

An Ayurvedic Management of Paroxysmal Supraventricular Tachycardia

Case Report

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Abstract

Background: Paroxysmal Supraventricular Tachycardia is a type of Supraventricular tachycardia (SVT) and is defined as intermittent SVT and typically presents with a ventricular rhythm of 160 bpm. The patient morbidity with paroxysmal supraventricular tachycardia (PSVT) is directly proportional to the frequency of episodes, and it can be life-threatening in patients with atrial fibrillation and ventricular pre-excitation. Its management depends and varies according to severity of the symptoms which includes long-term treatment to surgical procedure like catheter ablation. **Case Report:** A 26-year Female patient, who was a known case PSVT, approached with complaints of recurrent palpitations, chest discomfort with breathing difficulty, palpitation, lightheadedness and exercise intolerance. **Conclusion:** the patient was diagnosed as *vataja hridayoga* and treated with ayurvedic medicine for the duration of 3-4 months. With the help of ayurvedic medicines, patient is free from symptoms and chronic drug therapy.

Key Words: Paroxysmal Supraventricular Tachycardia, Catheter Ablation, *Vataja hridayoga*.

Introduction

Supraventricular Tachycardia (SVT) is a tachyarrhythmia originating from the cardiac tissue at the level of the bundle of His, a specialized tissue transmitting electrical impulses from the atrioventricular (AV) node to the Purkinje fibers or above (1). It is a dysrhythmia originating at or above the Atrioventricular (AV) node. Paroxysmal Supraventricular Tachycardia is a type of SVT and is defined as intermittent SVT without provoking factors and typically presents with a ventricular rhythm of 160 bpm (2). The prevalence of PSVT is 35 per 10,000 person-years or 2.29 per 1000 persons with a female predominance of 2:1 across all age groups (3). The morbidity of the patients suffering from the PSVT increases with increased frequency of episodes and if associated with atrial fibrillation and ventricular pre-excitation, it can be life threatening (1). In young adults, PSVT is the most common among non-sinus tachydysrhythmia. The most common PSVT include atrioventricular nodal re-entrant tachycardia (AVNRT), atrioventricular re-entrant tachycardia (AVRT), and atrial tachycardia (AT). Its management depends and varies according to severity of the symptoms which includes long-term treatment to surgical procedure like catheter ablation. (4).

Frequent PSVTs in a patient can result in new-onset heart failure secondary to tachycardia-induced cardiomyopathy (5). Here we present a case report of a patient with a known case of PSVT on medication. even after taking medicines, the frequency and severity of symptoms increased and she was advised for catheter ablation surgery considering the symptoms. She approached *Parul Ayurved Hospital* for ayurvedic treatment as she was not willing for the surgery. During the treatment period and after treatment, there was no relapse of symptoms from the last 18 months and she is free from both allopathy and ayurvedic medicines and leading a healthy medicines-free life.

Case report

Chief complaints

A twenty-six years female patient with a height of 153 cm, weighing around 61 Kg with a well-built, consulted to *Kayachikitsa Cardiac OPD of Parul Ayurved hospital* on 24-6-2020 (OPD No.- 20004896) with complaints of recurrent palpitations, chest discomfort with breathing difficulty, palpitation, lightheadedness and exercise intolerance.

History of present illness

The patient had these complaints since 2010 and it was diagnosed as panic attack and treated for the same. In 2016, considering the recurrent episodes of palpitation, she approached cardiologist and was diagnosed as Paroxysmal Supraventricular Tachycardia and started Tab. Diltiazem 90mg OD. Even after taking medicines she used to get episodes of palpitations, giddiness, and shortness of breath intermittently for every 2-3 months. In 2019, the frequency of palpitation and other symptoms increased in severity. For that, she consulted a cardiologist in Bhopal and she has been

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advised to increase the dose of Tab Diltiazem from 90mg to 120 mg and undergo an ablation procedure if symptoms relapse. She was not willing to undergo surgery so, she approached Ayurvedic Cardiology Department at Parul Ayurveda hospital on 24/6/2020.

