

## Alert report for the prevention of recurrence of medical accidents Number 1

# Deaths due to Cardiac Injury Associated with Pacing Wire Removal

Three fatal cases have been reported in which patients suffered massive pericardial hemorrhage due to cardiac injury following the removal of temporary epicardial pacing wires placed during cardiac surgery.

	Illustrative Cases
<b>Case 1</b>	<ul style="list-style-type: none"> <li>• Surgery: Thoracoscopic mitral valve repair and tricuspid valve repair</li> <li>• Pacing wire placed on diaphragmatic surface of right ventricle</li> <li>• Ten minutes post-removal: precordial discomfort, hypotension (50–59 mmHg), cardiac arrest</li> <li>• Imaging: Echocardiography showed chamber collapse, X-ray showed hemothorax</li> <li>• Emergency re-sternotomy revealed 3–5 mm epicardial laceration with massive bleeding</li> <li>• Outcome: Death two days post-removal</li> <li>• Cause of death: Hemorrhagic shock associated with intrathoracic bleeding due to cardiac injury. Autopsy imaging (hereinafter, “Ai”): absent. Autopsy: absent.</li> </ul>
<b>Case 2</b>	<ul style="list-style-type: none"> <li>• Surgery: Mitral valve replacement and tricuspid valve repair</li> <li>• Symptoms five minutes after removal: left shoulder pain, hypotension</li> <li>• Imaging: Pericardial effusion up to 8 mm noted; no immediate echocardiographic changes</li> <li>• Re-sternotomy revealed active bleeding from the diaphragmatic surface of the right ventricle</li> <li>• Outcome: Death two days post-removal</li> <li>• Cause of death: Cardiac tamponade due to cardiac injury and hemorrhagic shock associated with intrathoracic hemorrhage. Ai: absent. Autopsy: present.</li> </ul>
<b>Case 3</b>	<ul style="list-style-type: none"> <li>• Surgery: Coronary artery bypass grafting (CABG)</li> <li>• Pacing wires placed on the anterior surface of right ventricle and roof of left atrium</li> <li>• One hour post-removal: bradycardia, hypotension (60–69 mmHg), signs of pericardial tamponade appeared late</li> <li>• Drainage revealed large bloody effusion</li> <li>• Outcome: Death three days post-removal</li> <li>• Cause of death: Suspected cardiac tamponade due to hemorrhage associated with wire removal. Ai: absent. Autopsy: absent.</li> </ul>