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RESEARCH ARTICLE

AN AYURVEDA CASE STUDY ON MYELOPROLIFERATIVE NEOPLASM W.S.R TO RAKTARBUDA

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Abstract

Myeloproliferative neoplasms (MPNs) are rare, potentially life-threatening blood cancers that happen when your bone marrow makes too many blood cells. Blood cells include red blood cells, white blood cells and platelets. They're made in the spongy tissue inside of your bones. MPNs aren't directly mentioned in Ayurveda, which can be taken as Anuktyadhi and in this case study, a male patient of 44 years came with GBP reports suggestive of Myeloproliferative Neoplasm having symptoms like fever, weakness, mild abdominal pain associated with Splenomegaly in the OPD of kayachikitsa for which raktashamak and pittashamak, Lekhandrugs were prescribed which enhance the blood amount. Simultaneously other drugs such as- Kaishore guggulu, Godhan ark, Kayakalpkwath, Cystogrit diamond was given as the main line of treatment which ultimately combat underlying symptoms of the patient.

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Introduction:-

Myeloproliferative neoplasms (MPNs) is a heterogeneous group of disorders characterized by cellular proliferation of one or more hematologic cell lines in the peripheral blood, distinct from acute Leukemia. The term "neoplasms" was introduced in 2008 by WHO Classification of tumors of hematopoietic and lymphoid tissues to underscore the clonal nature of myeloproliferative disorders.

Classification of MPN –^[1]

1. Chronic myeloid leukemia (CML), BCR-ABL⁺
2. Chronic neutrophilic leukemia (CNL)
3. Polycythemia vera (PV)
4. Primary myelofibrosis (PME)
5. PME, Prefibrotic stage
6. Essential thrombocythemia (ET)
7. Chronic eosinophilic leukemia, not otherwise specified (NOS)
8. MPN, unclassifiable

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9. Mastocytosis

MPN as Philadelphia positive (chronic myeloid leukemia) and all the rest as Philadelphia negative group. MPNs are classified as a rare neoplasm due to their incidence of less than 6 per the western literature: PV from 0.4 to 2.8; ET from 0.38 to 1.7; and PMF from 0.1 to 1.0 per 100,000 persons per year.

Here in this case study, there is presentation of blackish bluish discolouration of skin associated with fever on/off which may be clinically presented as MPN in modern sciences.

Since there is no direct reference and classification of MPN in Ayurveda, this case study can be correlated with Raktarbuda vikara which manifests as per Sushruta as severe emaciation and chronic anaemia as end result which is much related with the symptoms of Leukemia according to modern sciences.

In Vagbhatta Astanga Hridaya Samhita, it is stated that “**Tatoalporaktamedaskonihsarah**” Here ‘**Raktamedasko**’[2] refers to bone marrow, it is cleared from the above statement that any pathogenesis of the bone marrow may lead to anaemia; this may be associated with leukemia.

According to vagbhat, Vitiated Dosha will constrict and compress the blood within the Veins (siras). This will mature it before time hence obstruction of coagulated blood produce lump of mamsa covered with muscular sprouts and grow very fast along with bleedings. This vitiated Shonit (blood) along with circulating blood within vessels produced Blood cancer. This make the patients suffer from pandu (Anaemia) and complication of blood disorders.[3]

Materials and Methods:-

A male patient of 44yrs came to OPD of department of kayachikitsa at Patanjali Ayurveda hospital, Haridwar on 5 september 2023 with diagnosed case of myeloproliferative neoplasm (MPN) with complaints of-

S.NO	Complaints	Duration
1	Fever	15 days
2	Fatigue	X 1 week
3	Weakness with mild abdominal pain	
4	Hepatosplenomegaly	10 days

So, for the above case we have given the medication mentioned below-

Table 1-

S.NO.	DRUGS PRESCRIBED	DOSE	ANUPANA
1	Kayakalpkwath+Sarvakalpkwath	100 ml X BD	-
2	Cystogrit Diamond	1 X BD before meals	With kwath
3	Kaishoreguggulu Arogyavardhinivati	2 X BD after meals	With normal water
4	Combination of – Giloy juice Godhan ark Neemtulsi juice	15 ml X BD empty stomach	With equal water

