

Endoscopic management of fourth ventricle neurocysticercosis: case series of four cases and description of technique

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- Neurocysticercosis is caused by larval stage of parasite *Teanea Solium*
- Around 7-33% of cases of Neurocysticercosis (NCC) have intraventricular involvement
- Fourth ventricle is the most frequent site.

Introduction

- Presentation-
 - Hydrocephalus, intermittent/ acute
 - Mass effect- aqueduct syndrome
- Treatment
 - Medical
 - Surgical
 - Open posterior approaches
 - Endoscopic assisted microsurgical approaches
 - Pure endoscopic approaches

- Pure Endoscopic approaches
 - Scope in scope / Mother and baby approach
 - Rigid endoscope + flexible endoscope
- Anandh B, Mohanty A, Sampath S, Praharaj SS, Kolluri S : Endoscopic approach to intraventricular cysticercal lesions. **Minim Invasive Neurosurg** **44** : 194-196, 2001
- Suri A, Goel RK, Ahmad FU, Vellimana AK, Sharma BS, Mahapatra AK : Endoscopic excision of intraventricular neurocysticercosis in children : a series of six cases and review. **Childs Nerv Syst** **24** : 281-285, 2008
- Suri A, Goel RK, Ahmad FU, Vellimana AK, Sharma BS, Mahapatra AK : Transventricular, transaqueductal scope-in-scope endoscopic excision of fourth ventricular neurocysticercosis : a series of 13 cases and a review. **J Neurosurg Pediatr** **1** : 35-39, 2008

- **Pure Endoscopic approaches**
 - Rigid endoscope + Catheter
- **Zymberg ST, Paiva Neto MA, Gorgulho AA, Cavalheiro S: Endoscopic approach to fourth ventricle cysticercosis. Arq Neuropsiquiatr 61:204–207, 2003.**
- **Husain M, Rastogi M, Jha DK, Husain N, Gupta RK : Endoscopic transaqueductal removal of fourth ventricular neurocysticercosis with an angiographic catheter. Neurosurgery 60 (4 Suppl 2) : 249-253; discussion 254, 2007**

Material and methods

- In this case series (during Jan 2016 to March 2017)
- We treated four patients of fourth ventricular NCC
 - Inclusion criteria
 - Isolated 4th ventricular NCC with HCP
 - With dilated Foramen of monro and aqueduct &
 - Without ependymitis
 - We used modified technique of endoscopic transfrontal transforaminal transaqueductal approach for cyst removal combined with ETV
 - All pts. received Post op Albendazole therapy for 3 weeks

Material and methods

Technique:

- We used rigid endoscope system and 6 French infant feeding tube (IFT) catheter.
- IFT was passed through main channel and cyst was engaged at the tip by applying slow suction with 10 cc syringe and cyst was removed along with the endoscopic outer sheath.

