati Academy,Varanasi .19th Edition (1993). p: 468-469.

9. Editors Pt. Rajeswardatta Sastri, Pt. Yadunandana Upadhyaya et al . 'Caraka Samhita of Agnivesa' Part-I. Viman sthan. Chapter 5, Verse 8. Chaukhambha Bharati Academy,Varanasi .19th Edition (1993). p:711.
10. Editors Pt. Rajeswardatta Sastri, Pt. Yadunandana Upadhyaya et al . 'Caraka Samhita of Agnivesa' Part -I. Sutra sthan. Chapter 24, Verse 18. Chaukhambha Bharati Academy,Varanasi .19th Edition (1993). p:445.
11. Late Vaidya Shankar Dattatraya Phansalkar. Chapter Rasayan dravya in 'Ayurvediya Rasayan Chikitsa Part II'. Manakarnika Publication, Pune. First Edition (2011). p:46-129.