

Left Ventricle – Right Atrium Communication

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Abstract: *Left ventricle – Right atrium communication is a rare cardiopathy most often congenital; his clinical diagnosis is without any specificity. The diagnosis is based on Doppler-coupled echocardiography and the treatment is mainly surgical. We report a case of congenital communication between left ventricle and right atrium.*

Keywords: Congenital, Left ventricle-Right atrium communication, surgery

1. Introduction

It is a rare cardiopathy most often congenital; his clinical diagnosis is without any specificity [1].

The diagnosis is based on Doppler-coupled echocardiography and the treatment is mainly surgical [2]. We report a case of congenital communication between left ventricle (LV) and right atrium (RA).

Observation:

The child is female, aged eighteen months, without specific history, has since the first months of life repeated bronchitis with failure to thrive and sweating.

Clinical exam:

- Good height and weight development.
- Arterial pressure = 100/60 mmHg.
- Cardiac auscultation: Systolic murmur at the 3rd and 4th intercostal space radiating in a wheel radius; the pulmonary B2 is increased in intensity.

ECG:

- Regular and sinus rhythm: 95 bpm.
- Left axial deviation at -10°

Thorax X-Ray:

- Cardiomegaly : cardiothoracic index at 0.63
- Hyper pulmonary vascularization.

Echocardiography:

- Dilatation of the left cavities and the right atrium
- The inter-auricular septum is flat
- Small defect of the per membranous septum.
- Communication between the left ventricle and the right atrium in the order of 5 mm in diameter.
- Tricuspid valves are normal.
- At the color Doppler: shunt between the left ventricle and the right atrium, and shunt left- right through the inter ventricular communication, wich is restrictive.
- Pulmonary arterial hypertension (PAH) at 60 mmHg.

2. Treatment

Closing the communication between the left ventricle and the right atrium with separated pledgeted suture.

3. Results

- Aortic clamping: 37 mn
- Cardiopulmonary bypass duration: 60 mn
- Mechanical ventilation: 10 hours
- The child was discharged after 7 days

4. Discussion

The communication between LV and RA has been classified as congenital heart anomaly with left to right shunt (figure 1). Gerbode has described its morphologic features and Riemenschneider classification subdivide this defect into 2 types [1]:

Type I: LV communicate with RA via an atrioventricular septal defect located above the insertion of tricuspid valve. This is a rare entity.

Type II: the septal defect is located at the level or below the tricuspid valve.

In this case the LV communicate with RA via an anomaly of septal leaflet of tricuspid valve for example a perforation, tricuspid regurgitation, hypoplasia or aplasia.

The clinical features of these communication are the same as ventricular septal defect.

Others etiologies are:

- Infectious endocarditis.
- Aortic or mitral valve replacement with prosthesis.
- Cardiac wounds.
- Myocardial infarction.
- Myocardial biopsy in heart transplant.

The diagnosis is made routinely by transthoracic echocardiography (TTE) and cardiac catheterisation is exceptional [3].

The natural history of the disease is cardiac dilatation and pulmonary vascular hypertension.

The first option for treatment is surgery under cardiopulmonary bypass.

In type I, as our case, the defect closure is easy via a right atriotomy.

In type II, we have to correct the associated tricuspid valve anomaly.

The overall surgical results are good and some authors have described some cases closed percutaneously.

5. Conclusion

The LV-RA communication is a rare entity. The diagnosis is made by TTE.

Surgery must not be delayed until repercussion on pulmonary hypertension [4].

References

- [1] Gerbode F, Hultgren H, Melrose D, Osborn J: **Syndrome of left ventricular-right atrial shunt. Successful surgical repair of defect in five cases, with observation of bradycardia on closure.** *Ann Surg* 1958, **148**:433-46.
- [2] Win-Kuang S: **Transesophageal echocardiography detection of an acquired left ventricular-right atrial shunt.** *J Am Soc Echocardiogr* 1991, **4**:199-201.
- [3] Tehrani F, Movahed M: **How to prevent echocardiographic misinterpretation of Gerbode type defect as pulmonary arterial hypertension.** *Eur J Echocardiogr* 2007, **8**(6):494-497.
- [4] Tehrani F, Movahed M: **How to prevent echocardiographic misinterpretation of Gerbode type defect as pulmonary arterial hypertension.** *Eur J Echocardiogr* 2007, **8**(6):494-497.

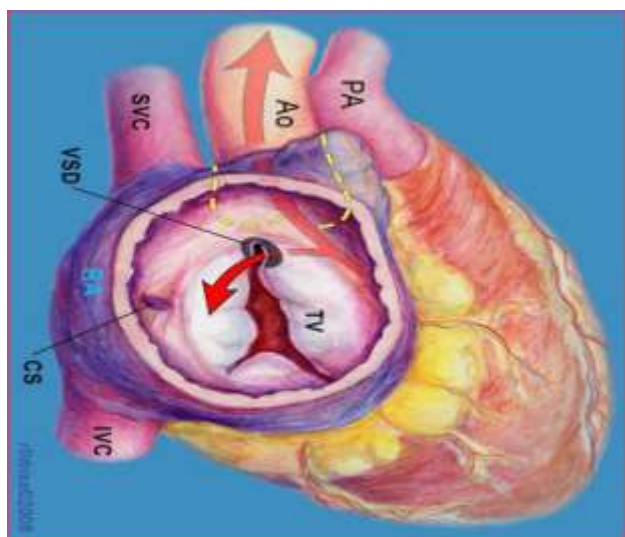


Figure 1: 3D representation of LV-RA communication