A Left Atrial Myxoma Complicated with Acute Myocardial Infarction


A 43-year-old female, admitted because of acute infero-posterior myocardial infarction, showed angiographic findings of 100% occlusion of left circumflex artery. Echocardiographic findings showed inferior hypokinesis, while a large left intraatrial tumor was also observed. The coronary angiography on the 17th hospital day showed complete reperfusion of the culprit lesion without stenosis. On the 21st hospital day, the removal operation of the tumor was performed. Pathological findings showed typical cardiac myxoma, and the etiology of the occlusion at the culprit vessel was presumed to be closely related to the existence of the left atrial tumor. (Internal Medicine 36: 31-34, 1997)

Key words: coronary embolism, left atrial tumor, complete later reperfusion

Case Report

We treated a rare case of left atrial myxoma complicated with acute inferior and posterior myocardial infarction. A 43-year-old female was admitted to our emergency service 100 minutes after the onset of severe chest pain. Physical findings showed a height of 158 cm, weight of 54 kg, body temperature of 36.9°C, regular pulsation of 70/min, and blood pressure of 106/70 mmHg. She had no lymphadenopathy or pretibial edema. Auscultation showed systolic ejection murmur and diastolic rumble at the precordial apical portion, and normal vesicular sound with no rales. Abdomen was soft and flat without any mass palpable. Laboratory findings showed a white blood cell count of 8,700/mm³, hemoglobin 11.0 mg/dl, hematocrit 36.8%, platelet 28.7×10⁴/mm³, glutamic oxalacetic transaminase 211 IU/l, lactic dehydrogenase 348 IU/l, creatinine phosphokinase 62 IU/l, myoglobin 329 ng/dl, creatinine 0.8 mg/dl, sodium 142 mEq/l, potassium 3.5 mEq/l, chloride 107 mEq/l. Analysis of arterial blood gas during 3 min of pure oxygen gas supply revealed PO₂ 134 mmHg, PCO₂ 22 mmHg, HCO₃ 23 mEq/l. On electrocardiogram, a normal sinus rhythm with ST elevation at II, III, aVF leads, and ST depression with T wave inversion at V₁–V₄ leads were observed. There was no abnormal finding on the chest X-ray picture. She was then diagnosed as having acute myocardial infarction of the inferior and posterior walls, and emergency coronary angiography was done immediately. The angiography demonstrated normal left anterior descending and right coronary artery, and complete occlusion of the left circumflex #13 (Fig. 1A). Intracoronary administration of tissue plasminogen activator (t-PA) failed to reperfuse the culprit lesion and the continuous infusion of heparin was started thereafter. On the echocardiogram, inferior hypokinesis of the left ventricular wall was seen, while a large solid mass was observed inside the left atrium, and the mass was attached to the interatrial septum by a stalk (Fig. 2). The maximum value of creatinine phosphokinase was 744 IU/l; the patient was free from any complication during the course. On the 17th hospital day, a cardiac catheterization examination was done. Central venous pressure was 6 mmHg, pulmonary capillary wedge pressure 14 mmHg, and the cardiac index 2.1 l/min·m². Coronary angiography revealed the complete reperfusion of left circumflex #13 without wall irregularity, and also no abnormality was observed at its distal branches (Fig. 1B). On the 21st hospital day, removal of the tumor and the patch closure of the interatrial septum was performed. After incision into the right atrium, the stalk of the mass, which was attached to the fossa ovalis, was clearly seen. The stalk and the fossa ovalis were exfoliated from the interatrial septum, and the tumor was resected by performing a left atrial incision. Then the patch closure of the septum was done. The tumor had an oval shape, gelatinous but not friable surface, 55×35×30 mm in size, and 50 g in weight. No thrombus was found on the surface (Fig. 3). In microscopic
Figure 1. A) Emergency coronary angiography on admission. Complete occlusion of the left circumflex artery (#13) was observed. B) Left coronary angiography on the 17th hospital day. The left circumflex artery was completely reperfused without wall irregularity.

