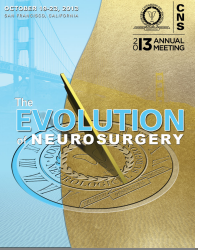


# Use of the NICO Myriad Device for the Treatment of Loculated Hydrocephalus in Children

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## Introduction

Loculated hydrocephalus occurs when discrete fluid-filled compartments form in relation to the ventricles. Treatment options include microsurgical fenestration, endoscopic third ventriculostomy, septostomy, endoscopic fenestration, use of multi-catheter shunt systems and others. The NICO Myriad device can be used in the treatment of complicated hydrocephalus. The device combines variable aspiration and mechanical cutting, allowing for fenestrations of adhesions present in multi-loculated hydrocephalus.

## Methods

We retrospectively reviewed the charts of children undergoing endoscopic approaches to multi-loculated hydrocephalus. We sought to identify those children who underwent NICO Myriad-assisted surgical approach and assess outcomes.

## Results

From 2006 to 2012, 54 children underwent a total of 74 endoscopic-assisted procedures for management of loculated hydrocephalus at Children's Hospital of Pittsburgh. Of this cohort, we identified two children who underwent NICO Myriad-assisted surgical intervention. The first child is an 11yo female with hydrocephalus secondary to germinal matrix hemorrhage with a complex shunt system. She presented in shunt failure; shunt dye studies revealed multiloculated hydrocephalus with many compartments. She underwent wide fenestration of her cystic compartments via endoscopic-assisted use of NICO Myriad and replacement of 2 ventricular catheters. She is 2-years post-fenestration without recurrence of decompensated hydrocephalus. The second child is a 17yo female with hydrocephalus secondary to a tectal glioma and resultant aqueductal stenosis. Endoscopic evaluation of her ventricular system revealed dense arachnoid membranes. The NICO Myriad was used to fenestrate the adhesions and to enlarge the ostomy in the floor of the third ventricle. The patient is now one year post-surgery without recurrence of hydrocephalus.

## Conclusions

We present a novel endoscopic approach to the treatment of surgically complex multi-loculated hydrocephalus utilizing the NICO Myriad system, not previously described. When used in an endoscopic-assisted approach to this difficult hydrocephalus clinical picture, this tool may safely and effectively augment treatment.

## Learning Objectives

At the conclusion of this presentation, participants should recognize the potential utility of the NICO Myriad device as a tool to augment the surgical approach to loculated hydrocephalus