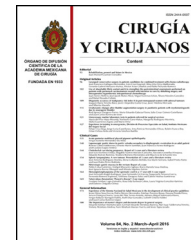




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CLINICAL CASE

Ventriculo-gallbladder shunt: An alternative for the treatment of hydrocephalus[☆]



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KEYWORDS

Ventriculo-gallbladder shunt;
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Valvular shunt dysfunction

Abstract

Background: In the management of hydrocephalus, the ventriculo-gallbladder shunt is justified in situations where the ventriculo-peritoneal shunt is not useful due to peritoneal involvement and/or when the ventriculo-auricular and ventriculo-pleural shunts are contraindicated.

Clinical case: A 27 year-old female with hydrocephalus at birth, managed with ventricle-peritoneal shunt, modified 3 times throughout her life due to repeated infections and other different reasons. She was admitted due to colitis caused by *Clostridium difficile*, presenting concomitant signs of intracranial hypertension and neurological impairment. This led to a review and change of the ventriculo-peritoneal shunt system, with distal dysfunction due to peritoneal thickening. Atrial and pleural shunts were not indicated because the risk of infection. As an alternative, it was decided to place the distal end of the catheter in the gallbladder. The patient recovered her neurological functions after the surgery.

Conclusions: Drainage alternatives may be needed in 5% of patients with valvular shunt dysfunction. The ventriculo-gallbladder is a good and viable option because it has an absorptive

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PALABRAS CLAVE

Derivación
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Disfunción valvular

capacity of 1500cc liquid daily, besides being an excellent drainage through the bile duct. The abdominal surgery is easy to perform, and it is an alternative option in the failure of the ventriculo-peritoneal shunt.

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Derivación ventrículo-vesicular: una alternativa en el tratamiento de hidrocefalia**Resumen**

Antecedentes: En el manejo de la hidrocefalia, la derivación ventrículo-vesicular se justifica en situaciones en donde la derivación ventrículo-peritoneal no es factible por alteración del peritoneo, o cuando las derivaciones ventrículo-auricular y ventrículo-pleural están contraindicadas.

Caso clínico: Paciente femenina de 27 años con hidrocefalia al nacimiento, manejada con válvula de derivación ventrículo-peritoneal con recambio en 3 ocasiones por infección, es ingresada por colitis originada por *Clostridium difficile*. Presentaba de manera concomitante manifestaciones de hipertensión intracraneal con deterioro neurológico que obligaron a la revisión ventricular y a cambio de sistema de derivación ventrículo-peritoneal, con mal funcionamiento distal por engrosamiento del peritoneo. Ante la contraindicación de derivación auricular y pleural, se decidió colocar el catéter distal en vesícula biliar, logrando la recuperación de las funciones neurológicas.

Conclusiones: En el 5% de los pacientes que presentan disfunción valvular se deben buscar distintas alternativas de drenaje. La vesícula biliar es una buena opción, pues su capacidad de absorción le permite manejar hasta 1,500 cc diarios de líquido; además de ser un excelente drenaje a través de la vía biliar, presenta facilidad de realización, considerándose en la actualidad un procedimiento viable como segunda opción de derivación ante el fallo de la derivación ventrículo-peritoneal.

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Background

Approximately 40 out of every 100,000 people in the United States undergo surgery for ventricular shunts for the treatment of hydrocephalus. The majority of patients are children. Ventriculo-peritoneal shunts¹ are most commonly used. Other options are the ventriculo-auricular shunt and the ventriculo-pleural shunt, used when the patient presents with abdominal abnormalities. An alternative is the ventriculo-gallbladder shunt. Its use has been justified in situations where the ventriculo-peritoneal shunt is not viable due to changes of peritoneum, generally caused by infection and when ventriculo-auricular and ventriculo-pleural shunts are contraindicated. The surgical technique is safe and effective, and is a useful procedure when other options cannot be indicated. When a patient presents with hydrocephalus and concomitant problems which require the use of this type of drainage of cerebrospinal fluid, we are committed to presenting the case. This is the objective of this paper.

Clinical case

A female patient aged 27 who was admitted to hospital after presenting with diarrhoea and general symptoms.

The patient was recuperating from a ventriculo-peritoneal shunt replacement secondary to bacterial colonisation of the catheter in another hospital (June 06, 2014). During her stay there she received vancomycin for 21 days and ciprofloxacin for 10 days, apparently with no complications. Eight days prior to admittance she presented with loose bowel movements, nausea, vomiting and fever with no response to non specific treatment, which is why she went to this hospital. On admittance to the Emergency Department the patient presented with severe dehydration, drowsiness, fever, abdominal swelling, general abdominal pain on examination and enhanced peristalsis. The patient's clinical history was indirectly obtained (from her mother) who referred to: congenital hydrocephalus at 22 weeks of pregnancy, with a birth weight of 742 g. Diagnosis at birth was congenital hydrocephalus, in addition to epilepsy. She spoke and responded correctly, although she had psychomotor limitations. A ventriculo-peritoneal shunt was inserted in 1986, a few days after birth, with replacement in 1989 due to malfunction, and in 2014 due to infection. The patient evolved favourable with regards to the diarrhoea. Initially she presented with leukocytosis of $15.7 \times 10^3/\mu\text{L}$ with 36% segmented and 17% bandemia, hypocaliemia of 3.4 mEq/l and acidosis. A suspected diagnosis of infection by *Clostridium difficile* was made and testing for toxins A and B was requested. Since her hospital admittance she

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