

CLINICAL IMAGE

An unusual cause of shunt failure requiring multidisciplinary treatment

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Abstract

Rarer etiologies of shunt malfunction may be difficult to detect, can present insidiously, and often require a multidisciplinary approach to safely and effectively address.

KEYWORDS

idiopathic intracranial hypertension, shunt complication, shunt migration, ventriculoperitoneal shunt

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Transcompartmental migration of a distal ventriculoperitoneal shunt catheter is a rare, insidious complication that may not present with typical shunt failure symptoms and requires advanced diagnostic and therapeutic approaches.

A 38-year-old woman with idiopathic intracranial hypertension underwent ventriculoperitoneal shunt placement at an outside facility, with direct visualization and insertion of the distal catheter into the peritoneal cavity. Two and a half years later she developed gradually worsening headaches and visual

decline. Advanced workup revealed the distal shunt catheter entering the right caudal internal jugular vein (Figure 1A) and traversing the right cardiac system, terminating in the bilateral pulmonary artery branches (Figure 1B). Retraction of the intracardiac portion of the catheter was attempted under intraoperative fluoroscopic guidance but aborted due to frequent premature ventricular contractions and bigeminy. It was subsequently removed successfully by interventional radiology via a transfemoral endovenous approach. The patient recovered well with no further shunt-related complications. Hypothesized mechanisms for distant transcompartmental

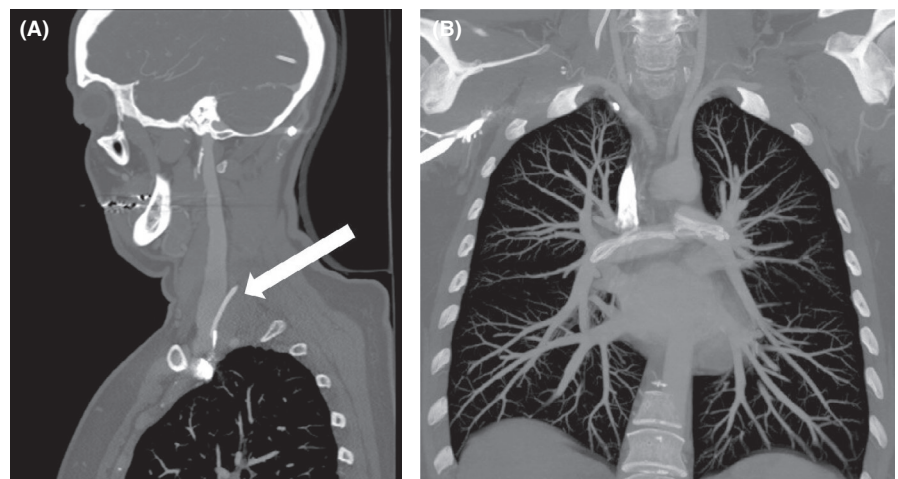


FIGURE 1 A, Computed tomography angiography of the neck in the sagittal plane demonstrating the point of entry of the distal ventriculoperitoneal shunt catheter into the caudal internal jugular vein (arrow). B, Computed tomography angiography of the chest in the coronal plane demonstrating the coiled distal shunt catheter within the bilateral pulmonary artery branches

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migration include chronic erosion or inadvertent transvenous tunneling of the distal catheter at the time of placement, with gradual retraction of the catheter into the lumen of the vein and then propagation into the cardiac system due to negative intrathoracic pressure,¹ possibly exacerbated by elevated intraabdominal pressures. Although rare, potential complications of intracardiac migration include pulmonary thromboembolism, sepsis, arrhythmias, and valvular complications.¹ Described mechanisms of catheter retrieval during revision include both open and endovascular techniques.²

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

NBO: involved in case review and manuscript preparation.
KOR: involved in project oversight, review, and editing of the manuscript.

ETHICAL APPROVAL

Per the University of Alabama at Birmingham Institutional Review Board policy, single-patient case reports that are devoid of the 18 HIPAA identifiers and imaging studies that have been thoroughly de-identified do not require patient

consent. The information contained within this report is in compliance with recognized standards.

DATA AVAILABILITY STATEMENT

The authors confirm that the data supporting the findings of this study are available within the article.

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