

## CONGENITAL APICAL DIVERTICULUM OF THE LEFT VENTRICLE IN A CHILD — FOLOW UP WITH RADIONUCLIDE VENTRICULOGRAPHY

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**Abstract** — A 9-year old asymptomatic girl with congenital apical diverticulum of the left ventricle is presented. The child was investigated because of the heart murmur which mimics the murmur of mitral stenosis. The diagnosis was confirmed by two-dimensional echocardiography, left ventricular angiography, and radionuclide angiography. Ejection fraction of the left ventricle measured by radionuclide technique was 50 %. It was about the same 2 and 4 years later, but increased to 68 % after the exercise. We think that radionuclide ventriculography is the most suitable way for evaluation and following of the left ventricular function in this rare disease.

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**Key words:** heart defects congenital, heart ventricle, diverticulosis, heart-radionuclide imaging

### Case report

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**Introduction** — Diverticulum of the left ventricle is a rare anomaly. It is composed of three cardiac layers and contracts normally. The anomaly must be distinguished from true or false aneurysm. The former contains thinned myocardium intermingled with fibrous tissue, the latter is usually formed only by pericardium (1). The contraction of the aneurysm are abnormal (2).

**Case report** — A-9-year old asymptomatic girl was referred to us for the evaluation of the heart murmur. The diastolic rumble with praesystolic accentuation was best heard at the apex. Electrocardiogram was normal. Chest roentgenogram showed protrusion of the apical border below the level of the diaphragm. Cross-sectional echocardiogram revealed left ventricular apical diverticulum which was confirmed on left ventricular cineangiogram (fig. 1). Coronary arteries were normally distributed and haemodynamic data were normal. First pass radionuclide angiography supported echocardiographic and cineangiographic findings (fig. 2). The contraction of the diverticulum was synchronous with the left ventricular wall which was well seen on cross-sectional echocardiography, cineangiography and radionuclide investigations. Radionuclide ventriculography showed left ventricular

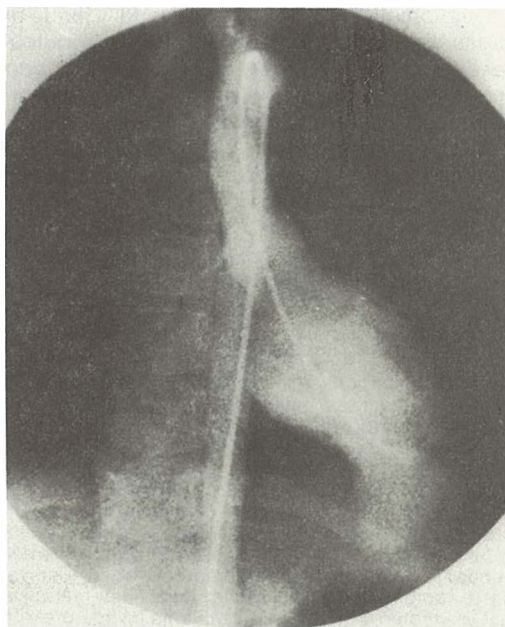


Fig. 1 — Left ventriculogram in frontal projection demonstrates apical diverticulum with broad connection to the left ventricular cavity.

Slika 1 — Ventrikulogram levega prekata v frontalni projekciji prikazuje apikalni divertikel, ki je na široko povezan z votlino levega prekata.



Fig. 2 — Diastolic (D) and systolic (S) frames of radionuclide angiography in frontal projection show diminution of the diverticulum during systole.

Slika 2 — Diastolična (D) in sistolična (S) slika radionuklidne angiografije v frontalni projekciji kaže zmanjšanje divertikla med sistolo.

2. Gueron M., Hirsch M., Opschitzer I., Mogel P.: Left ventricular diverticulum and mitral incompetence in asymptomatic children. *Circulation* 53: 181—186.

3. Hoeffel J. C., Henry M., Pernot C.: Les diverticules du coeur chez l'enfant. *Aspects radiologique. Ann. Radiol.* 17: 411—418, 1974.

4. Mardini M. K.: Congenital diverticulum of the left ventricle. *Br. Heart J.* 51: 321—326, 1984.

ejection fraction of 50%. This was about the same 2 and 4 years later. It increased after the exercise to 68%.

**Discussion** — The isolated apical left ventricular diverticulum is the rarest type of the left ventricular diverticula (3). The anomaly could be asymptomatic. The diagnosis is readily made by cross-sectional echocardiography and ventricular angiography (4). There is no need for surgical treatment in asymptomatic patients. Nevertheless, the deterioration of left ventricular function may occur, and therefore the follow up of its function is warranted. We think that radionuclide ventriculography at rest and exercise is a valuable tool in assessing left ventricular function in this anomaly because it is noninvasive, reproducible and can be easily repeated.

#### Povzetek

Kongenitalni apikalni divertikel levega prekata pri otroku — sledenje z radionuklidno angiografijo.

Prikazujeva devetletno dekllico z apikalnim divertiklom levega prekata, ki je bila brez subjektivnih težav. Preiskave sva napravila zaradi šuma, ki je spominjal na šum mitralne stenoze. Diagnozo sva potrdila z dvodimenzionalno ehokardiografijo, angiokardiografijo in radionuklidno angiografijo. Iztisni delež levega prekata je bil 50%. Dve in štiri leta kasneje je bil približno enak, vendar je narasel na 68% med obremenitvijo. Meniva, da je radionuklidna ventrikulografija najprimernejša pot vrednotenja in sledenja delovanja levega prekata pri tej redki bolezni.

#### References

1. Baltaxe H. A., Wilson W. J., Amiel M.: Diverticulosis of the left ventricle. *Am. J. Roentgenol.* 133: 257—261, 1979.

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