Poster # 41545

Treatment Approach of Large Asymptomatic Congenital Choroid Plexus Cyst: Case Report

Roberto J Alcazar-Felix, B.S.\textsuperscript{1}; Jose Carlos Herrera, MD\textsuperscript{1}; Mariana Roman\textsuperscript{1}; Jose Figueroa, MD\textsuperscript{1,2}; Enrique Caro, MD\textsuperscript{1,2}

\textsuperscript{1}Tecnologico de Monterrey School of Medicine, Tecnologico de Monterrey University MSC, N.L., Mex.
\textsuperscript{2}Zambrano Hellion Hospital, Department of Neurosurgery, Monterrey, N.L. Mex.
Disclosure

The authors have neither conflicts of interest nor financial disclosures.
Introduction

- Choroid plexus cysts (CPCs) are incidentally found in 1% of routine mid-gestation ultrasounds.
- CPCs are typically less than 1cm in diameter, asymptomatic, benign, and usually resolve by 3rd trimester.
- Large CPCs (>10mm) can obstruct the Foramen of Monro and produce increased intracranial pressure; however, small studies suggest large CPCs are benign if asymptomatic.
- Lack of published information about long-term effects of isolated large CPCs, makes medical counseling challenging and increases parental anxiety.
- We present a case in which an asymptomatic persistent large CPC at 6 months old was fenestrated and marsupialized with neuronavigation-guided endoscopy with optimal neurological development at 18 months follow up post surgery.
Case Presentation

- At 32 weeks of gestational age (WGA), prenatal ultrasound detected dilation of the left lateral ventricle.
- One week after birth, magnetic resonance imaging (MRI) revealed a 19 X 24 X 28 mm CPC in the occipital horn of the left lateral ventricle.
- The patient remained asymptomatic and MRI follow-up was performed at 3 and 6 months old after which enlargement of the cyst was observed, but with no concomitant increase in cranial pressure.
- Due to neurodevelopmental concerns the child underwent neuronavigation-guided endoscopic fenestration and marsupialization of the cyst.
MR images at 7 days old demonstrate a $19 \times 24 \times 28$ mm cystic lesion that originates from the occipital horn of the left lateral ventricle. (A) MRI-axial T2 pulse sequence. (B) MRI-axial T1 pulse sequence. (C) MRI-sagittal T1 pulse sequence.
Preoperative MR images at 6 months old demonstrate persistence and progression of ventriculomegaly in the occipital horn of the left lateral ventricle. (A) MRI-axial T2 pulse sequence. (B) MRI-axial T1 pulse sequence. (C) MRI-sagittal T1 pulse sequence. (D) Neuronavigation-guided endoscopic fenestration and marsupialization of the cyst.
Postoperative MR images at 7 months old demonstrate decreased left lateral ventricle. (A) MRI-axial T2 pulse sequence. (B) MRI-axial T1 pulse sequence. (C) MRI-sagittal T1 pulse sequence. Normal neurodevelopment at 18 months follow-up post surgery.
Discussion

- The choroid plexus develops at 6 WGA and produces cerebrospinal fluid (CSF) leading to expansion of the ventricular system by 9 WGA.
- Entanglement of rapidly growing choroidal villi can result in cyst formation which typically resolves by 32 WGA as the loose supporting stroma decreases with growth of the fetus.
- Differential diagnosis of intraventricular cysts includes colloid cyst, ependymal cysts, arachnoid cysts, Rathke cyst, cysticercosis, and histiocytosis X.
- CPCs > 10 mm, bilateral or irregular or maternal age >32 years are associated with trisomy 18 or 21.
- Ultrasound signs of aneuploidy must be ruled out after discovery of CPCs.
- Normal findings do not justify genetic amniocentesis.
CPCs have not been shown to impact neurodevelopment.
88% of normal newborns have resolution of congenital CPCs at 6 months of age.
Symptomatic CPCs in newborn are usually from 15 to 90 mm in diameter.
Large cysts carry a potential risk of causing hydrocephalus by obstruction of the foramen of Monro.
In our case, due to the size of the cyst (19 X 24 X 28 mm), its persistence at 6 months of age, and parental anxiety, surgery was performed.
Conclusion

- The optimal management of asymptomatic large congenital CPC remains unsettled due to the infrequency of these findings.
- Endoscopic fenestration should be considered as the first surgical procedure in order to preserve normal CSF flow.
- In our case, after 18 months follow-up post surgery, the patient has an excellent neurological development and control MRI shows ectasia of the left occipital horn with no recurrence of the CPC.
- Large-scale follow-up studies are necessary to determine the natural course of large CPCs detected at the neonatal age.