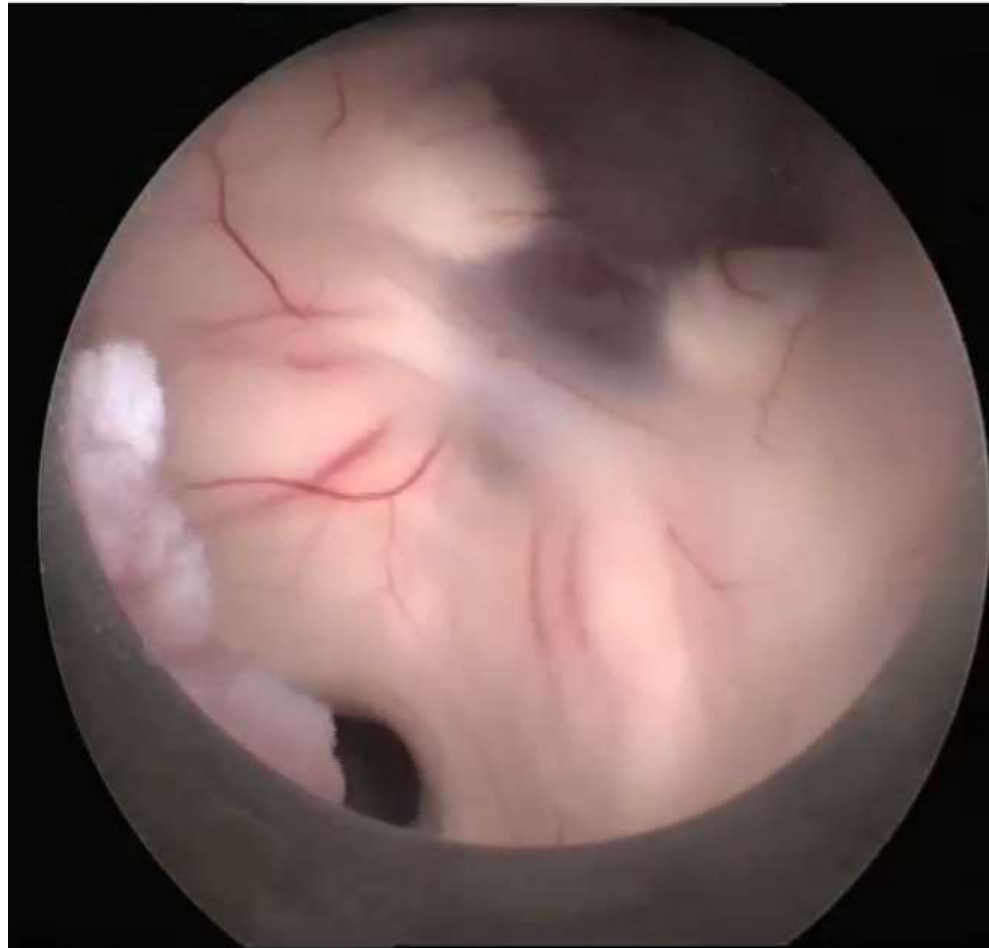


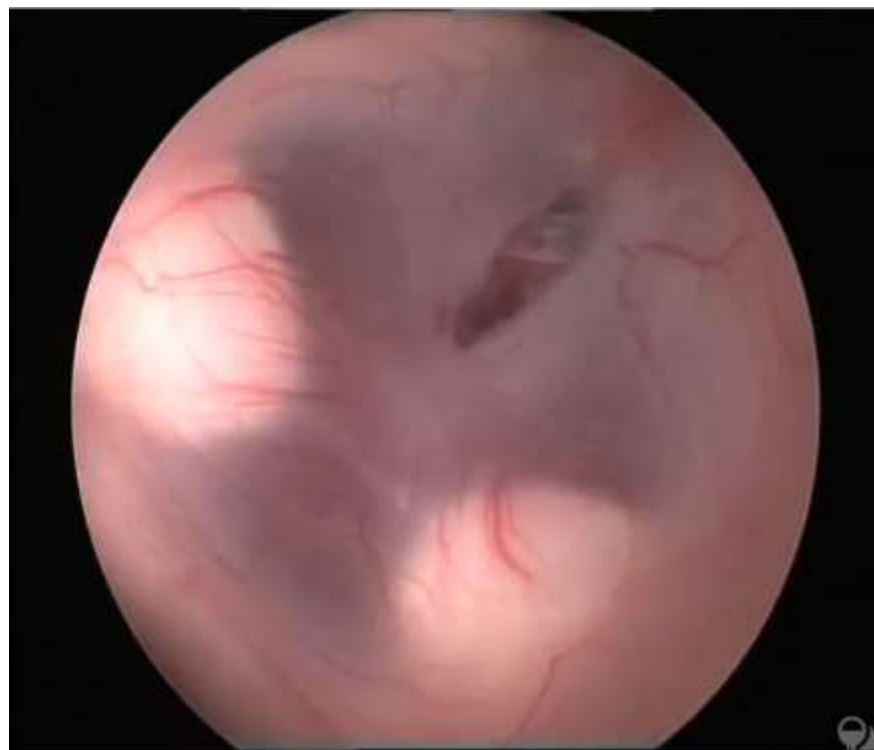
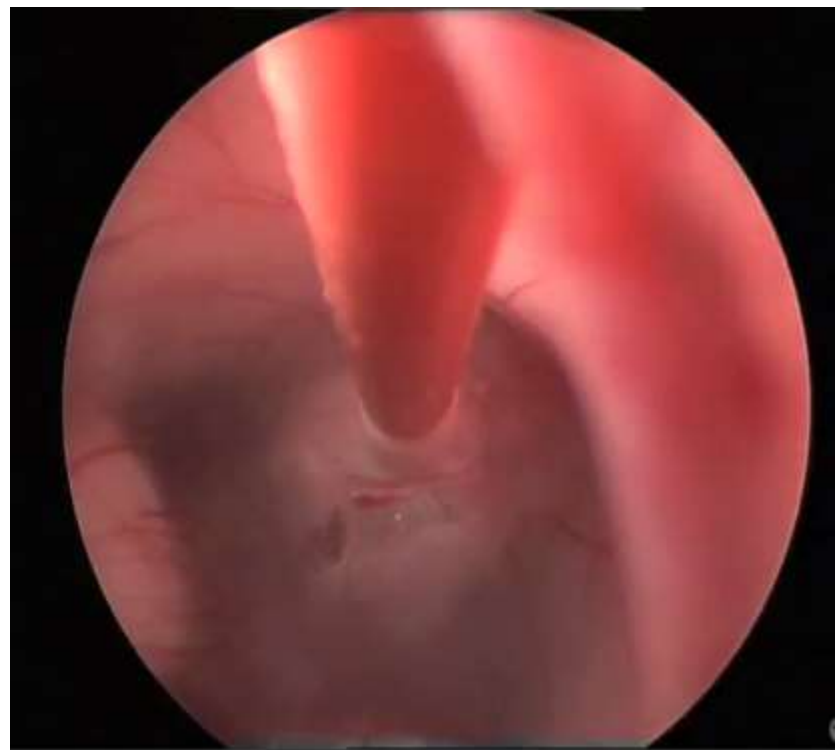
