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ATRIAL SEPTAL ANEURYSM IN ADULT PATIENTS: A ONE YEAR STUDY AT A RURAL BASED TERTIARY CARE CARDIAC CENTRE IN BANGLADESH

Cardiology

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ABSTRACT

INTRODUCTION: Atrial septal aneurysm (ASA) is described as a saccular deformity, generally at the level of the fossa ovale, which protrudes to the right or left atrium or both. This can be associated with acquired and congenital heart diseases or as an isolated pathology. It does not always produce symptoms & are usually diagnosed on a routine echocardiography.

MATERIAL AND METHODS: Over one year period we have prospectively studied clinically and echocardiographically in 86 patients with the diagnosis of ASA. All echocardiographies were done by experienced Cardiologist cum echocardiographer with 'Philips Affinity 70C' dedicated cardiac echocardiography machine.

RESULTS: Among the 86 patients with ASA, 43%(37) patients were male & 57%(49) patients were female, female to male ratio was 1.3:1. Clinical associations includes, Hypertension(HTN) 51%, Coronary Artery Disease (CAD) 25.6%, Cerebrovascular Disease 7%, Arrhythmias 3.5%, Mitral Valve Prolapse 2.3%, Patent Foramen Ovale (PFO) 2.3%, LV Mass 1.2% & normal variants were 7%. Considering types of ASA, type 1R was most common & was 49% & type 5 was least common 4%.

CONCLUSIONS: This study supports the commonality in identifying ASA by transthoracic echocardiogram. Its definitive association with acquired and congenital heart diseases, but also as an isolated and totally asymptomatic entity. It is more prevalent in female, right atrial bulging types of ASA, and a tendency towards the mobile types of ASA.

KEYWORDS

Atrial Sepal Aneurysm (ASA), Adult Patients, Congenital & Acquired Heart Diseases.

INTRODUCTION:

An atrial septal aneurysm (ASA) is a rare but well-recognized cardiac abnormality of uncertain clinical significance.[1-7] ASA has been reported as an unexpected finding during autopsy[1] but may also be diagnosed in living patients during echocardiography.[2] This is a saccular deformity of the IAS, usually at the level of fossa ovalis, which bulges into the right or left atrium or both.[1] However this definition is arbitrary. ASA was initially thought to be rare congenital defect but with the advent of echocardiography it has become more easily & frequently identified.[8-9]

The prevalence of ASA varies, but transthoracic echocardiographic studies estimate the rate to be 0.8% to 1.2%.[10-18] With TEE it have shown a prevalence between 2% and 10%. [13-18] In the pediatric patients, the prevalence reported by TEE is 0.9% to 1.7% in children and 4.9% in infants. [7-8,19]

Classification:

The diagnostic criteria for ASA was made if a sacculation or deformity in the interatrial septum or the foramen ovale region was seen. An excursion of >10 mm into the right or left atrium or if the sum of bilateral excursions of > 10 mm was required. The minimal aneurysmal base amplitude (width) accepted in this study was 15 mm in diameter. The aneurysm was observed in subcostal, apical four-chamber and parasternal short-axis views at the level of the great vessels. Sometimes the bulging was also seen in apical two and three-chamber views. The classification of ASA was made according to its different movements, *Olivares-Reyes et al*. classified ASA as below: **(Fig 1)**

Type 1R: The ASA protrudes from the midline of the IAS to the right atrium throughout the cardiorespiratory cycle.

Type 2L: The ASA protrudes from the midline of the IAS to the left atrium throughout the cardiorespiratory cycle.

Type 3RL: The maximal excursion of the ASA is toward the right atrium with a lesser excursion toward the left atrium.

Type 4LR: The maximal excursion of the ASA is toward the left atrium with a lesser excursion toward the right atrium.

Type 5: The ASA movement is bidirectional and equidistant to the right as well as to the left atrium during the cardiorespiratory cycle.

