

**VALVULAR HEART DISEASE MANAGED WITH AYURVEDA TREATMENT - A  
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(Published Online: December 2023)

**Open Access**

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Article Received: 13/11/2023 - Peer Reviewed: 30/11/2023 - Accepted for Publication: 13/12/2023.

**ABSTRACT**

Aortic stenosis (AS) is one of the heart's most common and severe valve diseases. Narrowing of the valve more commonly develops during aging. It influences genetic factors, hormones, lipid infiltration, inflammation, and calcification on valves, resulting in a restricted amount of blood flow through the valve. Patients of AS become prostrated and suffer from breathlessness, angina, syncope, palpitations, heart murmur, and other symptoms depending on their severity grade. It is a burning health issue, with more than one million new cases per year in India. Yet, there is no solace for AS in the contemporary medicinal system, and surgery has many more limitations in older adults. Time-trusted Ayurveda treatment modalities are merited in senior management by trimming down degenerative processes and enhancing the quality of health. Presenting a geriatric, severe AS case report, who otherwise was suggested to undergo valve replacement surgery, was treated with oral medications of *Hrudroga chikitsa*, which significantly improved the functional ability of the heart and quality of life.

**Keywords:** *Hrudroga chikitsa*, Valvular heart disease, Aortic stenosis. *Brahut vata chintamani rasa*, Integrative approach, Ayurveda rasayana, Geriatric Rejuvenator. MRI changes.

## INTRODUCTION

Aortic stenosis (AS) is a common type of Valvular Heart Disease, with an estimated overall prevalence of 3% in adults over 65<sup>(1)</sup>. Degenerative origin is the most frequent etiology of valvulopathy (82%), followed by rheumatic (11%) and congenital disease (aortic bicuspid valve, 5%).<sup>(2)</sup> Among cardiac diseases, VHD occurs about 23.4% of incidences, and out of VHD, epidemiology confirms 48% of AS cases.<sup>(3)</sup> Conventional teaching suggests that degenerative AS is a “mechanical” and passive aging condition whereby “wear and tear” leads to calcium deposition within the valve. The aortic valve is likely to be one of the first extra osseous structures involved in calcification because of the high level of mechanical stress to which it is subjected.<sup>[4]</sup> Though the exact disease-promoting action is unclear, hypertension, smoking, diabetes mellitus, and metabolic syndrome have been linked to the development of AS. Histopathogenesis study evidence that Aortic valve disease is a progressive chronic disease and spans a spectrum that begins with lipid infiltration, inflammation, and mild fibro-calcific leaflet changes, termed aortic sclerosis. Oxidative processing of lipids<sup>[5]</sup>, proteins, mechanical stress, genetic factors, the influence of parathormone, other hormones, and interaction between inflammatory cells with calcification mediators<sup>(6)</sup> leading to remodeling of the valves, and mineralization of valves progresses to more severe calcification with the end stage causing significant obstruction to ejection of the left ventricle as well as endothelial dysfunction.<sup>(7)</sup> Once symptoms develop, there is a poor prognosis and currently no medical therapies to prevent and promote the regression of the disease. Recent large prospective trials reveal that intensive lipid-lowering statin therapy does not halt the progression of calcific aortic stenosis or induce its regression<sup>[8]</sup>. Drolet et al.<sup>(9)</sup> have also shown that vitamin D supplementation resulted in the development of AS in rabbits. Even in old, high-risk patients of AS, surgical valve replacement is the only possible management. Most series of research articles published in the last ten years have reported an approximately operative mortality rate of 10% among the octogenarian population

due to post-operative stroke<sup>[10]</sup> and decreased left ventricle ejection fraction (LVEF)<sup>[11]</sup>. Limitations of TAVI (Transcatheter Aortic valve Replacement) is revealed by recently published multi-center, randomized trial on TAVI in high-risk patients for the surgical approach, have excluded patients with previous myocardial infarction, significant CAD requiring revascularization, severe reduction (< 20%) of LVEF, transient ischemic attack and stroke within the last six months and also renal insufficiency.<sup>[12],[13]</sup> In a cohort study, the patient's choice of refusing valve replacement was associated with a more than 12-fold increase in mortality risk.<sup>[14]</sup>

Thus, treating elderly patients with severe aortic stenosis through conventional medical science has a dismal prognosis, with overall survival of three years from the onset of symptoms<sup>(15)</sup>, even without the influence of co-morbidities. We were here presenting the data of a severe AS geriatric case who refused surgery and was treated with only Ayurveda oral medications. In three years, it resulted in significant improvement in the heart's functional ability, which was evidenced by Echocardiogram and the patient's functional ability.