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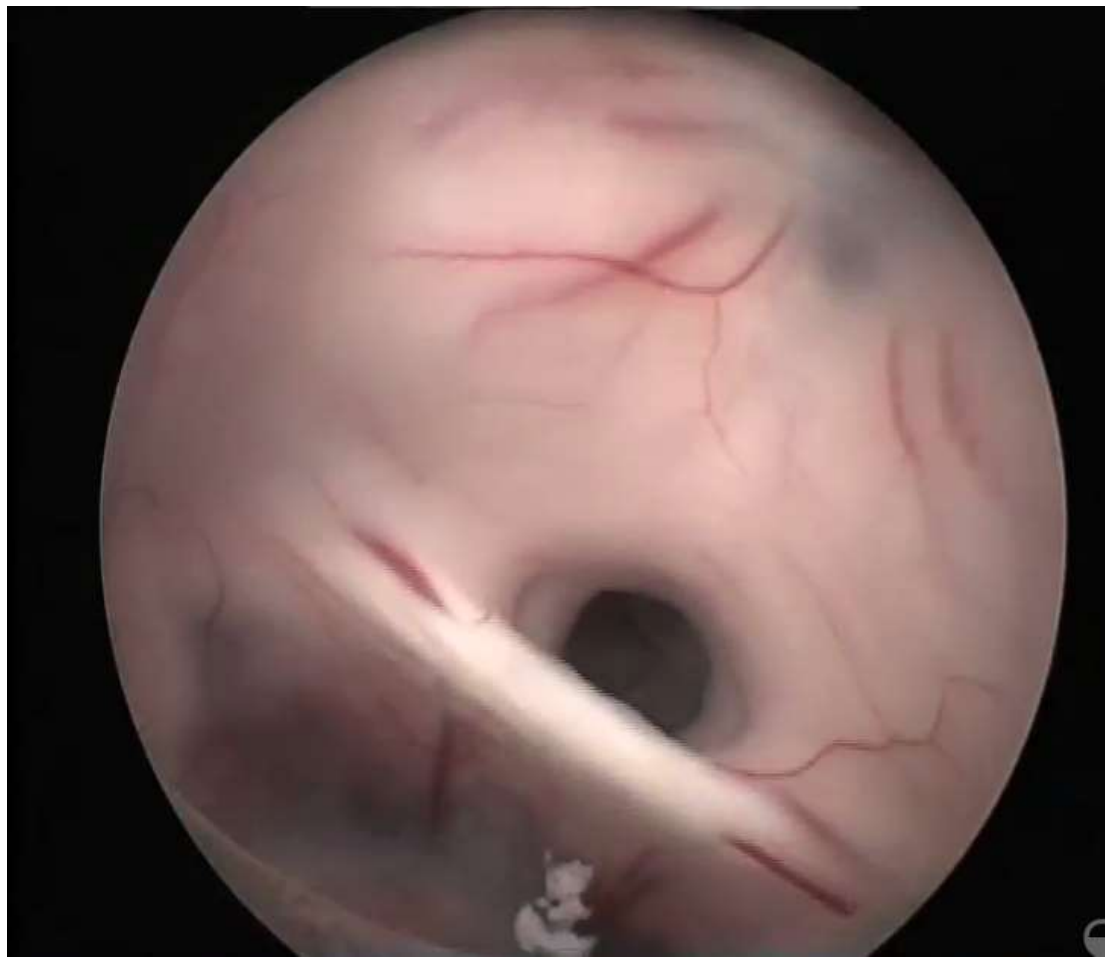


