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Video Abstract

Ventriculoperitoneal shunt placement with ultrasound guidance and laparoscopic assistance: 2-dimensional instructional video

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ABSTRACT

Background: Postoperative communicating hydrocephalus has been described in the literature commonly associated with treatment of ruptured intracranial aneurysms; however, it is also reported to occur following other intracranial interventions such as meningioma resection and decompressive hemicraniectomy. In 2011, Burkhardt *et al*. reported the incidence of postoperative hydrocephalus following skull base meningioma resection was twice as high as resection of meningiomas in other regions.[1] They found that age and increased length of surgery were associated with higher rates of postoperative hydrocephalus. Our patient, a 76-year-old man, initially presented with the left-hand paresthesias and numbness before the revelation of a large sphenoid planum meningioma on workup imaging. He underwent surgical resection due to developing cranial nerve deficits and personality changes in an extensive procedure that required approximately 8 h to complete. His postoperative course, given the factors above, included the development of hydrocephalus.

Case Description: He was taken to the operating room for ventriculoperitoneal shunt placement, as displayed in this video case report, which highlights our surgical and sterile techniques, intraoperative ultrasound to ensure appropriate ventricular placement, and a single-port laparoscopic technique for direct visualization of placement of the abdominal catheter. After shunt placement, his course was complicated by a small tract hemorrhage, which resolved without further treatment. He was observed to have an improvement in mental function that occurred over the following 2–3 days before being discharged to an outpatient rehabilitation facility for continued care.

Conclusion: Ventriculoperitoneal shunt placement is an effective and safe procedure for the treatment of postoperative communicating hydrocephalus when performed with appropriate techniques as displayed in the associated video case report. The patient gave informed consent for surgery and video recording. Institutional Review Board approval was deemed unnecessary.

Keywords: Laparoscopy, Ultrasound, Ventriculoperitoneal shunt

[Video 1]-Available on:
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Annotations[1-3]

1) 0:19 – Imaging before and following the meningioma resection after the development of hydrocephalus.
2) 4:40 – Preparation of shunt system.
3) 6:07 – Dural opening.
4) 6:50 – Ultrasound guidance of proximal catheter placement.
5) 8:05 – Single-port laparoscopic technique of distal catheter placement.
6) 9:40 – Small tract hemorrhage that resolved without further intervention.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent .

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Nil.

Conflicts of interest

There are no conflicts of interest.

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