Staphylococcus epidermidis ventriculitis

- Microbiological spectrum of organisms in patients undergoing external ventricular drain insertion at a tertiary care hospital
- Ceftaroline for Central Nervous System Infections: Case Report of a Young Infant, and Scoping Review
- Cerebrospinal fluid drain infection caused by pandrug-resistant Staphylococcus epidermidis successfully treated with ceftaroline in combination with fosfomycin and vancomycin
- Penetration in cerebrospinal fluid and use of ceftaroline in ventriculitis associated with external ventricular drainage
- A rare case of ventriculoperitoneal shunt co-infection with Brevibacterium and Corynebacterium minutissimum organisms
- Cerebrospinal fluid drainage-related ventriculitis due to multidrug-resistant microorganisms
- Ventriculitis and meningitis: by methicillin-resistant S. epidermidis: comparison of serum and CSF vancomycin concentrations and possible effect on MIC
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Ninety-one episodes of CSF drainage-related ventriculitis were identified. The most frequent organisms isolated were Gram positive cocci (65%), mainly Staphylococcus epidermidis (48%). Multidrug-resistant microorganisms were detected in 21 episodes (23%). In multivariate analysis, the independent factors related to multidrug-resistant ventriculitis were the length of hospital stay >14 days (HR 6.7; 95%CI 1.75-25.86, p=0.006) and previous antimicrobial therapy (HR 5.58; 95%CI 1.44-21.65, p=0.013) [1)]

Five patients (4 adults and 1 child) with cerebrospinal fluid shunt infections caused by Staphylococcus epidermidis were successfully treated by fosfomycin combined with an aminoglycoside. Fosfomycin was given intravenously over 4 hours 3 times a day. The antibiotic dose was 12 g/day for adults and 200 mg/kg/day for the child. In 3 patients with an external CSF drainage system, serum and ventricular fluid samples were obtained before and after one infusion for 10 days. The serum concentrations varied greatly (48,12 +/- 31,47 and 115,07 +/- 46,5 micrograms/ml. However, the drug levels in the ventricular fluid were constant and similar for the 3 patients (24,48 +/- 10,28 à 27,87 +/- 8,58 micrograms/ml), well above the MICS (1 and 2 micrograms/ml) [2)].

Staphylococcus epidermidis ventriculitis treatment

Two cases of ventriculitis with Staphylococcus epidermidis that failed on therapy with antistaphylococcal penicillin are presented. Both infections responded to a combination of intravenous and intraventricular vancomycin and rifampin. Vancomycin and rifampin represent an important antibiotic regimen for the management of resistant infections of the central nervous system, especially with those due to S. epidermidis or methicillin-resistant Staphylococcus aureus [3)].

Vancomycin for Staphylococcus epidermidis ventriculitis

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- Ventriculitis and meningitis: by methicillin-resistant S. epidermidis: comparison of serum and CSF vancomycin concentrations and possible effect on MIC
- Linezolid for the treatment of postneurosurgical infection caused by methicillin-resistant Staphylococcus
- Cure of ventriculitis and central nervous system shunt infection by Staphylococcus epidermidis with vancomycin by intraventricular injection in a liver transplant recipient
- Linezolid for the treatment of patients with central nervous system infection
- Study on treatment strategy for ventriculitis associated with ventriculoperitoneal shunt for hydrocephalus

Staphylococcus epidermidis ventriculitis case report from the General University Hospital of Alicante

The 43-year-old male was admitted for a sudden loss of consciousness and found unconscious on the floor by coworkers. On arrival of the emergency medical services (SAMU), Glasgow Coma Scale was assessed at 4 points (O:1, V:1, M:2), and urgent orotracheal intubation was performed using rapid sequence induction. The patient was subsequently transferred to another hospital.

Upon arrival, the patient had reported isocoric and reactive pupils. A non-contrast cranial CT scan was performed: Areas of subarachnoid hemorrhage in the basal cisterns and bilateral cerebral sulci, with intraventricular hemorrhage in the lateral ventricles and fourth ventricle. Ventricular size within normal limits.

Modified Fisher Grading Scale for Subarachnoid Hemorrhage IV and Hunt and Hess Stroke Scale V. Further evaluation included a cerebral CT angiography, which identified a 5mm left sided middle cerebral artery aneurysm (MCA). The patient was initially admitted to the ICU, where a right internal jugular central venous catheter and a right radial artery catheter were inserted.

During transportation (sedation and analgesia with propofol and morphine chloride), the patient experienced a sudden desaturation episode with fasciculations, and 50 mg of rocuronium was administered. Upon arrival, the patient was under the effects of sedation (propofol and fentanyl) and neuromuscular relaxation (rocuronium), with normal reactive isocoric pupils. Intravenous nimodipine treatment was initiated, and an external ventricular drain was placed by the Neurosurgery team, left open to a pressure of 15 cm H2O.

The right femoral artery was punctured using an 8 French introducer sheath. Angiographic series and rotational 3D study were performed from the common carotid artery (CCA), confirming a wide-necked

dysplastic aneurysm in the terminal intracranial segment of the CCA, involving the carotid artery and the carotid T. Flow through the anterior communicating artery (ACOA) was observed.

Endovascular treatment was decided with a 1.4 mm diameter device with a maximum diameter of 3.7 mm. A dose of Inyesprin was administered intravenously. A guiding catheter was positioned in the cervical CCA. A bolus of tirofiban was given, and perfusion was initiated.

The left M2 segment was catheterized using a 027 microcatheter. The flow diverter was partially deployed. The aneurysm sac was catheterized using a micro guide and an SL10 microcatheter. The flow diverter was deployed, covering the neck of the aneurysm. The first three coils were deployed, and on the control series, bleeding was observed from the previous rupture area of the dome, where one coil loop had come out. Blood pressure was lowered, and the aneurysm was completely filled with the remaining coils mentioned above. The bleeding was confirmed to have stopped. The flow diverter was fully deployed. A non-contrast Dyna CT was performed, which did not show an increase in the previous subarachnoid hemorrhage. Intraprocedural bleeding was limited to medial temporal perianeurysmal bleeding. No mass effect was observed.

Upon removal of the microcatheter, a rupture of the proximal part was observed due to tension from the pusher against the key. It was completely removed.

The control series showed proper embolization without a residual neck. The flow diverter was fully deployed and well-positioned.

He developed a Staphylococcus epidermidis ventriculitis. Empirical treatment with vancomycin is initiated pending the antibiogram

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Solo-Peleteiro A, Diéguez P, Pérez-Rodríguez MT, Galárraga RA, Pérez-Landeiro A, Álvarez-Fernández M. Cerebrospinal fluid drainage-related ventriculitis due to multidrug-resistant microorganisms. Enferm Infecc Microbiol Clin (Engl Ed). 2022 Jun-Jul;40(6):322-325. doi: 10.1016/j.eimce.2020.12.005. PMID: 35680350.
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Boulard G, Quentin C, Scontrini G, Dautheribes M, Pouguet P, Sabathie M. Traitement des ventriculites à Staphylococcus epidermidis sur matériel par l'association fosfomycine-aminoside. Evolution des taux ventriculaires de fosfomycine [Treatment of ventriculitis caused by Staphylococcus epidermidis on equipment with the combination of fosfomycin and an aminoglycoside. Course of ventricular levels of fosfomycin]. Pathol Biol (Paris). 1983 Jun;31(6):525-7. French. PMID: 6348662.
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