MATERIALS & METHODS

Over one year period (January 2018-January 2019) we have prospectively studied clinically and echocardiographically (mostly TTE) in 86 patients with the diagnosis of ASA. All echocardiographies were done by experienced Cardiologist cum echocardiographer with 'Philips Affinity 70C' which is a dedicated cardiac echocardiography machine. Any association and concomitant cardiac diseased was thoroughly searched. Who are in doubt on TTE, TEE was done by respected TEE specialist. Patients who meeting the criteria of ASA was analyzed then.

RESULTS & DISCUSSION:

We found among the 86 patients with ASA, 43% (37) patients were male & 57% (49) patients were female, a slight predominant to female with female to male ratio was 1.3:1.

Clinical associations includes, Hypertension (HTN) 51%, Coronary Artery Disease (CAD) 25.6%, Cerebrovascular Disease (CVD) 7%, Arrhythmias 3.5%, Mitral Valve Prolapse (MVP) 2.3%, Patent Foramen Ovale (PFO) 2.3%, LV Mass 1.2% & normal variants were 7%. **(Table I)**

Echocardiographic views of some ASA are given below. **(Fig 2-6)**

Considering types of ASA, type 1R was most common & was 49% & type 5 was least common 4%. Others are type 2L 21%, type 3RL 9% & type 4LR 17%. **(Chart-1)**

During the study period there was no mortality among the patients with diagnosed ASA.

CONCLUSIONS:

From this study we can conclude that ASA is more frequently detected

and diagnosed now because of better echocardiographic procedure and increased degree of suspicion for this entity. All types of ASA have their clinical and echocardiographic features. ASA is associated with congenital and acquired heart diseases but also can be presented as an isolated & asymptomatic abnormality. Its frequent association to thromboembolic complications & the tendency to be more frequent in female patients.

Figure & Charts:

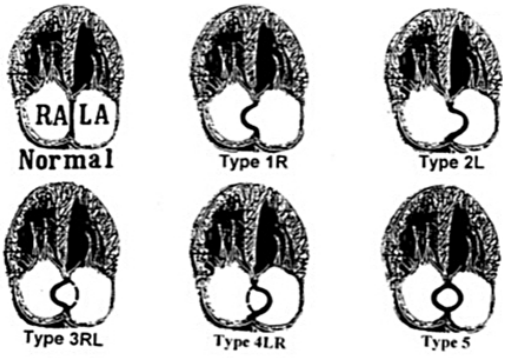

Figure1: Classification of Atrial Septal Aneurysm (ASA)

