Research Article

Effective Ayurvedic management of Polycythemia Vera- A case study

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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, Raktabhishti.

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 stimulus1. It is a
slowly growing blood cancer2. 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 population3. Incidence of Acute Nonlymphocytic Leukemia is higher in PV4.

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 JAK2V617F 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
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.
On physical examination, following signs are notable:
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. The incidence of Acute Leukemia is higher with chemotherapy including Hydroxyurea in JAK2V617F- negative stem cells in PV.
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 anticoagulant. Tab Metoprolol succinate 50 mg + Amlodipin 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
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>
<thead>
<tr>
<th>Type of Treatment</th>
<th>From</th>
<th>To</th>
<th>Details of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deepan-Pachan</td>
<td>18.02.2018</td>
<td>22.02.2018</td>
<td>Sitopaladi + Avipattikar churna Half TSF BD before meals twice daily</td>
</tr>
<tr>
<td>Shodhan Chikitsa</td>
<td>23.02.2018</td>
<td>------</td>
<td>Saddleho vaman</td>
</tr>
<tr>
<td></td>
<td>24.02.2018</td>
<td>28.02.2018</td>
<td>Sitopaladi + Avipattikar churna Half TSF BD before meals twice daily; Sансajan kram- Laghu supachya aahar</td>
</tr>
<tr>
<td>Shaman chikitsa</td>
<td>1.03.2018</td>
<td>10.3.2018</td>
<td>Dadimadi-ghrit 10 ml on empty stomach</td>
</tr>
<tr>
<td></td>
<td>1.03.2018</td>
<td>31.5.2018</td>
<td>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.</td>
</tr>
<tr>
<td>Dr Gaikwad Shodhan Chikitsa</td>
<td>1.06.2018</td>
<td>12.11.2019</td>
<td>Siddha kshirpak 50 ml made from ITSF 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.</td>
</tr>
<tr>
<td>Raktamokshshan (Phlebotomy)</td>
<td>20.03.2018</td>
<td>22.03.2018</td>
<td>Maha-Tiktaghrit 20, 30, 40 ml Snehapan in 3 successive days in the morning on empty stomach as Poorva karma before Raktamokshan</td>
</tr>
<tr>
<td></td>
<td>23.03.2018, 7.04.2018</td>
<td></td>
<td>Sarvang Abhyang (Body massage) by Chandanbalalakshadi tail with Mrudu swed/Light steam as Poorva karma, followed by Raktamokshan; 160 ml blood was withdrawn three times on shown dates.</td>
</tr>
<tr>
<td></td>
<td>22.04.2018, 7.05.2018 and 22.05.2018</td>
<td></td>
<td>Sarvang Abhyang (Body massage) by Chandanbalalakshadi tail with Mrudu swed/Light steam as Poorva karma, followed by Raktamokshan; 160 ml blood was withdrawn three times on shown dates.</td>
</tr>
</tbody>
</table>

| Treatment of Urinary Tract Infection    | 13.11.2019    | 22.11.2019    | Chandansav 2 TSF BD                                                                 |
| Shodhan Chikitsa                       | 13.11.2019    | till date     | Tab Madhumalini vasant 1BD                                                            |
|                                        |               |               | Guduchi Ghanvati 1 BD                                                                 |
|                                        |               |               | Guduchi 50 gm+ Gokshur 50 gm + Ashwagandha 50 gm + Shatavari 50 gm + Haridra 25 gm + Sunthi 25 gm mixture 1 TSF to make 40 ml Siddha Kshirpak, consumed at 7 AM and 5 PM |

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

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

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 2.57 mIU/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 Yakrutmooolam Pleecha cha.... "I” 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% subjects³.

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” 10II Cha. Su.24/18 II

While treating vitiated Rakta, as per the Doshas, Virechan, Upavas, Raktamokshan (Phlebotomy) may be considered. It is worth mentioning that Raktamokshan was a known procedure nearly 5000 years back, its indications, is what 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 advised to make suitable changes in her life style. She was asked to avoid

Ushna, Vidahl, 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-Rakttagat Samata, by using Sitopaladi with Avipattikar churna. Sadhyo vaman was carried out to remove doshas from Rasa dhautu. From Rasa dhatu, Rakta dhatu is formed. Once the doshas from Rasa dhautu removed, the way for formation of healthy Rakta dhautu 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 phlebotomy 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 Apurarbhav 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-Ghiratabhyas Rasayanamam.... I” 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-vididdhi. It improves function of Mauns, Majja, Shukra dhatus. Ashwagandha has Vata-Kaphaghna properties, gives Balya/ Strength to dhatus and reduces Vatavikaras. It especially 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. 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**