The above treatment was prescribed for timeperiod of 1 month-

Kayakalp Kwath –

(Cassia Tora) Daruhaldi (Berberisaristata) Karanj (Caesalpinia- Bonducella) Amla (EmbliaOfficinalis) Giloy(Tinosporacordifolia) Kutaki(Picrorhizakurroa) Bakuchi(Psoraleacoryllifolia) Baheda(Te rminaliaBelirica) ChandanSwet (Santalum Album) Kali Ziri (CentratherumAnthelminticum)KateliChhoti (SolanumXanthocarpum)Haldi (Curcuma Longa) Khair (Acacia Catechu) Neem (Azadirachtaindic) Manjishta (Rubbia Cordifolia) Chirayata (Swertiachirata) Dronpushapi (LeucasCephalotes) Harad (TerminaliaChubula) Kalijera(CentratherumanthelmintIcum) Indrayanmool (Citrulluscolocynthis) Devdaru (Cedrusdeodara) Ushva (Smilax Ornata). These drugs have anti-bacterial and anti-fungal properties, thereby helps in the symptoms like fever, abdominal pain, also helps in detoxification of stomach by cleaning the gut.

Sarvakalp Kwath- [4]

Punarnava (Boerhaaviadiffusa), Bhumiamla (Phyllanthusniruri), Makoy (Solanumnigrum), These all components act as hepatoprotective in nature, thereby improving inflammation of liver.

Punarnava and bhumiamla have rasayan effect on liver and acts as raktpittaharadravyas thus, relives splenomegaly too. [5] Makoy also known as kaakmachi on the other hand, helps in protection of liver, if alcohol consumption was a history, also supports liver functions, thereby helps in improvement of enlarged spleen as well as fatty liver.

Cystogrit Diamond-

Kanchnar Bark, Haldi, Shila Sindoor, Mukdashukti Pishti, Moti Pishti, Tamra Bhasma, Heeraka Bhasma as key ingredients which are known to have lekhan (scraping) properties, helps in size reduction of hepatosplenomegaly

Shilasindoor is indicated as raktadoshahara (vitiated raktadhatu) and other diseases of infectious origin like fever (jwara, sannipataja jwara) [6]

B. variegata shows antitumour, antiulcer, immunomodulatory, haematinic, antimicrobial, hepatoprotective, antioxidant properties [7], due to the presence of chemical constituents such as lupeol, kaempferol-3-glucosides, 5, 7 dimethoxy flavanone-4-o-L etc. in stem bark. [8]. Heeraka bhasma is also best used as lekhandravya.

Kaishore Guggulu-

In Kaishore Guggulu contents are prominence of Tikta Rasa, it pacifies Pitta Dosha and Tikta Rasa is also Deepan, by which it improves Agni and Pachana Karma helps in Ama Pachana. Tikta and Kshaya Rasa also decrease the Kled Guna of Rakta, Kapha and Ama. It has properties like Lekhan and Shoshan which helps in clearance of obstruction due to AmaDosha. In general, Kaishore guggulu has Tridosha Shamak and Rakta Shodhak properties along with Rasayana Karma. [9]

Kaishore guggulu is mainly used as antiallergic, antibacterial and blood purifying properties. Kaishore guggulu can be used to support healthy joints (in gout), muscles (in fibromylegia), in back pain and connective tissue. [10]

Aarogya Vardhini Vati-

It is considered as a best hepato-protective rasayana drug.

According to Ayurveda, Dushti of Raktavaha Srotas causes Dushti of the Moolasthana, and any deformity in Moolasthana, affects the whole Srotas. Arogyavardhini improves the functions of Yakrut. This Vati is Deepani and Pachani. Also, it increases appetite (Kshudha). The Deepana, Pachana and Kshut pravartana functions happen due to normalizing the Yakrut Srava. The function of filtering toxins from blood and purifying blood improves by Arogyavardhini. [11,12]

Combination Of Juices-**Giloy Juice-**

Giloy is a rasayana and helps in boosting up the immune power. It is also an anti-diabetic, and even as an anti-cancer agent. [13]

Godhan Ark-

Godhan ark is a purified form of cow urine.

