

# PRESENTATION OF ATRIAL SEPTAL DEFECT (ASD) - SYMPTOMS AND SIGNS

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## Abstract

A cross-sectional study was carried out in the National Institute of Cardiovascular Diseases (NICVD), Dhaka, during the period of July, 1992 to June, 1993, which was designed to see the presentation and physical examination findings of atrial septal defect (ASD) patients in our population. A total of 60 ASD patients were included in the study, whose diagnoses were confirmed with echocardiography. Evaluation of the patients showed that 15 % of the patients were asymptomatic and they were detected incidentally. Common symptoms were shortness of breath on exertion (SOBE), Fatigue, palpitation, chest pain and recurrent respiratory infection (RTI). Common physical findings were left parasternal lift, loud first heart sound (S1), fixed splitting of second heart sound (S2) and ejection systolic murmur in pulmonary area. It was observed that all the symptoms and signs in our population correlate well with others.

**Key words:** Atrial septal defect, symptoms and signs, echocardiography.

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## Introduction:

An atrial septal defect (ASD) is a through and through communication between atria at septal level. Symptomatic ASD is uncommon at infancy.<sup>1</sup> It has been noted that larger the shunt more the cardiac disability.<sup>2</sup> No or mild symptom in the first three decade of life, patients usually present themselves in their middle age<sup>3</sup>. Its diagnosis depends on symptoms, signs, noninvasive and invasive investigations. Now a days ASD is detected earlier due to the wide use of echocardiography. Atrial septal defect may present with complications like pulmonary hypertension, congestive heart failure and arrhythmia. Besterman<sup>4</sup> reported pulmonary hypertension in 16% of his patients. In our country ASD is a common congenital heart disease. During the year 1991, 163 cases were detected by echocardiography in National Institute of Cardiovascular Disease (NICVD), Dhaka. A fair number of studies regarding clinical profile of ASD were done in western world but no such study yet done in our country. Aim of the study is to see the symptoms and signs of ASD patients of our population.

## Material and Methods:

This study was carried out in the national Institute of Cardiovascular Diseases (NICVD),

Dhaka, during the period of July, 1992 to June, 1993. A total of 60 consecutive patients were included who were diagnosed as atrial septal defect (ASD) patients on clinical examination and was confirmed by echocardiography (2D, Doppler and colour flow imaging). Data were collected as per questionnaire. All the data were processed manually.

## Results:

The mean age of the study sample (60 patients) was 22.23±10.34 years with range of 5-55 years. There were 58 ostium secundum type ASD (96.67%) and 2 Sinus venosus type of ASD (3.33%). Of these, 27 were males (45%) and 33 females (55%), a female to male ratio of 1.22:1 (Table-I).

**Table-I**

*Age and Sex distribution of patients (n=60)*

Age	Male	Female	Total
0 – 10	3 (5%)	6 (10%)	9 (15%)
11 – 20	9 (15%)	12 (20%)	21 (35%)
21 - 30	9 (15%)	12 (20%)	21 (35%)
31 – 40	4 (6.67%)	2 (3.33%)	6 (10%)
41 – 50	1 (1.66%)	1 (1.66%)	2 (3.33%)
>50	1 (1.66%)	-	1 (1.66%)
Total	27 (45%)	33 (55%)	60(100%)

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Considering the various manifestations it was found that shortness of breath on exertion (SOBE) was observed in 46 (76.66%) patients, fatigue in 34 (56.66%) patients. Palpitation was complained by 36 (60%) patients. History of non specific chest pain was present in 43.33% and history of recurrent RTI in 40% patients. Both orthopnoea and paroxysmal nocturnal dyspnoea (PND) was complained by 62.66% patients. Arthralgia, vertigo, syncope, swelling of legs and haemoptysis were rare complaints (1.66%). Nine (15%) patients were asymptomatic and were diagnosed incidentally (Table-II).

