

ONDA J DI OSBORN IN CORSO DI IPOTERMIA ACCIDENTALE

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CASE REPORT

A 89-year-old male patient, found unconscious on the floor in his home, arrived in the emergency department brought by 118 emergency service. Relatives did not have any contact from him for about 36 hours. Patient presented with closed eyes, reacting to pain, making incomprehensible sounds. He had cold skin and dehydrated mucous membranes. A left peri-orbital hematoma and an extensive right hemi-thoracic bruising were noticed at body inspection. Vital signs showed hypotension (60/40 mmHg), bradycardia (40 beats/minute), bradipnea (12 breaths/minute), Sat O₂ 94% in oxygen therapy (FiO₂ 40%). Body temperature was too low to be measured with thermometers of our department. The capillary blood glucose was 257 mg/dl. He moved 4 limbs in the absence of focal neurological deficits. The patient had a history of Alzheimer's dementia and hypertension in treatment. Family members reported an accidental fall from the bed with head and chest trauma two days earlier.

Patient was secured with a central venous access in right femoral vein, starting infusion of heated 0.9% chlorinated solution and dopamine, in combination with external active heating with forced-air heating packs or blankets.

ECG showed atrial fibrillation with an average ventricular rate of 40 bpm, wide QRS with prolong QT and Osborn wave (fig 1).

Brain CT scan showed a left capsular lenticular bleeding and a frontal hygroma in the absence of intracranial hypertension signs (fig 3).

Ten hours later, the body temperature increased to 35.7°C and ECG revealed that Osborn waves disappeared, and the rhythm returned to a normal sinus rhythm (fig 2).



Fig. 1

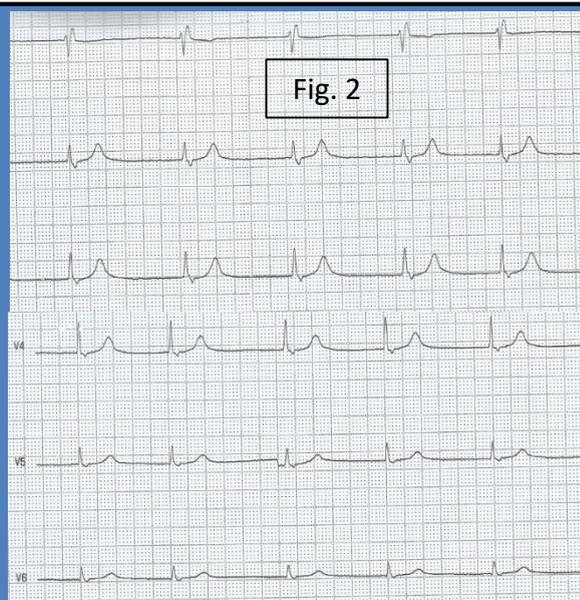


Fig. 2

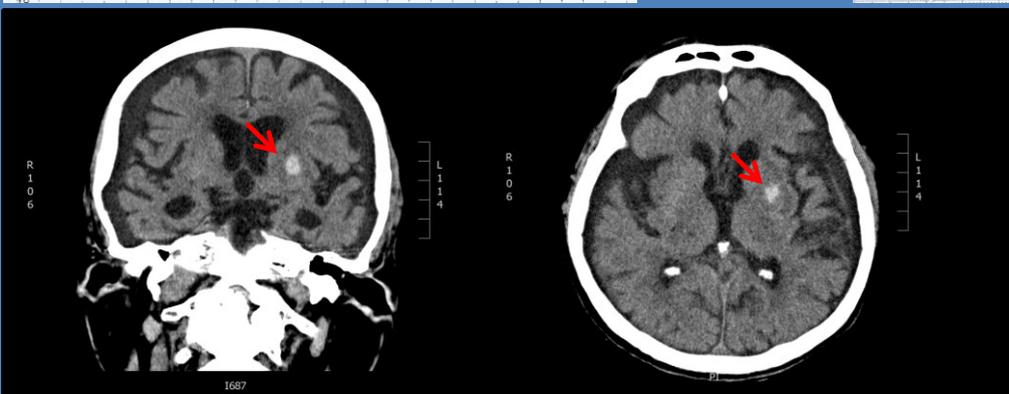


Fig. 3.
Brain CT scan.
Left capsular lenticular
bleeding and frontal
hygroma in the absence
of intracranial
hypertension signs.

DISCUSSION

Hypothermia indicates a pathological condition with core body temperature less than 35°C and inability of body temperature control mechanisms to respond to a cold thermal stress, associated with significant morbidity and mortality.

Atrial fibrillation is the most common arrhythmia when the core temperature is less than 32°C, but at a temperature of about 28 degrees pacemaker cells show a gradual reduction of spontaneous depolarization in addition to a slowing of conduction system which can lead up to QT elongation, asystole, ventricular fibrillation or torsades de pointes.

Osborn J wave occurs more frequently at a body temperature between 28 and 32 degrees in association with bradycardia, decreased consciousness leading to coma, loss of airway protective reflexes with slow respiratory rate. However J waves are not pathognomonic of hypothermia. It has been reported in early repolarization, Brugada Syndrome, drugs overdose, central nervous system injury and hypercalcaemia.