

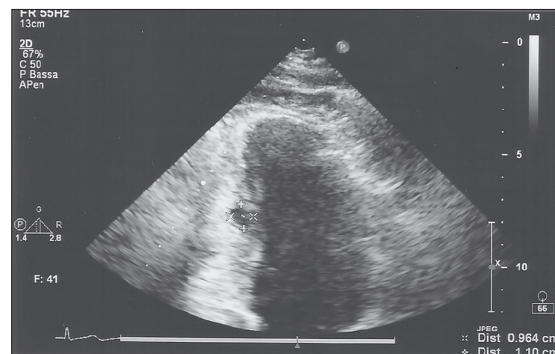
# A case of isolated left ventricle diverticulum

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We report the images of an incidental finding of an isolated left ventricular (LV) diverticulum in a 37-year old Indian man without cardiovascular risk factors admitted to emergency room for atypical chest pain. The physical examination was basically benign and there was no evidence of myocardial ischemic event either by electrocardiography or the leak of cardiac enzymes. The echocardiography revealed a moderately hypertrophic left ventricle with normal ejection fraction and no abnormality in local and global contractility. Moreover it showed a myocardial out-pouching (11x9 mm) localized at the middle third of the posterior inter-ventricular septum which was moving in synchrony with the rest of the ventricle (*Figure 1*). The echocardiographic



**Figure 1** - Apical two-chamber view showing the isolated diverticulum.

characteristics and the patient's history allowed us to exclude a post-ischemic LV aneurysm and an infective genesis of the lesion. A cardiac computer tomography (CT) was performed: it excluded the presence of coronary stenosis and confirmed side and presence of the diverticulum (*Figure 2*).



**Figure 2** - A sequence of CT images showing the isolated diverticulum of left ventricle localized at the middle third of the posterior inter-ventricular septum. CT = computer tomography.

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The echocardiographic characteristics and the patient's history allowed us to exclude a post-ischemic LV aneurysm and an infective genesis of the lesion. Cardiac diverticula are a rare condition which usually arise from the left ventricle (1). 70% of them are linked with the Cantrell's syndrome (pentalogy of midline thoraco-abdominal defects, pericardial effusion, shock and frequent cardiac arrest caused by acute rupture) (2), while the remaining 30% are isolated. This form is frequently diagnosed incidentally during echocardiography but may cause arrhythmias, heart failure, chest pain and acute rupture (1). Pathologically, the cardiac diverticula may be classified in two forms: muscular type, characterized by the presence of all the layers of the myocardium and by a synchronous contraction with the ventricle, typically originating from the apex; fibrous type, containing few or no muscle fibers and appearing dyskinetic or akinetic during cardiac contraction. It is more frequently localized in the apical or subvalvular area (1).

It is important to differ a congenital diverticulum from other causes of acquired ventricular aneurysm, such as those that occur after myocardial infarction, myocarditis or trauma. Ischemic aneurysms consist in fibrotic tissue that replaced myocardium with a wide base connection to the ventricle. Also it is characterized by a systolic bulging and contraction abnormality during diastole.

A major number of isolated ventricular diverticula have a benign course. Some authors suggest surgical resection for all the cases, even for asymptomatic patients, to prevent complications such as thrombosis, endocarditis, arrhythmias, chest pain,

heart failure and acute rupture. Actually, the surgical resection is the treatment of symptomatic patients (3), while a conservative management may be considered in asymptomatic patients. A conservative medical management consists of a very close monitoring of the size and initiation of oral anticoagulation to prevent thromboembolic complications (4). Conservative treatment is suggested in case of muscular diverticula, which are less likely to rupture than fibrous ones (3).

Ohlow et al. report that in a follow-up of 50 months, the incidence of adverse event (composite of cardiac death, rhythm disturbance, syncope, embolic event and hospitalization for cardiovascular events) increases in patients with LV diverticula without electrocardiogram (ECG) changes from 0.8% to 1.8% per year in patients with LV diverticula and ECG abnormalities (5).

In conclusion, congenital diverticula are often silent with a benign course. Actually, the increasing use of cardiac CT for the evaluation of chest pain has increased the frequency of its diagnosis. It is important to differ this condition by acquired ventricular aneurysms and infective cardiac lesions.

#### REFERENCES

1. Kosar F, Sahin I, Gullu H. Isolated large true contractile left ventricular diverticulum mimicking ischemia in adult patient: a case report. *Heart vessels* 2005; 20: 85-7.
2. Vazquez-Jimenez JF, Muehler EG, Daebritz S, Keutel J, Nishigaki K, Huegel W, et al. Cantrell's syndrome: a challenge to the surgeon. *Ann Thorac Surg* 1998; 65: 1178-85.
3. Pome G, Vignati G, Mauri L, Morello M, Figini A, Pellegrini A. Isolated congenital left ventricular diverticulum. *Eur J Cardiothorac Surg* 1995; 9: 709-12.
4. Ohlow MA. Congenital left ventricular aneurysm and diverticula: definition, pathophysiology, clinical relevance and treatment. *Cardiology* 2006; 106: 63-72.
5. Ohlow MA, Bernward L, Ulrich L, Brunelli M, Geller JC. Long term prognosis of adult patients with isolated congenital left ventricular aneurysm or diverticulum and abnormal electrocardiogram pattern. *Circ J* 2012; 76: 2465-70.

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