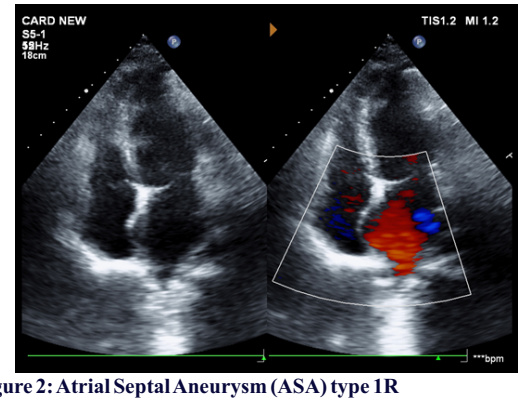

Figure 2: Atrial Septal Aneurysm (ASA) type 1R

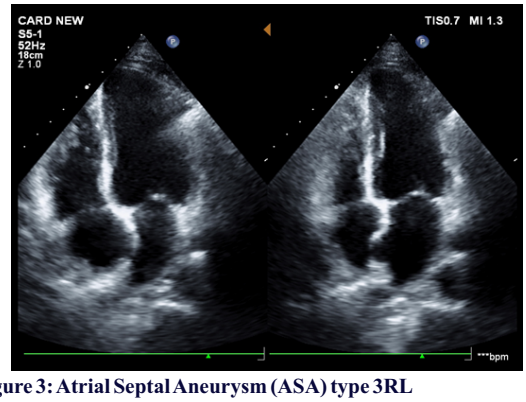

Figure 3: Atrial Septal Aneurysm (ASA) type 3RL

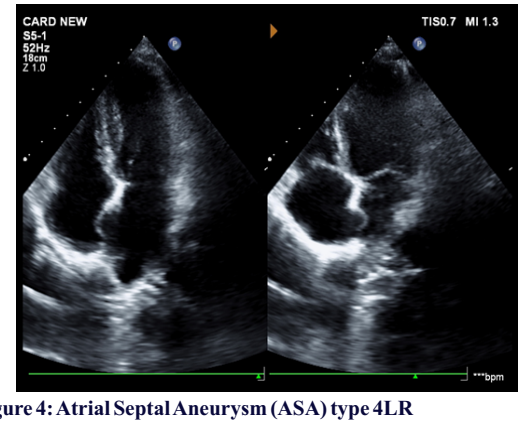

Figure 4: Atrial Septal Aneurysm (ASA) type 4LR

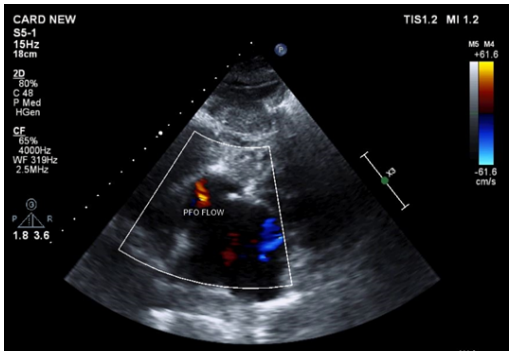

Figure 5: Atrial Septal Aneurysm (ASA) type 1R with PFO

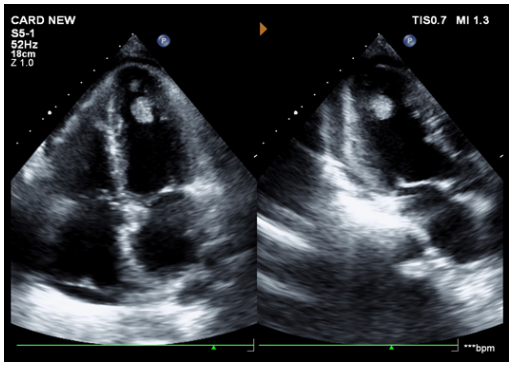

Figure 6: Atrial Septal Aneurysm (ASA) type 1R with LV mass

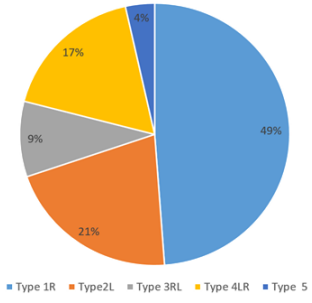

Chart 1: Pie chart showing types of ASA

Table I: Table shows clinical variables with incidence of ASA

Clinical Variables	Number	Percentage (%)
Hypertension	22	51
Coronary Artery Disease	44	25.6
Cerebrovascular Disease	06	7
Arrhythmias	03	3.5
Mitral Valve Prolapse	02	2.3
Patent Foramen Ovale	02	2.3
LV Mass	01	1.2
Normal Variants	06	7

REFERENCES:

