

## Approach to the Patient with Pioventriculitis by *Streptococcus Agalactiae* : Case Report and Protocolized Management

Huber Padilla-Zambrano; Luis R Moscote-Salazar; Mo-Carrascal Joulen; Hernando R Alvis-Miranda; Gabriel Alcala-Cerra; Pacheco-Hernandez Alfonso; Kalil Kafury-Benedetti; Johanna Maraby; Willem G Calderon-Miranda; Paulo Cesar Puac Polanco

**Introduction:** Pioventriculitis, also known as ependymitis, ventriculitis, ventricular empyema or picocephalus (1), is an inflammatory process of the cerebral ventricles (2), with purulent exudate (3). It is a very common complication in meningitis during the neonatal period (4), with rates of up to 90% (5). While in adults it is less frequent (4). However, these statistical data can be influenced by the lack of universal criteria that define this pathology (1,6). Etiologically, it has been associated with infections, surgical interventions in the Central Nervous System-CNS and traumatism at the base of the skull (2,7). Traumatic injuries are associated with a risk greater than 20% of causing ventricular empyema (2), for the reason that it promotes the entry of bacteria present in the skin (7); And ventriculostomy, has reported a risk of up to 22% (8). The pathophysiological mechanism is related to the entrance of microorganisms to the choroid plexus, causing a pro-inflammatory cascade that can induce a blockage in the normal flow of cerebrospinal fluid due to the formation of walls that obstruct the circulation, causing ventricular dilatation (3, 9). It is a complication secondary to meningitis, as a result of failure to treat this pathology, or in patients who develop hydrocephalus (5,6,10-12). In addition, its dissemination emerges from infectious foci due to pathologies such as bacterial endocarditis, otitis media, dental caries, among others (3,13,14). The most isolated germs are gram-negative and gram-positive (3,4). With mortality rates of 22% for the first (15). Gram positive cocci are the most isolated ventriculitis due to external ventricular drainage (1,2), and *Streptococcus pneumoniae* is the most commonly found pathogen in traumatic pioventriculitis (1). The clinical manifestations that characterize this pathology are nonspecific and may be present in other CNS infections (3). However, the clinical picture of patients with this pathology is characterized by altered state of consciousness, headache, photophobia, fever; And signs and symptoms related to increased intracranial pressure (2,3,11), although they may have an insidious and indolent development (11,16). For the diagnosis, the clinical picture, the findings in the CSF and the radiological aids are taken into account (1-3). Although the duration of therapy for the management of this pathology is unclear, the age and cause of pioventriculitis are important in determining treatment, which is initially empirical, while the pathogen involved is identified (1,2,11). The initial route of medication administration is intravenous, with Penicillin G and vancomycin being the drugs of choice (2,11). Also, neuroendoscopic surgery (6) and administration of antibiotics directly into the ventricles through catheters are treatments of choice; However, the latter has been associated with unfavorable outcomes (2).

**Methods:** Patient of 62 years with clinical picture of drowsiness and headache of 2 weeks of evolution associated with fever and vomiting. With a history of type 2 diabetes mellitus, chronic

Laboratory tests showed leukocytosis (19,000 leukocytes / ml) with 80% neutrophils and 20% lymphocytes. In brain CT, supratentorial ventricular dilation is evidenced. CSF cytochemical examination showed cloudy fluid with abundant leukocytes, gram positive chain with proteinorinity of 190 mg / dL and hypoglycaemia of 24 mg / dL, being the diagnosis of bacterial meningitis, which was initiated empirically ceftriazone 4 g / d + vancomycin 2g / d. The culture reports *streptococcus agalactiae* sensitive to ceftriazone, penicillin and vancomycin. The patient evolves abruptly requiring invasive mechanical ventilation for 14 days with difficult weadding and it is decided to perform a percutaneous tracheostomy. In control TAC, persistence of hydrocephalus is evidenced, whereby neurosurgery decides to place bilateral external ventricular drainage, remaining for 7 days. At the completion of 14 days, the infectious disease service decides to start penicillin sodium for 21 days. The patient evolves to a persistent vegetative state and is transferred to the internal medicine service for follow-up with infectology and clinical neurology. A transthoracic echocardiogram was done that discarded the presence of plantings.



**Results:** CH and culture of CSF were found finding *Streptococcus agalactiae*, HIV test with negative result.

Spontaneous sodium PNC is initiated by sensitivity, as there was no adequate response to meropenem + vancomycin, then the change of meropenem by intrathecal amikacin is performed, due to the presence of right pioventriculo. After completing the 21-day outline, he develops left hydrocephalus forcing left EVD installation which is then withdrawn without complications.

**Conclusions:** Pioventriculitis is an infection that can be asymptomatic, lethal and persistent even after treatment of meningitis. Early diagnosis is essential to avoid unfavorable outcomes and to establish adequate and timely treatment.

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