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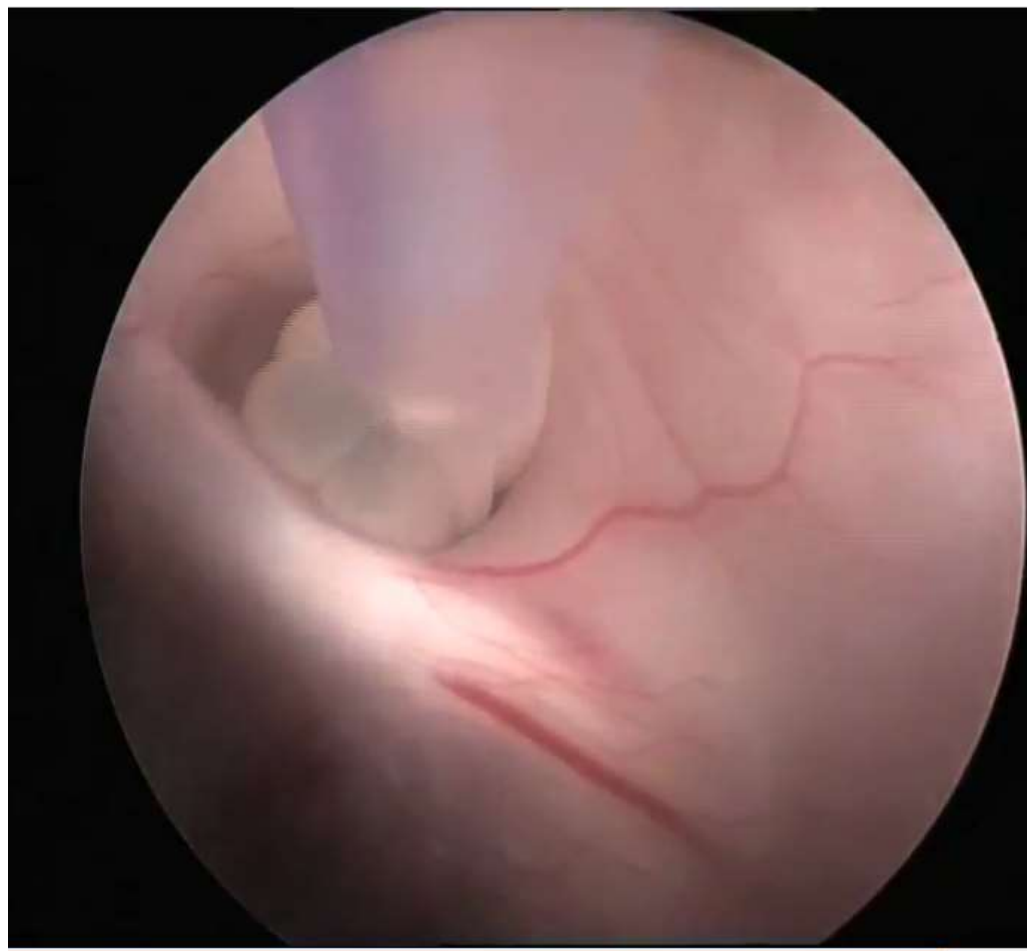


