Acute ventriculoperitoneal shunt malfunction following opening of the spinal subarachnoid space

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The authors describe five patients with shunted hydrocephalus who underwent procedures in which the spinal dura mater was opened and therefore significant amount of cerebrospinal fluid (CSF) drained. All patients had acute dysfunction of their ventriculoperitoneal shunt within 3 days to 2 weeks following their spinal procedure (mean, 5 days.) requiring shunt revision. All shunt valves were functioning properly at operative inspection, but all patients were found to have adherent intracranial catheters with ingrowth of choroid plexus. The authors theorize that the patients reported herein had suboptimally functioning shunts without symptoms or radiographic evidence of shunt failure before their spinal procedure. Following the opening of the spinal subarachnoid space, the negative pressures intracranially obstructed their intracranial shunt catheters.

This is an important contribution to the literature, as clinicians should have a low level of suspicion for shunt malfunction among such patients who harbor a shunt and undergo intradural procedures requiring a significant CSF egress. As the authors note, it is unclear how these five children differed from other children who harbor shunts and underwent spinal procedures at their institution and who did not present with symptoms of shunt malfunction. A low functioning shunt can explain the reason for acute shunt malfunction in the former patients as mentioned by the authors. Alternatively, the location of the shunt's ventricular catheter tip in relationship to the choroid plexus may place some patients at a higher risk of plugging their ventricular catheter with acute collapse of the ventricle due to CSF egress during spinal procedures.

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