### **Chief complaints**

Difficulty breathing, chest tightness, excessive tiredness, blackish discoloration of the skin, Imbalance during walking, pedal edema, and Palpitation for 12 months.

### **History of Present Illness**

A male patient named Ranga Pujary, aged 72 years, who was Rtd defense supervisor, went hospital for a routine health checkup one year back. Then he got to know that his blood pressure had increased, he was under regular treatment with antihypertensive pills. As the day passed, patients started having difficulty breathing, feeling chest tightness, and excessive tiredness for day-to-day activities. Further, he noted weakness in the extremities and blackish skin discoloration. He also started suffering from difficulty walking a distance of 200 meters and climbing stairs for one floor.

Further, he developed with Imbalance during walking. Additional to above complaints he also developed pedal edema and Palpitation in a span of eight months. So, he again consulted doctor and they investigated through ECG and Echocardiogram. As per reports, doctors suggested Aortic valve replacement surgery. As the patient was not willing to have the surgery, he consulted SDM ayurvedic hospital Udupi on 18<sup>th</sup> July 2017.

**Family History:** No one in the family suffered with similar complaints.

#### **History of Past Illness**

History of Hypertension for 1 year. No history of diabetes mellitus or any systemic illness.

He feels depressed since his wife passed away recently and his daughter is unmarried, suffering with schizophrenia.

#### **Treatment history**

1) T Estomine -10mg 1-0-0, 2) T Risperidone & Trihexyphenidyl hydrochloride 1-0-0, 3) T Metoprosol Succinato 25 mg 1 -0-0, 4) T Aspirin 500mg 0-1-0, 5) T Rosycap-gold (10/75mg) 1-0-1

#### **Socio-economic history**

Patients belong to upper middle-class families.

#### **Personal History**

Diet : Dry, acidic food with less water intake, Appetite : Reduced, Bowel: Regular, once in a day, Micturition : Regular, 4-5 times/day, Habits: Nothing significant, Sleep: One hour for initiation of sleep, and is Disturbed, When he used to close his eyes and try to sleep, he used to get bad dreams about his wife and other incidences which happened while he was serving in army.

Patient is cooperative.

#### **General examination**

Consciousness: Alert, Built: Asthenic, Nourishment: Moderately nourished, Pallor: Absent, Icterus: Absent, Cyanosis: Black patchy discolored skin all over body, Clubbing: Absent, Lymphadenopathy: Absent.

#### **Vital Signs**

Temperature : 98.6°F, Pulse: 79/min, regular, Blood Pressure: 140/70mm of hg at Supine Position, Respiratory Rate : 19 cycles/min.

#### **Systemic Examination: Cardiovascular system-**

Inspection: Visible precordial bulge, apex impulse: absent, Palpation: Apex beat 5<sup>th</sup> ICS, Radial Pulse Rate: 79/mint, Percussion: Cardiac dullness present, Auscultation: S1, S2 heard, S3, diastolic murmurs are evident, Heart Rate: 79/min, regular.

All the other systemic examinations found no abnormality.

#### **अष्टस्थान परीक्षा Astasthaana Pareeksha**

Naadi: 79 /min, Mala: Nirama, Mootra: Prakruta, Jihva: not coated, Shabda: Prakruta, Sparsha: Prakruta, Druk- Prakruta, Akruti- asthenic.