Figure 2. Echocardiographic findings of the patient. A large solid mass was observed inside the left atrium, and the mass was attached to the interatrial septum by a stalk. AO: ascending aorta, LV: left ventricle, MYXO: myxoma, RA: right atrium, RV: right ventricle.
findings, myxomatous cells, with hyperchromatic nuclei and polychromatic vesicles, were proliferated in funicular, infundibular manner, and no malignancy was observed. Subsequently, she was followed on an outpatient basis in stable condition.

Discussion

The typical clinical symptom of left atrial myxoma is left heart failure due to the disturbance of the blood filling at the diastolic phase into the left ventricle (1-4). A case of left atrial myxoma complicated with acute myocardial infarction such as this one is very rare, and only 29 cases, except for the present case, have been reported in the literature as far as we know (6-26). Among them, as shown in Table 1, 14 cases have been reported in which myocardial infarction was the direct clinical manifestation which led to the discovery and the operation of myxoma during lifetime (9, 10, 12-16, 18, 19, 21, 23-26). Previous reports of autopsied cases of left atrial myxoma with thromboembolic events consistently illustrated tumor particles at the culprit vessels (3-6). Some cases of coronary embolism by a tumor particle showed coronary aneurysm due to tumor invasion to the endothelium and subsequent wall destruction (5, 10, 14, 19, 23). In the present case, no such finding was seen, while the patient had no atherosclerotic lesion or coronary risk factor, no thrombus was found on the tumor surface, and the occlusion of the acute phase was never relieved by t-PA administration. Taken together, the etiology of the coronary occlusion was also presumed to be tumor embolus. The complete reperfusion of the later phase may be due to the necrosis of the tumor particle. However, the precise reason for the coronary event is unknown because a histological examination was not performed at the embolic site in this case.

References


Table 1. Survival Cases of Left Atrial Myxoma, Complicated with Acute Myocardial Infarction, and Successfully Removed by Operation

<table>
<thead>
<tr>
<th>Author</th>
<th>Age/Sex</th>
<th>Site of MI</th>
<th>MI to OPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanabe, '79</td>
<td>11/M</td>
<td>inferior</td>
<td>12 days</td>
</tr>
<tr>
<td>Balk, '79</td>
<td>29/M</td>
<td>anterior</td>
<td>3 months</td>
</tr>
<tr>
<td>Rath, '84</td>
<td>55/M</td>
<td>inferior</td>
<td>10 days</td>
</tr>
<tr>
<td>Lehrman, '85</td>
<td>43/M</td>
<td>anterior</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Tatsukawa, '86</td>
<td>42/F</td>
<td>anterior</td>
<td>89 days</td>
</tr>
<tr>
<td>Hoad, '87</td>
<td>68/F</td>
<td>inferior</td>
<td>2 months</td>
</tr>
<tr>
<td>Usui, '87</td>
<td>52/M</td>
<td>inferior</td>
<td>44 days</td>
</tr>
<tr>
<td>Doi, '88</td>
<td>34/M</td>
<td>inferior</td>
<td>47 days</td>
</tr>
<tr>
<td>Namura, '90</td>
<td>58/M</td>
<td>inferior</td>
<td>35 days</td>
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<td>Onitsuka, '91</td>
<td>16/F</td>
<td>anterior</td>
<td>32 days</td>
</tr>
<tr>
<td>Hashimoto, '93</td>
<td>67/F</td>
<td>inferior</td>
<td>1 day</td>
</tr>
<tr>
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<td>52/F</td>
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<tr>
<td>Uemura, '93</td>
<td>68/F</td>
<td>inferior</td>
<td>10 hours</td>
</tr>
<tr>
<td>Adoh-Adoh, '95</td>
<td>40/M</td>
<td>inferior</td>
<td>41 days</td>
</tr>
</tbody>
</table>

M: male, F: female, MI: myocardial infarction, MI to OPE: interval from the onset of the MI to the operation.