Findings

On examination, her Vital signs and physical examination were normal. Her pulse was 110/min with a blood pressure of 138/80 mmHg, with no any cyanosis, anemia, or any pedal edema. A 12 lead ECG shows sinus tachycardia. She is a known case of hypothyroidism since 2012, for this she has taken tab. Thyroxine 25 mcg for 9 year, since last one year she is not taking thyroxine or any other medicines for thyroid as thyroid profile was within normal range (TSH -2.428uIU/ml). No history of any other major illnesses such as diabetes, hypertension, or any trauma or surgery was present. There was no family history of any cardiovascular. The patient’s diet comprises of a mixed diet. She has a normal bowel movement with regular motion, frequency of urine 3-4 times/day & 1-2 times/night, normal sound sleep, and has denied using tobacco or any other addictions. She is a Nulliparous female with a regular menstrual cycle with normal flow of 3 days.

Table 1: Timeline of the case

Date	Relevant Medical History
2010	Recurrent palpitation, shortness of breath and chest discomfort – diagnosed as panic attacks and treated for the same.
2016	Diagnosed as PSVT and started Tab. Diltiazem 90 mg OD Episodes of palpitations, giddiness & shortness of breath intermittently for every 2-3 months (medicine is ongoing)
2019	Episodes of palpitation and other symptoms increased in severity Cardiologist advise to take Tab. Diltiazem 120 mg OD and suggested for catheter ablation if symptoms frequency increases.

Table 2: Previous Medical Record Data of Diagnosis and Medical Treatment

Date	Complaints	Reports	Ongoing medicines
3/7/2019	Palpitation Breathing difficulty	ECG- sinus tachycardia (HR-114.min) HB%- 10.1 gm% TSH- 4.77mIU/L Diagnosis: PSVT.	Tab.Dilzem CD (Diltiazem) 120 od Tab. Etizola lite 5 (etizolam (0.25 mg) + escitalopram (5 mg) 1 HS Tab.Etizet t-MD 0.25mg sos

Treatment

Considering the symptoms of the patient, she has been diagnosed as a case of *vataja hridayoga* and treatment was planned as follows.

Table 2: Ayurvedic treatment intervention

Date and day of visit	Intervention
24/6/2020	<i>Koshtha Shodhan</i> with <i>Eranda tail</i> 20ml for 3 days
27/6/2020	<i>Arogyavardini vati</i> – 2 tabs twice a day before food <i>Hrudaroga chitamani rasa</i> –1 tab twice a day after food <i>Nagbala churna ksherapaka</i> – 50ml twice a day
24/7/2020 (1 st visit)	<i>Hrudaroga chitamani rasa</i> – 1 tab twice a day after food <i>Nagbala churna ksherapaka</i> – 50ml twice a day <i>Bala tail</i> for local application over cardiac region daily once
24/8/2020 (Day 60) (2 nd visit)	<i>Brahmi vati</i> – 1 tablet two times a day <i>Hrudaroga chitamani rasa</i> – 1 tablet twice a day after food <i>Nagbala churna ksherapaka</i> – 50ml twice a day <i>Bala tail</i> for local application over cardiac region daily once
24/9/2020 (Day 90) (3 rd visit)	<i>Kamaduda vati</i> – 2 tablet two times a day before food <i>Hrudaroga chitamani rasa</i> – 1 tab twice a day after food <i>Nagbala churna ksherapaka</i> – 50ml twice a day <i>Bala tail</i> for local application over cardiac region daily once

Results

Patient was treated with ayurvedic medicines for the duration of 3 months and significant improvement was observed in the signs and symptoms of the patients and now she is free from Ayurveda and allopathy medicines.

Visits	Heart rate	Blood pressure	Reoccurrence
First visit	110/min	138/80 mmHg	There was a single episode of a palpitation
Second visit	108/ min	126/78 mmHg	No relapse of symptoms
Third visit	90/min	120/76 mmHg	No relapse of symptoms

Discussion

In this current the present period of claims to specialty and super specialties in medical science, Ayurveda stands apart by its all-encompassing methodology towards the body as one single element. The body with every one of its parts coinciding with reliance and shared connection makes it challenging to grasp when drawn nearer independently. As of late,

mankind has started to understand this comprehensive way to deal with wellbeing with the complex parts of body, mind, and soul (6). The diseases happen because of faulty lifestyle and distressing mental circumstances. These variables influence one's mind and homeostasis of the body by a few psychosomatic components and will lead to the life disorders (7). Improper life-style, food habits and psychological factors like *Atichinta* (abundance stress), *Bhaya* (dread), *Krodha* (outrage), *Alasya* (bluntness) and so forth, with or without hereditary inclination incites and vitiates all the three *Dosha's* and lead to pathogenesis.