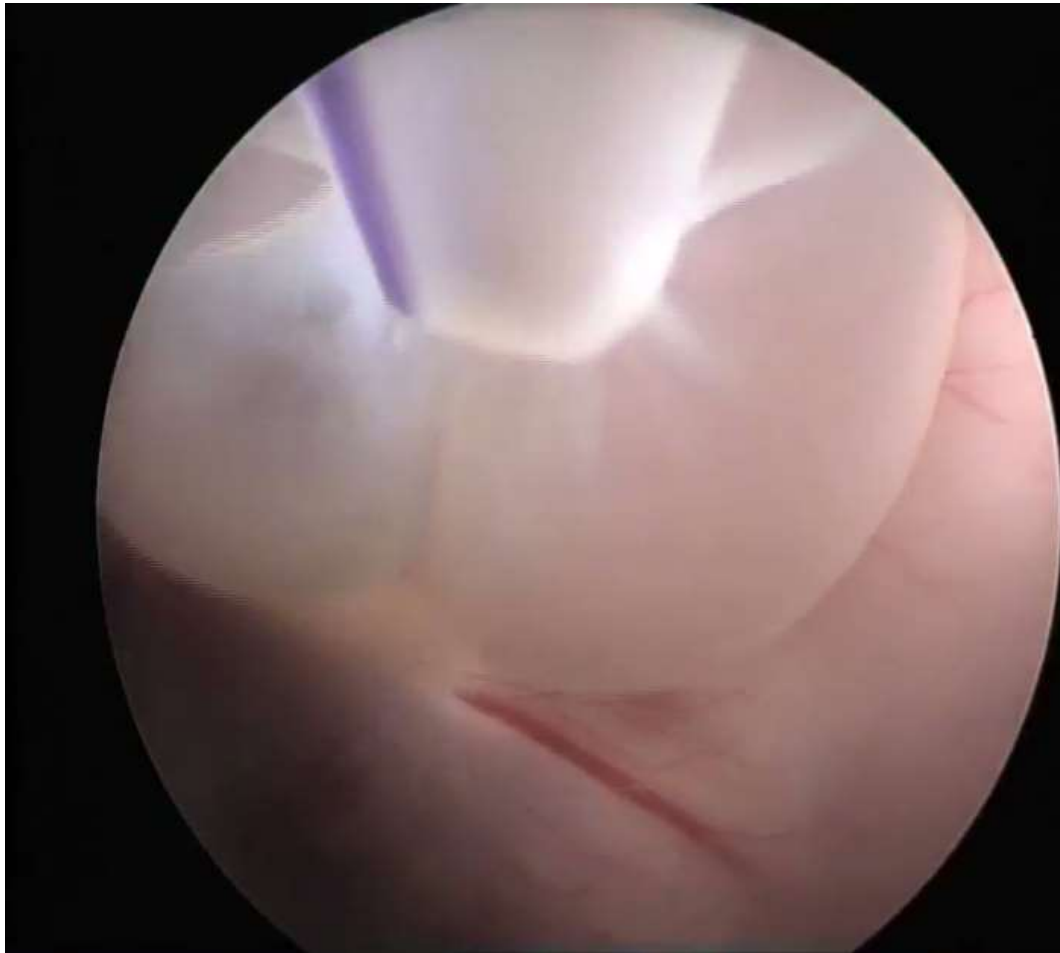


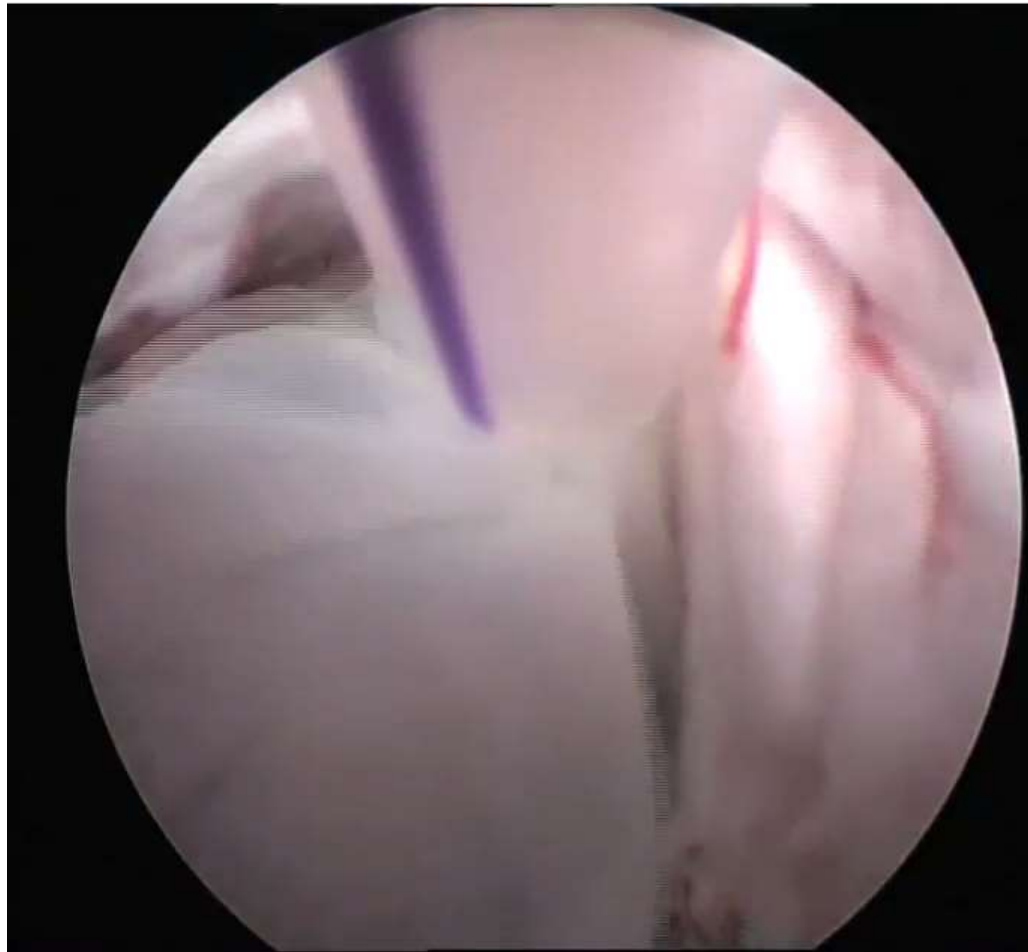


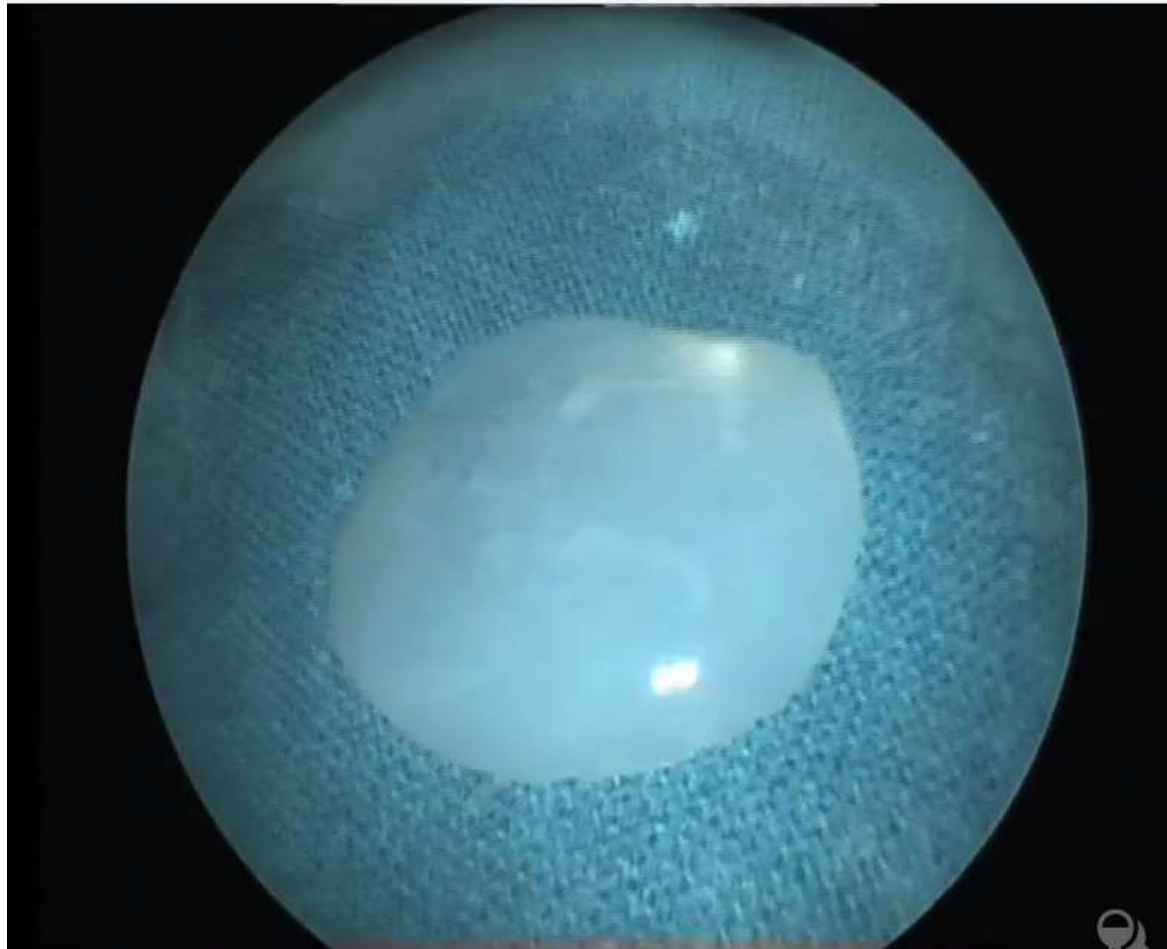








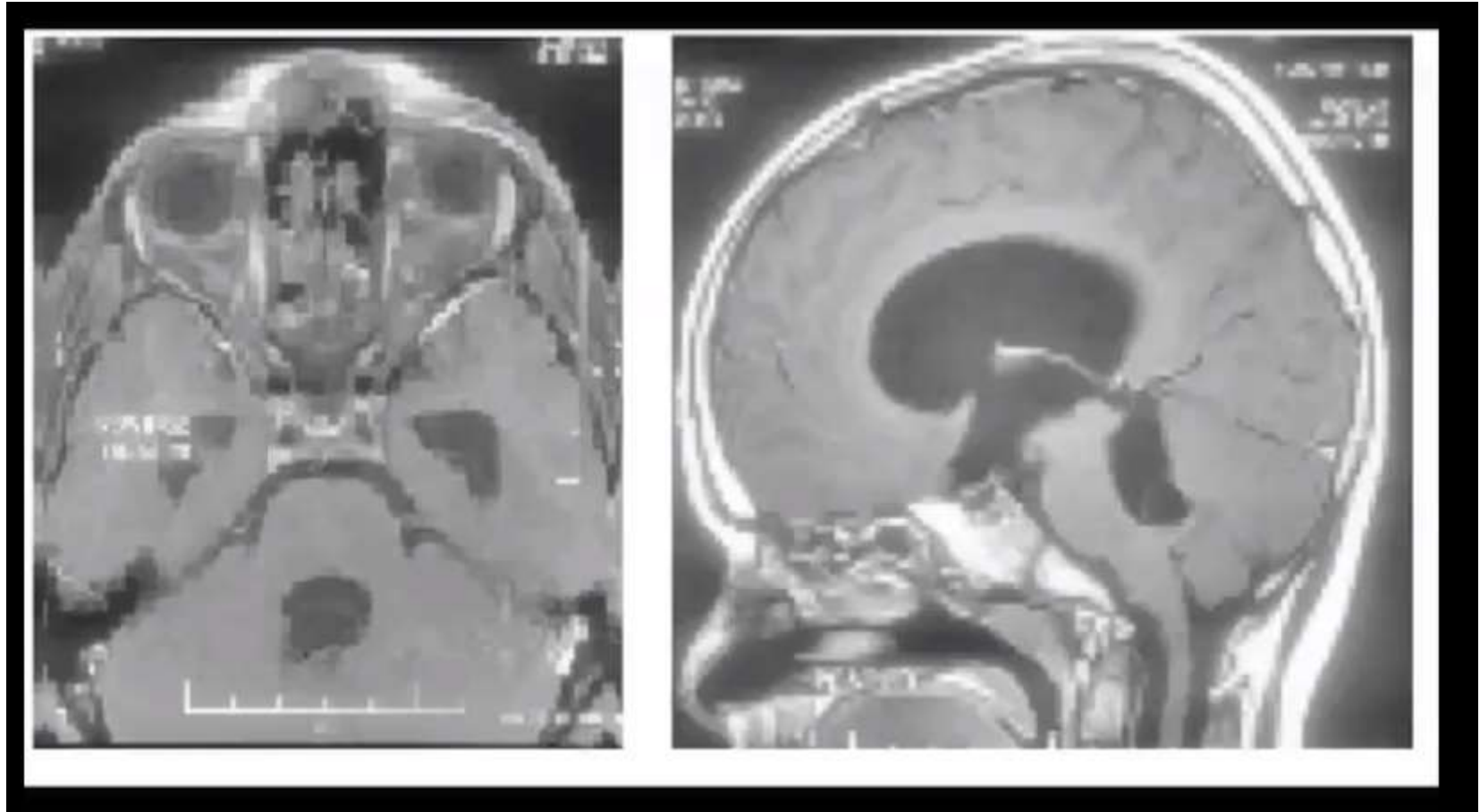




Result