#### **दशविध परीक्षा Atura deha desha Pariksha:**

Prakrithi : Vatapitta, Vikrithi: vat pradhana tridosha, Satva: madyama, Sara: Asthi sara, Samhanana: madhyama, Pramana: Dairghya -166 cm. Bhara -66 kg, Satmya: Madhyama, Abhyavaharana shakti: Purva kalina: Pravara, Adhyatana: Avara, Jarana shakti: Purva kalina: Madhyama, Adhyatana: Madhyama, Vyayama shakti: Purva kalina: Pravara, Adhyatana: Avara, Vaya: vridhdha, Koshta: Madhyama.

#### **निदान पञ्चक/ Samprapti ghataka**

Dosha- vata pradhanaja tridosha, Dushya- Rasa dhatu, Agni- Kostagni, Rasadhatvagni, Ama-Rasadhatvagni janya, Udhhava sthana- Ama-Pakvashaya, Sanchara sthana- Sarvashareera, Adhithana- Hrudaya, Srotus- Rasavaha.

#### **संप्राप्ति (Etiopathogenesis)**

Nidanasevana (consumption of heavy to digest food and forcible control over bowel followed by excessive physical strain, night vigils associated with mental stress)-Rasa dhatu dusti-Hrudayam Prapya, Prdooshya- Hrudaya karya dusti/-Vata pradhana tridoshaja hrudroga.

#### **Intervention-**

1) Tiktaka ghruta 10ml tid, 2) Prabhakara vati 125 mg 1 tid, 3) Punarnava mandura 250 mg 2 tid, 4) Sarpagandha vati 250 mg1 bd, 5) Bruhat vata chintamani rasa125 mg 1 bd, 6) Arjunarista 20ml tid + Dashamularista 10ml tid, 7) Bhargavaprokta rasayana 10gm tid.

## Results-

After carrying out 30 months of Ayurveda treatment there was marked improvement found in signs, symptoms, Lab investigations, MRI findings and quality of health. Vital signs were stable throughout the intervention.

Signs and symptoms Before Treatment	Signs and symptoms After Treatment
Inability to do daily activities due to excessive tiredness	Daily activities done to full of his satisfaction for 4-6 hrs.
Inability to climb stairs and to walk for a distance of 200 meters due to extreme weakness.	Able to climb 70-80 stairs. Daily walks for about 4-5 kms.
Blood Pressure	With ongoing tab. Sarpagandha, blood pressure is within normal limit after 16 months of treatment. (Antihypertensive drugs tapered to end in 6 <sup>th</sup> to 10 <sup>th</sup> months of treatment)
Blackish discoloration of skin, Palpitation and pedal edema.	Signs and symptoms gradually reduced to nil during first 18 months of treatments.
Body Imbalance, Breathlessness and chest congestion	Symptoms gradually reduced to nil during first 24 months of treatment.

Hematological Investigations findings Before (18/7/2017) and After treatment (28/2/2020).

Investigation	Before Treatment 18/7/2017	After treatment (28/2/2020)	Normal value
Hb	14.5	13.5	12-15 Gm%
TC (Total WBC)	7.2	6.3	4.5-10.5 Cells/cu.mm
DC-N	60	68	40-70 %
L	33	26	20-40 %
E	6	5	2-6 %
ESR	26	18	<15 mm/hr
FBS	104	96	60 – 140 mg/dL
Sr. U Acid	5	4	3-7 mg/dl
Sr. Creatinine.	1.2	1.1	0.6 – 1.4 mg/dL
Sr. Urea	53	32	10 – 50 mg/dL
Sr. Triglyceride	138	102	40-160 mg/dl
SGPT	56	26	40 U/L
T.Protein	6.2	6.6	6.6-8.7 g/dl
C reactive Protein	-ve	-ve	
ASO titre	-ve	-ve	
TSH	N	N	

## COLOUR DOPLAR AND 2D ECHOCARDIOGRAPHY after the treatment for eighteen months-

VARIABLES	BT	AT	FINDINGS
LEFT ATRIUM	LAD-46 mm LAIS-63 mm	LAD-44 mm LAIS-55 mm	Wall thickness significantly reduced.
LEFT VENTRICLE	IVS thickness-17 mm LVPW thickness-14 mm	IVS thickness-14 mm LVPW thickness-13 mm	Wall thickness significantly reduced.
EJECTION FRACTION	60%	65%	Enhanced by 5%.
MITRAL VALVE FLOW VELOCITY	E: 117 cm/sec A: 120 cm/sec	E: 105 cm/sec A: 95 cm/sec	Significantly reduced and E / A Ratio Significantly Improved.
AORTIC VALVE	Calcification and	Thickend and calcified.	Cups doming reduced.