1. Silver MD, Dorsey JS. Aneurysms of the septum primum in adults. Arch Pathol Lab Med.1978;102:62-65.
2. Gondi B, Nanda NC. Two-dimensional echocardiographic features of atrial septal aneurysms. Circulation.1981;63:452-457.
3. Hauser AM, Timmis GC, Stewart JR, Ramos RG, Gangadharan V, Westveer DC, Gordon S. Aneurysm of the atrial septum as diagnosed by echocardiography: analysis of 11 patients. Am J Cardiol.1984;53:1401-1402.
4. Hanley PC, Tajik AJ, Hynes JK, Edwards WD, Reeder GS, Hagler DJ, Seward JB. Diagnosis and classification of atrial septal aneurysm by two-dimensional echocardiography: report of 80 consecutive cases. J Am Coll Cardiol.1985;6:1370-1382.
5. Schreiner G, Erbel R, Mohr-Kahaly S, Krämer G, Henkel B, Meyer J. Nachweis von Aneurysmen des Vorhofseptums mit Hilfe der transösophagealen Echokardiographie. Z Kardiol.1985;74:440-444.
6. Wolf WJ, Casta A, Sapire DW. Atrial septal aneurysms in infants and children. Am Heart J.1987;113:1149-1153.
7. Brand A, Keren A, Branski D, Abrahamov A, Stern S. Natural course of atrial septal aneurysm in children and the potential for spontaneous closure of associated septal defects. Am J Cardiol.1989;64:996-1001.
8. Iliaco S, Papa A, Sorino M, Rizzon P, Combined atrial septal aneurysm and mitral valve prolapse detection by two-dimensional echocardiography. Am J Cardiol, 1984,54:1151-

4
9. Wilson JH, Lever HM, Moodie DS. Aneurysm of the inter-atrial septum. Cleve Clin Q. 1986;53:105-8
10. Gallet, B, Malergue, MC, Adam, C, Saudemont, JP, Collot, AM, Druon, MC et al, Atrial septal aneurysm-a potential cause of systemic embolism. Br Heart J. 1985;53:292–297
11. Hanley, PC, Tajik, AJ, Hynes, JK, Edwards, WD, Reeder, GS, Hagler, DJ et al, Diagnosis and classification of atrial septal aneurysm by two-dimensional echocardiography: report of 80 consecutive cases. J Am Coll Cardiol. 1985;6:1370–1382
12. Belkin, RN, Hurwitz, BJ, Kisslo, J. Atrial septal aneurysm: association with cerebrovascular and peripheral embolic events. Stroke. 1987;18:856–862
13. Longhini, C, Brunazzi, MC, Musacci, G, Caneva, M, Bandello, A, Bolomini, L et al, Atrial septal aneurysm: echocardiographic study. Am J Cardiol. 1985;56:653–667
14. Oneglia, C, Faggiano, P, Sabatini, T, Ghizzoni, G, Rusconi, C. Aneurisma del setto atriale ed anomalie associate. Esperienza personale su 38 casi. Minerva Cardioangiol. 1993;41:95–100
15. Zabalgoitia-Reyes, M, Herrera, C, Ghandi, DK, Mehlman, DJ, McPherson, DD, Talano, JV. A possible mechanism for neurologic ischemic events in patients with atrial septal aneurysm. Am J Cardiol. 1990;66:761–764
16. Katayama, H, Mitamura, H, Mitani, K, Nakagawa, S, Ui, S, Kimura, M. Incidence of atrial septal aneurysm: echocardiographic and pathologic analysis. J Cardiol. 1990;20:411–421
17. Siostrzonek, P, Lang, W, Zangeneh, M, Gossinger, H, Stumpflen, A, Rosenmayr, G et al, Significance of left-sided heart disease for the detection of patent foramen ovale by transesophageal contrast echocardiography. J Am Coll Cardiol. 1992;19:1192–1196
18. Mirode, A, Tribouilloy, C, Boey, S, Hadj Kacem, L, Choquet, D, Lesbre, JP. Aneurysmes du septum interauriculaire. Apport de l'echographie transoesophagienne. Relation avec les accidents systemiques emboliques. Ann Cariol Angeiol. 1993;42:7–12
19. Pearson, AC, Nagelhout, D, Castello, R, Gomez, CR, Labovitz, AJ. Atrial septal aneurysm and stroke: a transesophageal echocardiographic study. J Am Coll Cardiol. 1991;18:1223–1229