

A hypothermic case with giant Osborn waves and atrial fibrillation after using synthetic cannabinoid

Hypothermia is a condition wherein the body temperature drops below 35°C when an individual is unconscious. In prolonged moderate hypothermia (28–32°C), progressive drops in the pulse rate and increases in atrial and ventricular arrhythmia and Osborn waves are observed in electrocardiography (ECG). Unconsciously, staying outside for an extended time in extreme cold is the most important cause of hypothermia. In recent years, a significant social problem is the increase in the number of people using synthetic cannabinoids (SC) in public places. A frequent result of SC use is severe deterioration in consciousness and perception.

A 22-year-old male patient, who was found unconscious in a park and was brought to the emergency department by 112 emergency services, was reported to have used SC. During vital sign examination, body temperature was too low to be measured, SpO₂ level was 93%, and the other parameters were normal. There was no obvious sign of injury on his body. The initial assessment led us to believe that the patient was in a hypothermic condition because of unconsciousness after drug use and exposure to cold. Atrial fibrillation and giant Osborn waves were observed in his ECG (Fig.1, 2). Four hours later, the body temperature increased to 35.7°C. ECG performed for control revealed that Osborn waves disappeared, and the rhythm returned to a normal sinus rhythm (Fig. 3). Although there was no thermometer that measures body temperature below 35°C in our department, typical Osborn waves observed in ECG led us to consider that the body temperature was between 28 and 32°C and to intervene in the patient early.

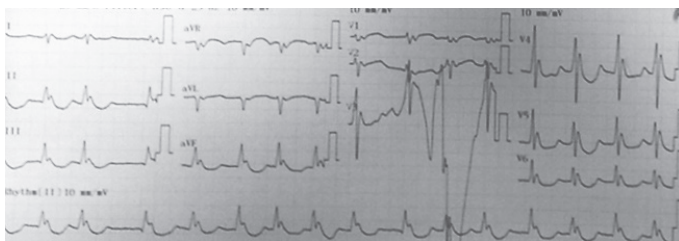


Figure 1. When first admitted, the hypothermic patient's ECG demonstrated Osborn waves and atrial fibrillation



Figure 2. Osborn waves and atrial fibrillation was also observed in the patient's ECG after 2 h of observation (body temperature, 35°C)



Figure 3. Normal sinus rhythm detected in the patient's ECG after 4 h of observation (body temperature, 35.7°C)

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Compression of left ventricle by a rare giant unruptured sinus of Valsalva aneurysm

A 60-year-old previously healthy woman was admitted with exertional dyspnea. She was a non-smoker and -drinker. Physical examination was insignificant, except for a soft early diastolic murmur. Further examination was performed. Blood tests and electrocardiogram were normal. Transesophageal echocardiography revealed a giant unruptured left sinus of Valsalva aneurysm (SVA) with spontaneous echo contrast, which severely compressed the left ventricle (Fig. 1, arrow, Video 1, 2). The 64-multidetector computed tomography angiogram with iodinated contrast injection was used to demonstrate the giant aneurysm with a maximal diameter of 8.7 cm, and the left main coronary artery was not involved (Fig. 2).

Because of a high risk of thrombus formation in SVA and the potentiality of a fatal rupture, an aneurysmectomy (Fig. 3, arrow) and reconstruction of the coronary arteries were performed under cardiopulmonary bypass. The postoperative course was uneventful. Pathology results revealed the breakage of the intimal elastic fiber, lymphocytic infiltration, and fibroplastic proliferation of the tunica media. Calcification foci and hyaline degeneration with cystic degeneration were also observed in the tunica media (Fig. 4).

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