	Flow velocity: 456cm/sec	Flow velocity: 558cm/sec	
TRICUSPID VALVE	Flow velocity: 55 cm/sec. Grade 1 TR	Flow velocity: 50 cm/sec Trivial TR	Regurgitation reduced and flow velocity is reduced.
AORTA	30 mm	27 mm	Root diameter has reduced towards normal.
PULMONARY VESSELS	PASP-35mm Hg P Veins Dilated	PASP-32mm Hg P Vein prominent.	Artery systolic pressure has reduced from the border line to normal. P Veins dilation reduced
Ventricle wall motion abnormality, Mitral Regurgitation, Pulmonary valve morphology, Pericardium, Endocardium	Nil	Nil	Degenerative changes were halted during treatment.

### ECG FINDINGS-

Sinus rhythm with Atrial flutter, right lateral wall and septal Infarction and Left lateral wall Ischemia was noted before the treatment.	Same ECG findings persist even after three years of Ayurveda treatment. No further progression or new findings like Impulse block or hypertrophy are evident.
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## DISCUSSION

### Discussion on Drugs at the time of Admission-

1. Tab. Estomine content Citalopram, which is believed to have serotonergic action, but still its mode of action on 5HT neurotransmitter is unclear and has various side effects<sup>16</sup> on gastrointestinal, thrombus formation and psychological functioning.
2. Risperidon and Trihexyphenidyl hydrochloride have Serotonin antagonism and Dopamine antagonism action. Its side effects are extra-pyramidal effects, tardive dyskinesia, priapism, agitation, various GI symptoms and hampered systemic functions, somnolence, orthostatic hypotension, dementia-related psychosis, seizures and neuroleptic malignant syndrome etc<sup>17</sup>.
3. Metoprolol succinato, beta-blocker used to treat chest pain (angina), heart failure, and high blood pressure. Side effects- such as insomnia, vivid dreams and nightmares<sup>18</sup>.
4. Aspirin, also known as acetylsalicylic acid (ASA), studies reveal that, taking aspirin daily for two years prevented 1 in 50 from having a cardiovascular problem (heart attack, stroke, or death). In the long run aspirin-resistance or insensitivity develops in more

than 30% of people. It has an undesired effect on the Gastrointestinal system and increases the risk of bleeding<sup>19</sup>.

5. Rosycap Contains Aspirin (75 mg) + Rosuvastatin (10 mg) + Clopidogrel (75 mg).

Rosuvastatin is in a class of medications called HMG-CoA reductase inhibitors (statins). Long term intake of it with combination of antiplatelet drugs like Aspirin and clopidogrel may result in variation in Gastrointestinal, Metabolic as well as cardiovascular (Irregular heartbeat) functioning which brings down quality of health<sup>20</sup>.

By considering the mode of action and side effect in long run, patient was tapered with all allopathic medicine to nil and switched to Hrudroga chikitsa of Ayurveda.

### Discussion on hrudroga -

Ayurveda literature explains detailed description on *Hrudaya* as one among the three major vital organs of the body. Explanation on sprouting up of heart at the fourth month of fetal life and its shape which is correlated with inverted lotus flower, and role of *Hrudaya* in providing *Prana* to each part of the body in terms of inhaled breath and nutrition is well explained in the literature.<sup>21</sup>

The number of vessels departs from heart and their branches their color, response of the heart which can be best correlated to the sympathetic and parasympathetic stimulation is also available in the Ayurveda classical literature.<sup>22</sup>

Clarification on various disorders of heart and their signs and symptoms, the role of *Dosha* in normal as well as abnormal functioning of heart, even minute influences of the food, regimen and emotions on it, also elaborately explained by Acharya Sushruta.<sup>23, 24.</sup>

#### **Discussion on Ayurveda treatment given-**

This is a case of an army personnel who does *ve-gadharana*(inhibiting the bowels) extreme physical exercise even soon after intake of *ushna*, *teekshna*, *guru*, *kashaya rasayukta ahara sevana* which intern results in acidic changes in the blood leading to pathology of valvular disease is compared with *vata pradhana tridoshaja hrudroga*.