Hridaya is considered as a vital organ as per medical and Ayurveda science and it is considered as *moolastana* of *rasavaha srotas* which helps in circulating the *rasa* and *rakta dhatu* all around the body. (8-9) The self-excitatory capacity of the heart can be ascribed to the working of the *Vata Dosha*, specifically the *Vyana-vata*, as it is situated in the heart that is responsible for contraction and relaxation of heart and blood circulation. *Charaka* explains that *Vyana-vata*, a type of *Vata Dosha* continually forces the blood out of the heart and appropriates it (10). cardiac activity relies upon the electrical impulses produced in the sinoatrial node. It is specialized group of cells situated in the upper border of right atrial wall which generates impulses on its own(11), but action potential action in the cells of the SA node is controlled by a the autonomic nervous system via sympathetic and parasympathetic nerve fibers (12) originating from the brain(*moordha*) and which is considered as site of *prana-vata* that controls the *hridaya* (heart) and does *dhamani dharana* (blood vessel perpetuation) (13) and hence heart rate is influenced by the *prana-vata*. In this context, it can be considered that *vyana* and *prana-vata* controls the heart rate and circulation by neurohumoral mechanics. *Prana-vata* denotes nervous control and *vyana-vata* denotes cardiac activities in normal physiological processes. Vitiating of *vatadi dosha* and *dushya* will lead to the different *hridaya roga*. The signs and symptoms of the disease depends on the *doshadushya sammurcha*.

The sympathetic nerves speed up the pacemaker potential, so producing action potentials at a quicker rate and increasing heart rate (14). An increase in heart rate is known as positive chronotropy and it is associated with increased sympathetic activity and *darah* is the symptoms which is explained in *vataja hridayaroga* can be correlated to tachycardia or tachyarrhythmia. The parasympathetic nerves making the membrane potential more negative and slowing the pacemaker potential, therefore decreasing the rate of action potential production and therefore decreasing heart rate. A decrease in heart rate is known as negative chronotropy (15). *Hridaya stamba* is a symptom explained in *kaphaja hridayaroga* and it can be correlated with bradycardia or bradyarrhythmia.

Considering the signs and symptoms of the patient, she has been diagnosed with a case of *vataja hridayaroga*. *vataja hridaya roga* symptoms explained in classics are *dravah* (palpitation), *darah*(tachycardia), *deenata* (sudden sense of depression), *bhaya*(fear),

shoka(grief), *shabda aasahisnuta* (intolerance to sound) Near-fainting or fainting (*murcha*), dizziness, confusion or memory problems (*pramoha*), fatigue, shortness of breath and *alpa nidrata* (insomnia) (8). As per modern science, there are two types of cardiac arrhythmias i.e., tachyarrhythmia and bradyarrhythmia's. Considering the signs and symptoms of patient it is considered as tachyarrhythmias and PSVT is the one type of it. In PSVT, palpitations and cardiac arrhythmias are the most common complaints. Patients may present with acute cardiac rhythm abnormalities, symptoms like dizziness, and chest discomfort are present with intermittent tachycardia.

Mode of action of treatment

Considering the manifestation of disease, treatment was planned i.e., *koshtashodan* followed by oral medications and *stanika abhyanga*. *Kostashodan* was advised with *Eranda tail* which has properties like *Madhura rasa*, *ushna-tikshan* and *sukshma gunas*, *srotovishodana*, *vrishya*, *madhuravipaka*, *adhobhagadoshahara* (16).