**Table-II**  
*Symptoms of patients (n=60)*

Symptoms	Number (%)
1. SOBE	46 (76.66%)
2. Fatigue	34 (56.66%)
3. Palpitation	36 (60%)
4. Chest pain	26 (43.33%)
5. Recurrent RTI	24 (40%)
6. Orthopnoea	4 (6.66%)
7. PND	4 (6.66%)
8. No symptom	9 (15%)

According to New York Heart Association (NYHA) classification, most of the patients (68%) in the study were in class II. None were in class IV. Fifteen percent were in class I and 16.66% in class III. (Table-III).

**Table-III**  
*Functional status of patients (n=60 )*  
*(NYHA Classification)*

Class I	Class II	Class III	Class IV
9 (15%)	41 (68.33%)	10 (16.66%)	-

No patients had manifestation of cyanosis, clubbing, oedema or significant retardation of growth. Tachycardia was found in 18 (30%) cases, irregular pulse in 3 (5%), prominent ‘a’ wave in JVP in 12 (20%) and prominent ‘v’ wave in 2 (3.33%) of cases. Chest deformity was detected in 27 (45%) and apex beat was shifted

in 22 (36.66%) cases. On auscultation 46 (76.66%) cases had loud 1<sup>st</sup> heart sound (S1) in tricuspid area and fixed splitting of 2<sup>nd</sup> heart sound (S2) was found in 58 (96.66%) cases. Pulmonary 2<sup>nd</sup> heart sound (P2) was loud in 15 (25 %) cases. Ejection systolic murmur (ESM) was present in pulmonary area in 57 (95%) cases. Mid diastolic murmur (MDM) was present in 11 (18.33%) cases in tricuspid area. In the left parasternal area early diastolic murmur was present in 8 (13.33%) cases. Apical pan systolic murmur (PSM) was present in 5 (8.33%) of cases ( Table-IV).

**Table-IV**  
*Signs Found in patients (n=60)*

Signs	Number (%)
1. Regular pulse	39 (65)
2. Tachycardia	18 (30)
3. Irregular pulse	03 (05)
4. Prominent ‘a’ wave in JVP	12 (20)
5. Prominent ‘v’ wave in JVP	02 (3.33)
6. Chest deformity	27 (45)
7. Shifted apex beat	22 (36.66)
8. Systolic thrill	02 (3.33)
9. Left parasternal lift	45 (75)
10. Loud first heart sound	46 (76.66)
11. Loud P2	15 (25)
12. Fixed splitted S2	58 (96.66)
13. ESM	57 (95)
14. PSM	05 (8.33)
15. MDM	11 (18.33)
16. EDM	08 (13.33)

**Discussion:**

Atrial septal defect is a common heart disease. They may be asymptomatic <sup>5,6</sup>. In this study, 15 % patients were asymptomatic. They were detected incidentally. The incidence of asymptomatic patients was almost similar to that reported by Markman et al.<sup>7</sup> In the present study, the commonest age of presentation was second and third decade, which confirms with that of Arnfred’s study<sup>8</sup>. In the present study, the patients presented between 5 and

55 years, which correlates well with Forefang et al.<sup>6</sup>. This study also confirms that female are more affected<sup>9,10,11</sup>.

The common complaints of the patients was shortness of breath on exertion, palpitation, fatigue recurrent respiratory tract infection and chest pain which correlates with previous study in this field.<sup>6,7</sup>. On physical examination, common findings were chest deformity, left parasternal lift, shifted apex beat, loud first heart sound, wide fixed splitting of second heart sound and ejection systolic murmur in pulmonary area which correlates well with Mark<sup>5</sup> and Arnfred<sup>7</sup>. Prominent 'a' wave in JVP was found in 20% of patient in this study, Besterman<sup>4</sup> found Prominent 'a' wave in 5 patients out of total 41. Loud P2 found in 25% of patient of this study. Harries<sup>12</sup> reported that loud P2 may occur in normal health but he also advocated the consideration of pulmonary hypertension in presence of loud P2; ejection systolic murmur is also a common finding. Harvey<sup>13</sup> suggested that the simple combination of wide splitting of S2 with systolic murmur over pulmonary area or along left sternal border offers an immediate clue to atrial septal defect. Mark<sup>5</sup> and Arnfred<sup>7</sup> suggested that MDM may occur in large shunt, they also mentioned that EDM may occur in increased pulmonary artery pressure.

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