

An unexplained cause of disproportionate bradycardia

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Argomento: Caso clinico

A 31-year old woman was admitted to the Emergency Room (ER) for abdominal pain six-days after elective caesarian section on subdural anesthesia.

12-lead ECG at ER admission showed sinus bradycardia QTc 460 msec without repolarization abnormalities or AV blocks.

A total body CT scan was performed to investigate a potential liquoral syndrome: a slight dilation of the cerebrospinal fluid spaces surrounding the vermis along the tentorium cerebelli bilaterally and tonsillar herniation below the foramen magnum (9mm) was seen . At ICU admission patient presented an asymptomatic sinus bradycardia (39 bpm neither neurological symptoms nor hemodynamic instability) fleetingly responsive to atropine.

The brain Magnetic Resonance (MR) confirmed the suspect of Chiari type I syndrome (CtIS- Figure 1) however, excluding the presence of syringomyelia. A neurosurgical examination was performed without any surgical indication.

Chiari type I malformation has been described as downward displacement of the cerebellar tonsils below the foramen magnum; the brainstem can be involved and displaced caudally. The severity of the syndrome varies also according to the degree of erniation. The most common symptom is pain and usually occurs in the occipital region and can radiate down the cervical spine or towards the forehead, and is typically made worse by coughing or other types of Valsalva maneuvers. However, up to 15% patients are asymptomatic.

According to literature, bradycardia is an atypical symptom of Chiari I malformation and is often associated to hypertension. In parturients woman with Arnold Chiari malformation subdural anesthesia can infrequently exacerbate compression of rostral ventrolateral medulla oblongata (VLMO) and subsequently tension of dorsal nucleus of the vagus and the ambiguous nucleus can explain sinus bradycardia because the rostral ventrolateral medulla is a regulatory center for cardiac, vascular, and endocrinology control of blood.

Figure 1. CT scan (top) and MR (bottom) demonstrating the tonsilla herniation