Grewia hirsuta Vahl, commonly known as *Nagabala*, have properties like *madhur rasa*, *sheet veerya*, and *Madhur vipaka* with *laghu*, *snigdha*, *picchila guna* (17). *Nagabala* acts as a *rasayana* so it promotes both physical and mental health, and also improves the status of *rasa dhatu*. It contains compounds like oleic acid, linoleic acid, terpenes, myristic acid, gingerol, aldehyde, and alcoholic compounds, the leaves of *Nagabala* contain an alkaloid named ephedrine and pseudoephedrine, its roots and seeds also contain ephedrine, vasicinol, N-Methyl tryptophan which having cardiovascular, analgesic, anti-inflammatory, and antioxidant effects (24).

Hrudroga Chintamani Rasa is proprietary medicine which is used in the management of cardiac diseases. It contains *Bruhat Vata Chintamani Rasa* 10 mg, *Arjuna* 20 mg, *Jatamansi* 20 mg, *Manjishtha* 20 mg, *Akeek Pishti* 30 mg, *Abhraka Bhasma* 20 mg, and *Poornachandrodaya Makardhwaj* 30 mg etc. as active ingredients.

Brihat vata Chintamani (BVC) rasa is the herbo-mineral formulation which is used in the management of *vata-pitta Pradhan vata vyadhi*. The ingredients of compound formulary were indicated as a stimulant, nervine, nootropic and rejuvenate which improves the acuity of mind as well as directly indicated in the management of stroke in Ayurveda (18) and it contains the ingredients having potent anti-inflammatory, anti-oxidant and are used in rheumatoid arthritis and it also shows neuroprotective action (19).

Rubia cordifolia relaxes the spasms of smooth muscles of heart and blood vessels, like standard "calcium channel blocker" drug. Spasmolytic activity of *Rubia Cordifolia* indicates that presence of calcium channel blocker like phytoconstituents. So, it can be used in the treatment of arrhythmia resulting from myocardial ischemia due to calcium overload (20).

Abhraka bhasma (Mica) is explained as *hridaya*. It helps to bring the equilibrium state of *tridosha's* and maintain homeostasis of body by its *rasayana* and

dhatuposhan properties. It is used as rejuvenating agent to brain and neuro psychiatric disorder, neuropathy etc. also act as *vrushya*(aphrodisiac), *rasayana*(anti-ageing) (4). As it has shown action as brain rejuvenating agent and helps in neuro psychiatric disease, it can be considered that it helps in normalizing the function of *prana-vata* (21).

Nardostachys jatamansi DC having *tikta, kashaya rasa* with active component *Jatamansone*, it is having antihypertensive, Antiarrhythmic-maintain Arrhythmic, Sedative, Tranquilizer effects, Dashmool having *shothhara* properties also relieves pain and irregular cardiac rhythm, and *manjistha* which maintains blood optimum viscosity. *Nardostachys chinensis* (NC), the rhizomes and roots of *Nardostachys jatamansi* DC, has certain cardioprotective and antiarrhythmic effects in animal and cell experiments by inhibiting myocardial apoptosis, the inflammation reaction, and oxidative stress and by modulating several ion channels. Clinical study on *Nardostachys jatamansi* has shown significant improvement in EHTN which exhibit anti-oxidant, anti-ischemic and anti-arrhythmic potential (22).

Brahmi (*B. monnieri* (L.) Pennell) has anxiolytic effects, anticonvulsive action, antioxidant activity, adaptogenic activity, cardiac depressive activity on left ventricular contractility, heart rate and coronary flow similar to that of quinidine on heart (23).

Conclusion

PSVT is known to occur in individuals of all ages, but treatment is often difficult. In chronic cases, either catheter ablation or chronic drug therapy may be appropriate. If it is not managed promptly complications such as syncope, fatigue, and dizziness lead to anxiety or panic attacks on the patients, medication-related complications are also there. In this case report, a known case of PSVT on medication approached with complaints of recurrent episodic attacks of palpitation, giddiness and shortness of breath intermittently has been treated with ayurvedic medicines for the duration of 3 months and no relapse of symptoms were observed till now. With the help of ayurvedic medicines, patient is free from chronic drug therapy without any complication and patient is leading a healthy life without any medications of allopathy and Ayurveda for PSVT.

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