Bhav Prakash Nighantu describes gomutra as the best of all types of animal urine (including human) and enumerates its various therapeutic uses. Persons who drink gomutra regularly are said to live a healthy life, remaining unaffected by the vagaries of old age, even at age 90. Gomutra is called "Sanjivani" and "Amrita" in Ayurveda. [14]

Cow urine has molecules containing anti-cancerous and anti-infective agents. [15]

Wheat Grass Powder-

Wheat grass juice is an effective alternative of blood transfusion.

Wheat grass juice has been proven over many years to benefit people in numerous ways, building the blood, restoring balance in the body, removing toxic metals from the cells, nourishing the liver & kidneys and restoring vitality.[16]

**Before treatment –
CBC- (Table 2)-**

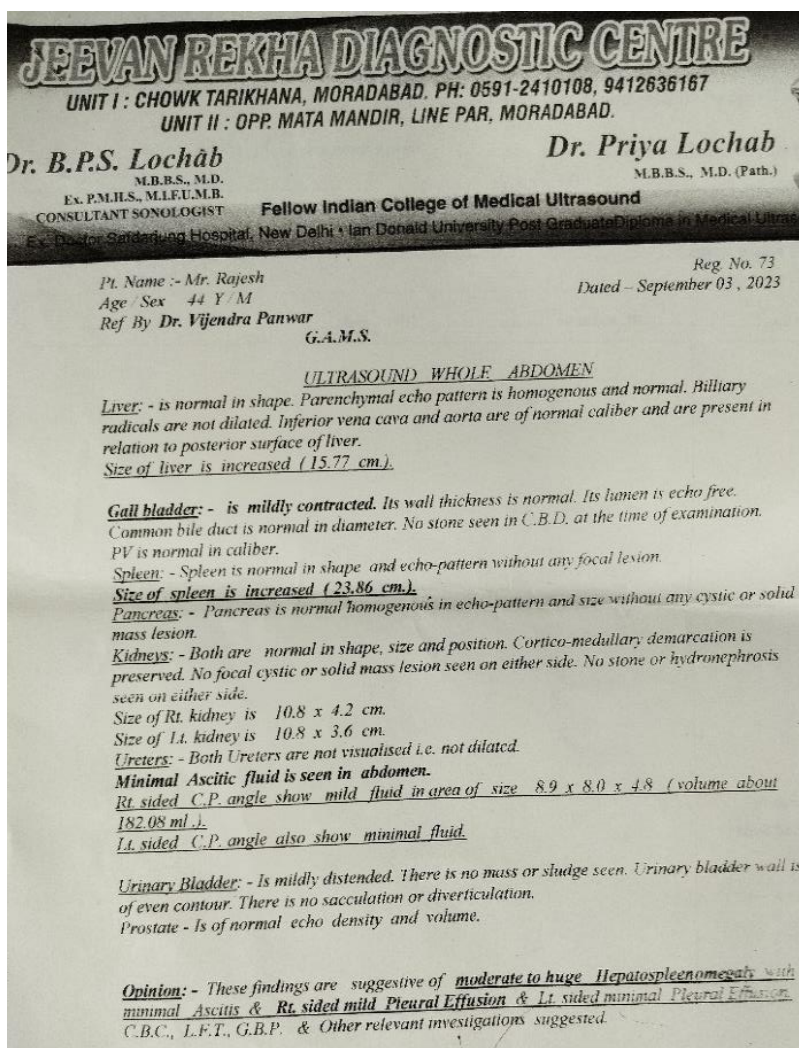
DATE	HB (g/dl)	WBC (10 ³ /uL)	DLC Neutrophil/ Lymphocyte/Eosinophil/ Monocyte / Basophil	TRBC	PCV
30/8/23	10.7	181.81	87/8.8/0.6/1.8/1.8	3.78	33.2
4/9/23	10.8	159.80	51/37/10/02/00	3.45	27.5

