

• 临床病理讨论 •

Clinicopathological conference

An old male patient with paroxysmal chest distress, shortness of breath and edema of both lower extremities

(the 27th case)

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Case presentation

The patient, a 78-year-old male, was admitted to the hospital on Nov. 15, 2007 because of paroxysmal chest distress and shortness of breath for 11 years and edema of lower extremities for 3 days. The patient began to suffer from paroxysmal chest distress and shortness of breath after exertion in 1997, then these symptoms recurred frequently, which lasted 10 min to several hours. Nitroglycerin given sublingually could release the symptoms occasionally at the early stage of the disease, but the symptoms appeared in resting state during recent 4 years and nitroglycerin became ineffective. These symptoms were aggravated and accompanied by lower extremity edema and nocturnal dyspnea for 3 days. He had no history of syncope. In 2006, hypertension was found, with the highest value being 160/80mmHg, and was controlled by metoprolol 12.5mg twice a day.

Physical examination: The patient was fully conscious. The respiratory sounds were clear, and a small amount of moist rales were heard at the bottoms of both lungs. The cardiac boundary was normal, with the heart rate ranging from 80 to 100 bpm, and the cardiac rhythm was irregular. There was no pathologic murmur heard in auscultation areas. The abdomen was flat. Both lower extremities had pitting edema.

Auxiliary examinations: No abnormal hemogram and blood biochemistry changes were found. ECG

(Fig. 1) revealed sinus rhythm, T wave changed from erect one in 1997 to inverted one in 1998. Atrial fibrillation with ventricular rate about 120bpm and incomplete right bundle branch block were found in 2007. Chest X-ray showed lung marking increased and hydrops in both costophrenic angles.

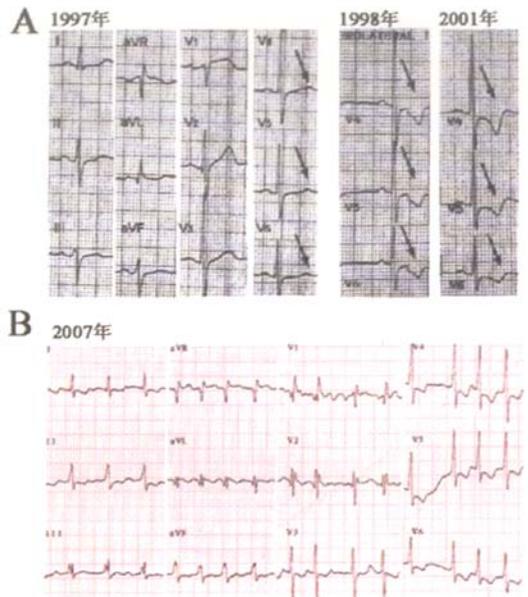


Fig 1 A: Sinus rhythm, T wave changed from erect one in 1997 to inverted one in 1998 B: Atrial fibrillation with ventricular rate about 120bpm, and incomplete right bundle branch block

Discussion

Dr. Gao Lei: The patient presented paroxysmal chest pain, which could be relieved by nitroglycerin in the early stage of the disease. Manifestations of heart failure recently, and the T wave

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changes in ECG were primary changes caused by apparent myocardial ischemia. All these suggested the most possible diagnosis was heart failure caused by unstable angina pectoris.

*Dr. Li Jiayue*: (1) The patient's persistent chest pain was due to atypical angina pectoris, which could be caused by other organic cardiovascular diseases besides coronary heart disease, such as valvular heart disease (aortic valve stenosis) or hypertrophic cardiomyopathy, which should be excluded by echocardiographic examination. (2) There were no chest pain-related ST-T changes recorded in ECG, which did not support the diagnosis of angina pectoris. The sustained lowering of ST segment and inversion of T wave also suggested the possibility of ST-T changes secondary to hypertension or primary changes of cardiomyopathy. (3) The sustained fibrillation accompanied by right bundle branch block was found recently, which might be caused by the increase in the pressure load of atria in the situation of heart failure caused by hypertension, cardiomyopathy and so on.

*Dr. Zhang Lishuang*: The patient presented whole heart failure which might be systolic heart failure or progression of diastolic heart failure caused by hypertension or hypertrophic cardiomyopathy and should be differentiated by echocardiogram.

*Dr. Chen Qi*: Table 1 shows echocardiogram parameters recorded by several examinations, which were helpful to the definite diagnosis.

