

## Reversal of Atrial Septal Defect Using a Plant Base Diet: A Case Study

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### Abstract

Role of diet has been well documented in curing various life-style diseases. Here we report the reversal of a congenital cardiac defect, Atrial Septal Defect (ASD) through plant based diet implementation. Not only size of ASD was reduced but blood flow was also reversed which eventually normalized pulmonary hypertension.

**Keywords:** Diet; ASD; Pulmonary Hypertension; Arrhythmia

### Abbreviation

ASD: Atrial Septal Defect; ECG: Electrocardiogram; MRI: Magnetic Resonance Imaging; CT: Computerized Tomography; NSAIDs: Non-Steroidal Anti-Inflammatory Drugs; DGI: Dietary Glycemic Index; LVEF: Left Ventricular Ejection Fraction

### Introduction

Atrial Septal Defect (ASD) is a third most common type of congenital heart disease with no clear cause [1]. Genetic and environmental factor may play a role. Risk factors for ASD during pregnancy are rubella infection, drug, tobacco and alcohol use, diabetes or lupus, obesity and phenylketonuria. When defect is large it can cause right-sided heart failure, heart rhythm abnormalities (arrhythmias), increased risk of a stroke, shortened life span. Moreover, it can cause pulmonary hypertension or permanent lung damage [2]. It can be diagnosed using Echocardiogram, Chest X-ray, Electrocardiogram (ECG), Cardiac catheterization, Magnetic resonance imaging (MRI), Computerized tomography (CT) scan. Medication cannot repair the hole but can provide the symptomatic relief from arrhythmias (beta blockers) and to reduce the risk of blood clot (anticoagulants). Atrial Septal Defect can be repaired using cardiac catheterization and open-heart surgery. However, surgery isn't recommended if you have severe pulmonary hypertension because it might make the condition worse [3].

### Case Presentation

A 59 year old male was presented to virtual OPD with a Atrial Septal Defect in November 2018. He was diagnosed through echo test and HR CT test with 22 mm ASD size. His weight was 72 kg at the time of coming OPD. During diagnosis he was taking medicines of pulmonary hypertension (Bosentan 62.5 mg), thyroid (Thyrox 25mg), gastrointestinal problem (Cyra d), anxiety (Alprax), Lung diseases (Deriphyllin). Besides, he was on oxygen for 24 hours as because of reverse blood flow, there was the depletion in oxygen levels in the blood.

### Dietary intervention

After coming to virtual OPD the patient was put on dietary intervention for 15 days. Diet consists of fruits, vegetables, soaked nuts and sprouts as described earlier [4]. Sunshine is also an integral part of the prescribed diet. Packed and refined food, nutritional supplements, non-steroidal anti-inflammatory drugs (NSAIDs), animal, dairy products and dinner at late hours are strictly denied.

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### Results and Discussion

Patient started experiencing a drastic improvement after 15 days after being put on diet. Changed parameters after dietary intervention are shown by table. Size of ASD was reduced by 2 mm and blood flow was also reversed which eventually normalized the blood pressure in pulmonary artery (Table). Advantage of diet not only restricted to cardiac problem but extended to other health benefits like amelioration of fatigue, knee pain, thyroid and gastric problems.

Parameters before intervention	Parameters after intervention
Oxygen level less than 60% (24 hr oxygen support needed)	Oxygen level normal (No oxygen support needed)
Severe TR (Tricuspid valve regurgitation)	Moderate TR
Atrial Septal Defect 18-22 mm	Atrial Septal Defect 18-20 mm
Shunt Right to Left	Shunt Left to Right
Pulmonary hypertension 99 mmHg (HIGH)	60 mmHg (Normal)
LVEF 60%	LVEF 45% (Lower Normal)
Difficulty in climbing steps	No difficulty in climbing
TSH 11 mili IU/Litre	TSH 9 mili IU/Litre
Gastric problem	No gastric problem
Constipation	No constipation

**Table:** Showing parameters before and after the dietary intervention.

### Conclusion

Diet has been crucial in disease management particularly in life-style diseases [4]. Pre-pregnancy diabetes and obesity are known independent risk factors for several birth defects. In one report association between maternal dietary glycemic index (DGI) and the risk of birth defects among nondiabetic women was studied. High DGI was associated with 53 birth defects including atrial septal defect (aOR = 1.37). Obesity coupled with high DGI synergistically increased the risk of some birth defects [5]. Such studies emphasize the need of proper diet to reduce the incidence of birth defects. Therefore, a balanced diet is important not only in curing but in the prevention of the birth defects. Present case is of a congenital disease which resulted in great improvement by alteration in food habit. Searching literature using key words “diet and atrial septum defect” in Google Scholar and NCBI pubmed did not resulted any relevant information. We therefore, can conclude that this is the first study in the world of its kind.

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### Conflict of Interest

The authors declare that they have no conflict of interest.

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