GBP-Marked Leucocytosis

USG- (3/9/23)-s/o-moderate to huge hepatosplenomegaly with minimal ascites and rt side pleural effusion., spleen size- 23.86cm/ 238.6mm

Fig. 1:-

WADI RAJA HARISHCHANDRA HOSPITAL, NARELA					
Department of Pathology					
HEMATOLOGY REPORT					
Name	RAJESH	Patient ID	293609	Sample No.	111
Sex	Male	Age	44	Date	30/08/2023
Parameter	Result	Unit	Ref. Range (Adult)		
HGB	10.7	[g/dL]	(13.0 - 17.0)		
WBC	181.81	[10 ³ /uL]	(4.00 - 10.00)		
NEUT	87.0	[%]	(40.0 - 80.0)		
LYMPH	8.8	[%]	(20.0 - 40.0)		
MONO	1.8	[%]	(2.0 - 10.0)		
EO	0.6	[%]	(0.0 - 6.0)		
BASO	1.8	[%]	(0.0 - 2.0)		
NEUT	158.10	[10 ³ /uL]	(2.00 - 7.00)		
LYMPH	15.91	[10 ³ /uL]	(1.00 - 3.00)		
MONO	3.28	[10 ³ /uL]	(0.20 - 1.00)		
EO	1.16	[10 ³ /uL]	(0.02 - 0.50)		
BASO	3.36	[10 ³ /uL]	(0.02 - 0.10)		
RBC	3.78	[10 ⁶ /uL]	(4.50 - 5.50)		
PLT	256	[10 ³ /uL]	(150 - 400)		
HCT	33.2	[%]	(40.0 - 50.0)		
MCV	87.8	[fL]	(83.0 - 101.0)		
MCH	28.3	[pg]	(27.0 - 32.0)		
MCHC	32.2	[g/dL]	(31.5 - 34.5)		
RDW-CV	18.6	[%]	(11.6 - 14.0)		
RET%		[%]	(0.00 - 2.50)		
PDW	---	[fL]	(9.0 - 17.0)		
MPV	---	[fL]	(9.0 - 13.0)		
ESR		mm/hr	M(0 - 15), F(0 - 20)		
Malaria Parasite: Marked leucocytosis. shift to left upto the stage of blast.					
Peripheral Smear Blast - 3%. Promyelocytes 4%. Myelocytes - 15%. Metamyelocytes - 07%. Neutrophils, bands - 66%. Basophils - 4%. Lymphocytes - 11%.					
Suggestive of myeloproliferative neoplasm. Adv - BCR-ABL study.					
Technician		Senior Resident		MO/Specialist	
Note: Kindly Correlate Clinically					
00 74 01/09/2023 10:19					



**After treatment-
CBC- (Table 3)**



DATE	HG (g/dl)	WBC	DLC Neutrophil/ Lymphocyte/Eosinophil/ Monocyte / Basophil	TRBC	PCV
9/10/2023	9.5	3880/cumm	48/39/01/10/02	3.64	33.5