Senile mechanical stress at the valve is minimized by intake of *Tiktaka grata* due to its anti-inflammatory, *srotoshodhaka* (cleanses the depositions) and *rasayana*(improving the functional ability) properties, *Sarpagandha vati*<sup>25</sup> is tranquilizer and has effect to control hypertension, *Arjunarista* and *Prabhakara vati* are best known cardiac tonner, *Punarnava mandoora* is proven haemo tonic, *Bruhut vata chintamani rasa* reverses the pathology by controlling the *vata* (degenerative and occlusive pathologies), *Dashamularista* is revitalizer, *Bhargavaprokta rasayana* is time tested rejuvenator of vital organs. Hence these combinations of oral medicines are chosen for the treatment.

#### **Discussion on Findings of Hematological Investigations Before and After Treatments-**

Reduction within the normal value of total WBC count with reduced Lymphocyte, reduced ESR and improved Neutrophil count indicates reduced chronic infection and enhanced Immune mechanism.

Good control over blood sugar, improved value in triglycerides and controlled values of Lipid profile indicative of well-maintained metabolic activity during treatment.

Significant reduction to normal value of Blood urea, serum uric acid levels considerable reduction in se-

rum Creatinine indicates enhanced renal functional ability.

Reduction in SGPT (indicative of cell damage) level from high to upper limit of normal range and increase in the globulin protein(debris which has to cleared from body by the liver) level indicates improved functional ability of Liver too.

After initiating the Ayurveda medicines, Allopathic drugs were tapered and stopped in a span of 6 months. The data shows overall improvement in the quality of health through improved immune, vital organs functional ability as well as the metabolic activity in the body.

#### **Discussion on COLOUR DOPLAR AND 2D ECHOCARDIOGRAPHY findings-**

Calcification is a progressive process with age, which results in a narrowed lumen between the cusps of the valve leading to increased stenosis. Because of stenosis, blood flow velocity increases, which increases the ventricular wall thickening, followed by a reduction on the inside volume of the left ventricle and ends up in a decreased ejection fraction. This process becomes a vicious cycle, resulting in ventricular hypertrophy. Possible coexisting morbidity is LV infarction, since coronary supply also hampers, leading to angina, later severe dyspnea, dizziness, and cyanosis.

So, the Amount of calcification, Maximal Aortic Valve Cups Separation to evaluate stenosis, change in flow velocity, ejection fraction of left ventricles, wall thickening of left ventricles as well as signs of infarction in the ventricles are the Magnetic Resonance Imaging parameters to evaluate the prognosis.

After 36 months of treatment, reports **suggest** non progressed calcification of Aortic valves and doming of the leaflets for the last two years. Left ventricular ejection fraction has improved by 5%, which is a very significant improvement of functional capacity of the heart as far as systemic circulation is concerned. Even though the flow velocity at the aortic valve is increased and diastolic diameter is reduced, there is a significant reduction in the intraventricular septal (from 17mm to 14 mm) and posterior wall of the left

ventricle diameter suggestive of reversing of left ventricles hypertrophy.

E/A is the marker of the function of the heart's left ventricle. It represents the ratio of peak velocity blood flow from left ventricular relaxation in early diastole (E wave) to peak velocity flow in late diastole. In Normal Diastolic function representing  $E > A$ . In this case, E has reduced from 117 cm/sec to 105 cm/sec, which is almost normal pressure. In this case, A has decreased significantly from 120 cm/sec to 95 cm/sec. A notable point here is after the treatment, the Ratio became  $E > A$ , which was  $A > E$  before therapy.

In addition, Left Atrial wall diameter has reduced from 46mm to 44mm (normal is 40 mm) Atrial septal diameter has significantly reduced from 63 mm to 55mm. Further progression of Mitral valve regurgitation has seized for more than two years.