*Dr. Gao Lei*: The echocardiogram of the patient in 2001 already suggested cardiac apex hypertrophic cardiomyopathy, with increased flow velocity

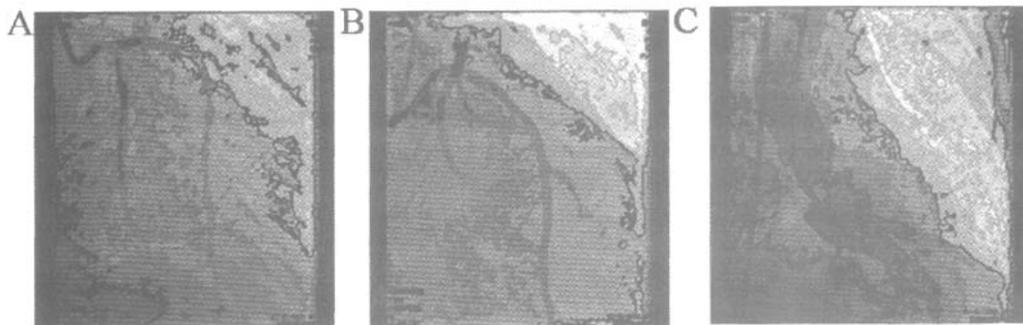
in outflow tract of LV, and without SAM phenomenon. In 2006, the thickness of the interventricular septum increased to 22mm, so the definite diagnosis is non-obstructive hypertrophic cardiomyopathy. In addition, the patient had sustained atrial fibrillation accompanied by complete right bundle branch block, hypertension and diastolic heart failure.

*Dr. Gao Wei*: The features of the patient were: (1) An old patient of 78 years old with hypertrophic cardiomyopathy, which is common in youths and middle-aged adults. This patient had no typical symptoms such as cardiac murmurs and syncope history, so he was diagnosed as coronary heart disease for 6 years (from the onset of the symptom in 1997 to 2003), and was still misdiagnosed even with the echocardiogram report of cardiac apex hypertrophy in 2001, which demonstrated that the cardiologists should pay more close attention to the hypertrophic cardiomyopathy in elderly people. (2) In ECG, the sustained inverted T wave is apt to be diagnosed as chronic insufficient coronary blood supply, but the patient had no ST-T changes concordant with the chest pain, suggesting that the change was caused by cardiomyopathy rather than angina pectoris. The typical ECG features of hypertrophic cardiomyopathy should be recognized, such as narrow (width < 40ms) and deep Q wave and sustained deep inverted T wave in precordial leads. (3) The patient's condition was in the advanced stage with atrial fibrillation, hypertension and diastolic heart failure and the efficacy of medication was limited. (4) The prognosis of the patient was poor, with the potential malignant ventricular

Table 1 The echocardiogram parameters from 2001 to 2007

Date	Left atria (mm)	Left ventricle (mm)	Interventricular septum/posterior wall of LV(mm)	Apex of heart(mm)	Flow velocity in outflow tract of LV (m/s)	EF(%)	E/A
2001.03	33	42	18/9	13	2.1	70	<1
2003.03	44	43	11/9	14-17		78	<1
2006.11	44	37	22/11		1.5	70	<1
2007.11	46	29	25/11		2.8	75	<1

LV; left ventricle ; EF; ejection fraction of left ventricle



**Fig. 2** A,B: Coronary arteriography showed 30% stenosis in anterior descending branch C: Ventricular arteriography showed the narrowed left ventricular chamber and tapered ventricular apex

arrhythmia, such as ventricular tachycardia and/or ventricular fibrillation, even sudden cardiac death.

*Dr. Zhang Lishuang:* The coronary heart disease should be considered, and the coronary arteriography should be performed if it is permissible according to patient's condition.

*Dr. Tian Jinwen:* In order to identify the presence of coronary artery lesions and evaluate the extent of distribution of septal branch of the interventricular septum, cardiac function and pressure gradient difference at outflow tract of left ventricle, the coronary arteriography was performed, and the results were showed in Fig. 2 which suggested the presence of coronary artery atherosclerosis and 30% stenosis in anterior descending branch. There was no obstruction in outflow tract of left ventricle. The ventricular septal branch was small and unsuitable for chemical ablation.

*Dr. Chen Qi:* After admission, metoprolol 50mg bid, diltiazem 30mg tid, ramipril 5mg qd, warfarin 2.5mg qd, diuretics such as spironolactone 20mg qd, and furosemide 20mg qd were given, potassium was also supplemented. After a month, the heard rate of ventricle during fibrillation (in resting state) was 80-100 bpm, The patient could lie in horizontal position without dyspnea. He could take light activity, but chest distress and short breath occurred occasionally in resting state.

*Dr. Zhang Lishuang:* The results of echocar-

diography and left ventricle imaging indicated that the blood flow velocity of the outflow tract of left ventricle was accelerated, but there was no obstruction at the outflow tract. For patients with non-obstructive hypertrophic cardiomyopathy, besides drug treatment, other therapies, such as surgery, pacing and chemical ablation, should not be considered, therefore medication was regularly given as above mentioned to control symptoms.

## Conclusion

*Dr. Lu Caiyi:* The patient was a 78 years old male with non-obstructive hypertrophic cardiomyopathy, whose symptoms was atypical angina pectoris, and he was misdiagnosed as coronary heart disease with unstable angina pectoris for 6 years. His disease had advanced to late stage with complications of sustained atrial fibrillation, hypertension, coronary heart disease and diastolic heart failure. The efficacy of medication was limited and the prognosis is poor. This case indicates that clinicians should improve the knowledge of hypertrophic cardiomyopathy in elderly people and pay attention to looking for the diagnostic clues from ECG and echocardiogram. It should be differentiated from coronary heart disease and primary hypertension, and should be diagnosed and treated timely in order to control the deterioration of the disease as early as possible.

(Translator: CHEN Qi)