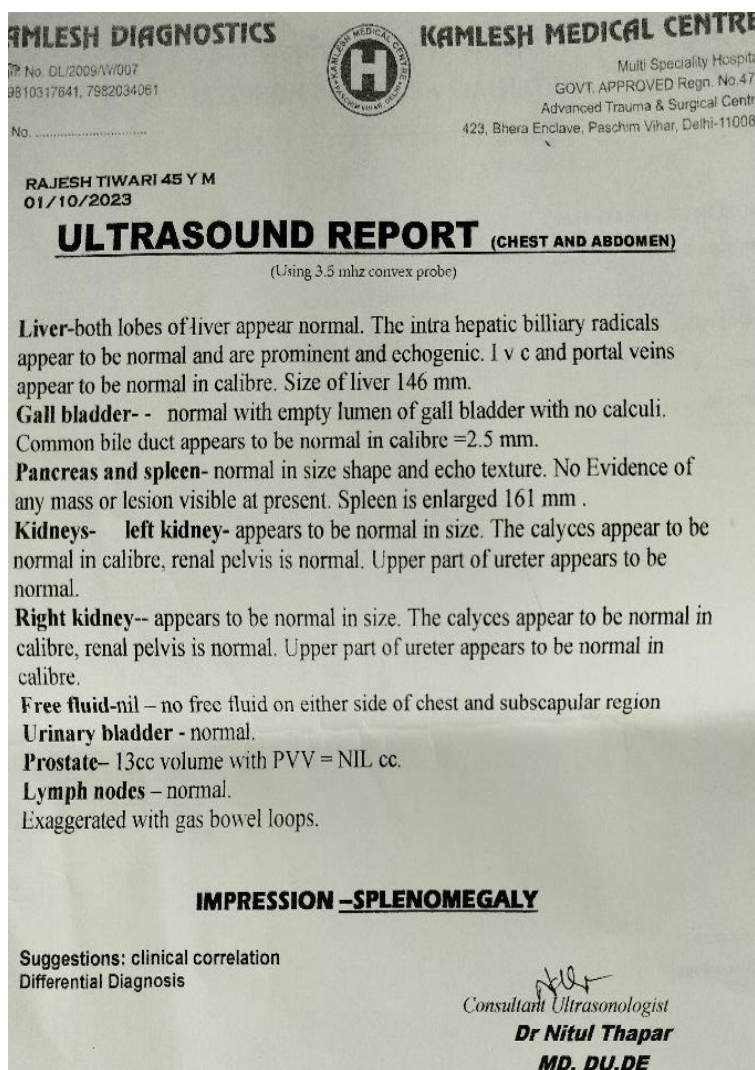
GBP-

RBC-normocytic hypochromic

WBC-Leucopenia with normal cell distribution

Fig.2:-

 PATHOLOGY LAB & RESEARCH CENTRE PATANJALI AYURVED HOSPITAL (Multidimensional Service Unit of Divya Yag Mandir Trust) Certified by NABH (Constituent Board of Quality Council of India)			
Patient ID	10236359		Reg. Date 09/10/2023
Name	Mr. RAJESH TIWARI		Received Date 09/10/2023 12:42:28
Sex/Age	Male 44 Yrs		Report Date 09/10/2023 14:46:39
Ref. By	Dr. AVINASH SRIVASTAVA		Print Date 09/10/2023 14:47:08
Specimen	EDTA		
Test Name	Value	Unit	Biological Ref In
COMPLETE BLOOD COUNT (CBC)			
Hemoglobin Tech: Photometry	9.5	g/dL	13.0 - 18.0
Total Leucocyte Count Tech: Flow cytometry	3880	/cumm	4000 - 11000
Total RBC Count (TRBC) Tech: Sheath flow detection	3.64	millions/cumm	4.50 - 6.50
Hematocrit (PCV) Tech: RBC cumulative pulse height detection	33.5	%	40.0 - 54.0
MCV Tech: Calculated	92.0	fL	80.0 - 100.0
MCH (Mean Corp Hb) Tech: Calculated	26.1	pg	27.0 - 31.0
MCHC (Mean Corp Hb Conc) Tech: Calculated	28.4	gm/dL	33.0 - 37.0
Platelet Count Tech: Flow cytometry	1.82	Lakh/cmm	1.50 - 4.50
Differential Leucocyte Count Tech: Microscopy			
Neutrophil	48	%	40 - 70
Lymphocyte	39	%	20 - 45
Eosinophil	01	%	01 - 07
Monocyte	10	%	00 - 10
Basophil	02	%	00 - 02
RBC - Normocytic Hypochromic, Macrocytes+			
WBC - Leucopenia with normal cell distribution			
Platelets - Adequate			
Suggest clinical correlation			
*** End of Report ***			



Discussion:-

Since there is no direct correlation of MPN in Ayurveda, keeping in mind, the sampraprti of raktarbuda vikara, in this case we have given the drugs acting on pitta and rakta dhatu along with rasayan drugs, as these are mainly vitiated in Raktarbuda. And in my case study, the Ayurveda medicines showed significant results in a short period of time.

Result:-

There was a positive result seen in a one month of timeperiod with marked difference in spleen size and liver size which came back to normal with huge difference seen in TLC levels.

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