Intracranial Hypertension after Chiari decompression resolving after removal of Levonorgestrel-Releasing Intrauterine Device.

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Disclosure

The authors have no disclosures to make
Introduction

• Patients receiving progesterone products systemically have previously been reported to exhibit increased intracranial pressure.

• Levonorgestrel-releasing intrauterine devices (LIUD) are a method of contraception thought to release this progestin locally in the uterus, to limit systemic absorption and related side-effects.

• We present a case of treatment-refractory hydrocephalus and pseudomeningocele that fully resolved after LIUD discontinuation.
• A 35-year-old female with an implanted LIUD developed symptomatic pseudomeningocele and hydrocephalus after suboccipital craniectomy for Chiari malformation.

• Over the next eight months, she underwent ventriculoperitoneal shunt placement and two attempts for needle decompression of the collection, which did not relieve her symptoms (except the hydrocephalus) or the pseudomeningocele.

• Subsequently, she had her LIUD removed.

• Three weeks after removal, her symptoms as well as the collection had completely resolved without any further intervention.

• The increased intracranial pressure and associated persistence of the pseudomeningocele can thus be attributed to the LIUD.
Preoperative Imaging

A. Sagittal brain T1-weighted MRI
   showing herniation of the cerebellar
tonsils, about 1.7 cm below the
foramen magnum, and a large syrinx
in the cervical spine.

B. Sagittal cervical spine T2-weighted
   MRI showing large syrinx, extending
   from C1 to C7.

C. Axial brain T1-weighted MRI
   showing no signs of enlarged
   ventricles/hydrocephalus.
Postoperative follow-up axial skull CT imaging of various levels (A-D), showing bilateral enlargement of the lateral ventricles, effacement of the sulci and a significant suboccipital CSF collection, consistent with PMC.
A, B, C. Follow-up axial skull CT imaging after VPS placement, showing unilateral resolution of the hydrocephalus on the right, VPS placement in the right lateral ventricle, effacement of the sulci and persistence of the suboccipital PMC.

D. Sagittal T2-weighted MRI showing improvement of the cervical syringomyelia and persistence of the PMC.
• This case report is the first to demonstrate a plausible cause for refractory post-craniecotomy PMC, associated with increased ICP.

• While implication of LIUDs as the cause for IIH and increased ICP is still a matter of debate, clinicians should be alert for that possibility.

• This case report cannot prove an association, but we show that discontinuation of the LIUD led to rapid resolution of the patient’s symptoms and refractory PMC collection.

• Further studies are needed to evaluate the causal relationship between LIUDs and increased ICP and physicians are advised to consider this scenario in their differential diagnosis.
Summary Points

- Discontinuation of a levonorgestrel-releasing intrauterine device lead to rapid improvement of persistent pseudomeningocele and intracranial hypertension after Chiari decompression.

- Further studies are needed to evaluate any potential causal relationship between LIUDs and intracranial hypertension.