Rare Complication of External Ventricular Drainage: Intra-ventricular Drain Section

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Abstract: The external ventricular derivation is an invasive technique used to cure hydrocephalus. Sometimes, it may have infectious and mechanical complications and needs specific cares. Very rarely, the drain line can be cut with an intraventricular section tip as in the case reported.

Key words: External ventricular drainage, section, rare complication.

1. Introduction

External ventricular shunt is a simple technique for the treatment of hydrocephalus. Known complications of this technique are essentially infection, bleeding, dysfunction by malposition of the drain or overdrainage [1-4]. The authors report the case of a patient aged 19 years treated for tuberculous meningitis complicated with acute hydrocephalus treated by external ventricular derivation whose accidental fall shows intraventricular drain bypass section.

2. Case Report

A 19 year old patient without medical history was admitted to the ICU for disorders of consciousness complicating febrile syndrome lasting for one month. Clinical examination revealed a patient’s Glasgow scale at 13 without signs of focalisation. Hemodynamic condition was stable, he wasn’t dyspnea and saturation blood oxygen was 100 % ambient air. Moreover, he was at 39 °C fever and remainder of the examination was normal.

Laboratory tests found hyponatremia 128 mEq/L without other hydroelectrolytic disorders or the remainder of the balance renal function. It found a leukocytosis 13,600/mm³ without any other hematologic disturbances.

Lumbar puncture found a clear cerebrospinal fluid. At cellulorrachia 30 items, 90% lymphocytes with proteinorrachia 4.08 g/L, glycorrachia 0.2 g/L and Glycorrachia/glycemia ratio 0.2.

The bacteriological evaluation (blood, cyto-bacteriological study of urine) was negative.

The chest radiograph and CT scan were without abnormalities. The therapeutic management was the antituberculous treatment, corticosteroids and progressive correction of hyponatremia.

The evolution was marked by neurological worsening the 6th day of treatment. Computed tomography found acute hydrocephalus. Treatment was an external ventricular derivation whose implementation took place without incident. The control brain CT scan found a drain in place without significant immediate complications.

The 7th day of the external ventricular bypass evolution was marked by the accidental removal of the drain. Cerebral CT scan (Fig. 1) found the persistence of the distal tip of the drain intraventricular shunt.
3. Discussion

The external ventricular derivation is an invasive technique with the risk despite all precautions and compliance with aseptic technique and safety. Complications reported are mainly ventriculitis, hematoma or malpositionnement or dislodgement [1-4]. The placement of external ventricular drain (EVD) is a common neurosurgical procedure to drain cerebrospinal fluid (CSF) in many acute neurosurgical conditions that disrupt the normal CSF absorption pathway. Infection is the primary complication with infection rates ranging between 0% and 45%, and this is associated with significant morbidity and mortality, prolonged hospital stay and increased hospital costs.

External ventricular drains (EVDs) are temporary measures which allow for drainage of cerebrospinal fluid (CSF) from the lateral ventricles of the brain. EVDs are most commonly used for the management of conditions that lead to backup of CSF within the brain and/or elevated intracranial pressures such as in brain injury, subarachnoid hemorrhage, acute hydrocephalus, or posterior fossa lesions.

Nursing care of patients with EVDs is predominantly aimed at prevention of complications and management of the EVD or lumbar drain according to specific parameters which are based on individual assessment of each patient’s clinical status. The peculiarity of our case is the section of drain with the persistence of the distal tip intraventricular. Risk is exceptional and requires vigilance during accidental removal or not these drains.

4. Conclusions

The external ventricular derivation is an invasive technique which main complications are infectious ones. The section of the drain is rarely described and it must be checked up if the drain is unfortunately removed accidentally.

References
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