The morphology of tricuspid valve stayed normal, flow velocity was slightly reduced, and fictional capacity improved by reduction in the tricuspid regurgitation. Pulmonary Artery Systolic Pressure was also slightly reduced from 35 mmHg to 32 mmHg. There is an evident improvement in the pressure gradient of the pulmonary vein also.

#### **Discussion on ECG Interpretation-**

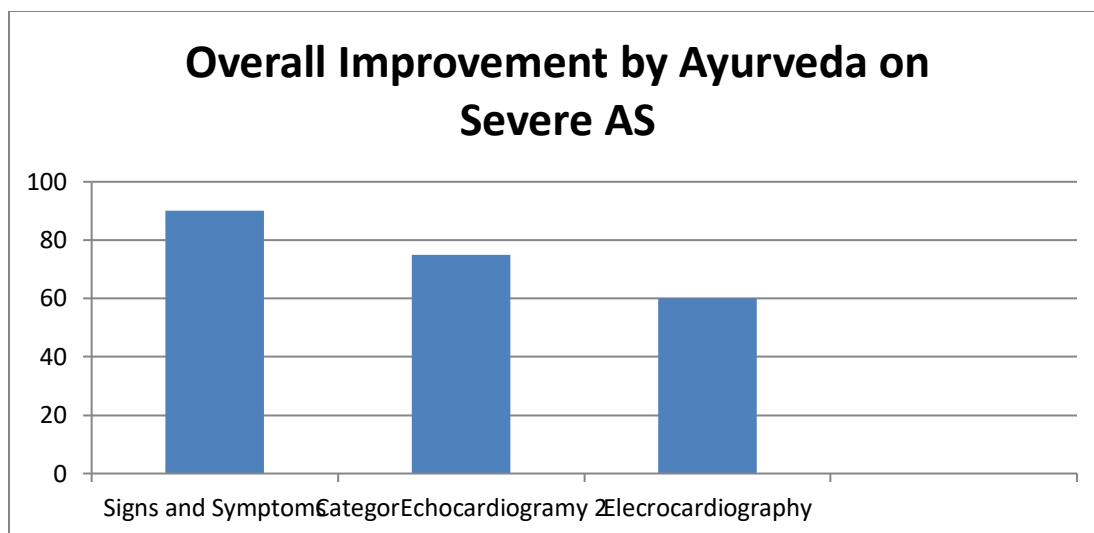
Sinus rhythm with Atrial flutter, right lateral wall, septal Infarction, and Left lateral wall Ischemia was noted before the treatment. The same ECG findings persist even after three years of Ayurveda treatment:

no further deterioration or new results like Impulse block or hypertrophy.

## **CONCLUSION**

Ayurveda treatment provides a comprehensive approach with a holistic effect in improving life's health and longevity since time immemorial. Assessing the mode of action of Ayurveda medications in terms of modern science is irrelevant since it is best analyzed in terms of balancing the *Agni*, *Ama*, *Dosha Srotus*, and *Ojus*. On the other hand, modern science has advanced to the extent of explaining etiopathogenesis in terms of genetics, Harmons, lipid infiltration, inflammation, calcification, etc, exact disease promotion still needs to be determined. Treating morbidity with Antagonistic actions of drugs will arrest the normal physiology too, which lacks the long-standing significant result, and in older adults with or without co-morbid health issues, surgery also not give solace.

The novel findings of this study are, when a geriatric case of Severe Aortic stenosis was treated with only Ayurveda medications for a year, the patient got betterment in various parameters of functional ability of the heart and continuing these medicines for two more years showed improvement in general health and quality of life as well. Clinical trials to evaluate the efficacy of Ayurveda treatment modalities in geriatric cardiac management in many patients would shower limelight on the importance of the Integrative approach, which is the need of the hour.



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**Source of Support: Nil**

**Conflict of Interest: None Declared**

How to cite this URL: Vijayendra G Bhat et al: Valvular heart disease managed with ayurveda treatment - a case study. *International Ayurvedic Medical Journal* {online} 2023 {cited December 2023} Available from: [http://www.iamj.in/posts/images/upload/3126\\_3134.pdf](http://www.iamj.in/posts/images/upload/3126_3134.pdf)