- Four patients (3 male, 1 females; mean age 18 yr, range 11-27 yr) were enrolled.
- Presentation
 - Headache in all patients.
 - 2 patients had episodes of drop attacks and
 - one had upgaze palsy.
 - Symptoms were ranged from 3 month to 3 yr.
- MRI- All patients had isolated 4th ventricular NCC with obstructive hydrocephalus and without ependymitis.
- Complete removal of neurocysticercal cyst could be performed in all patients with ETV. There was no intraoperative rupture.
- On follow up all the patients had relief of symptoms and imaging showed no cyst and hydrocephalus.

Case 1

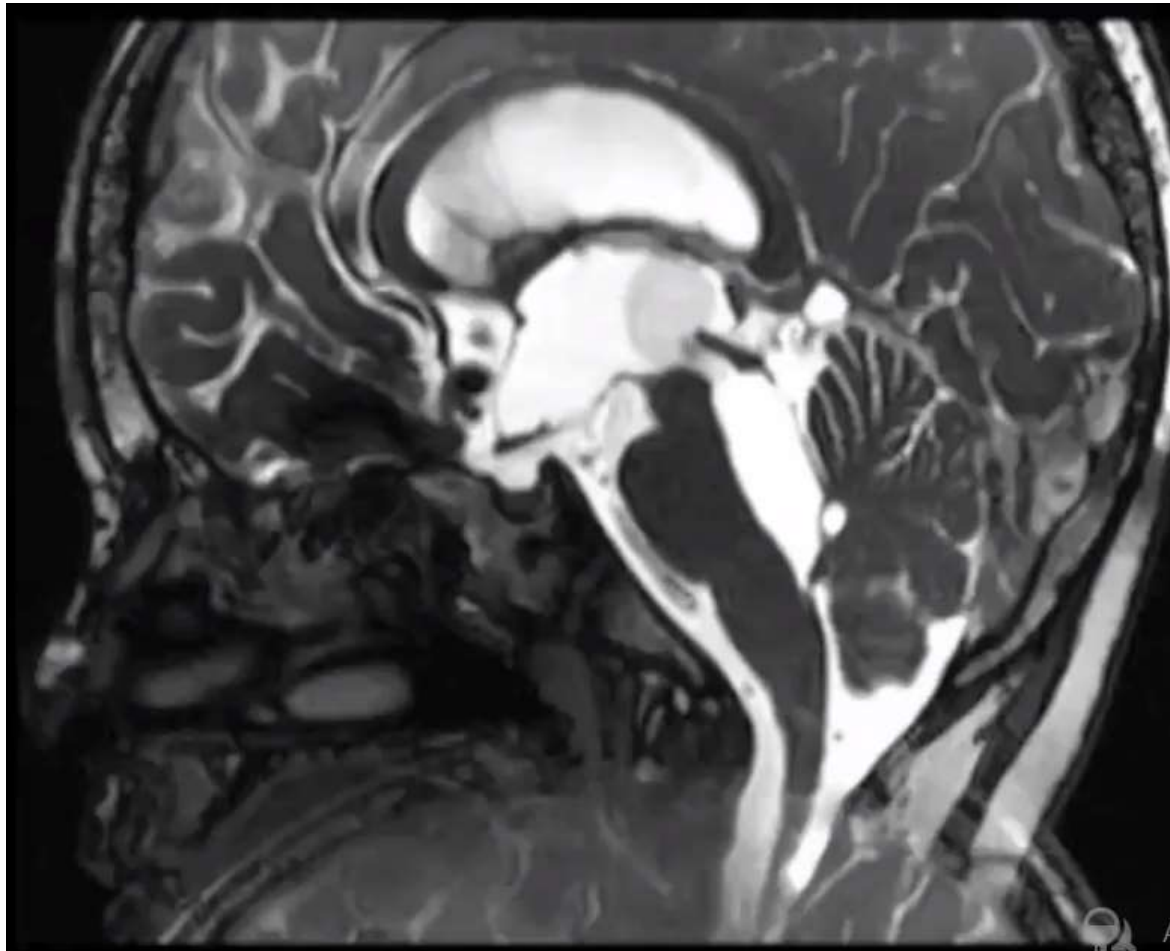


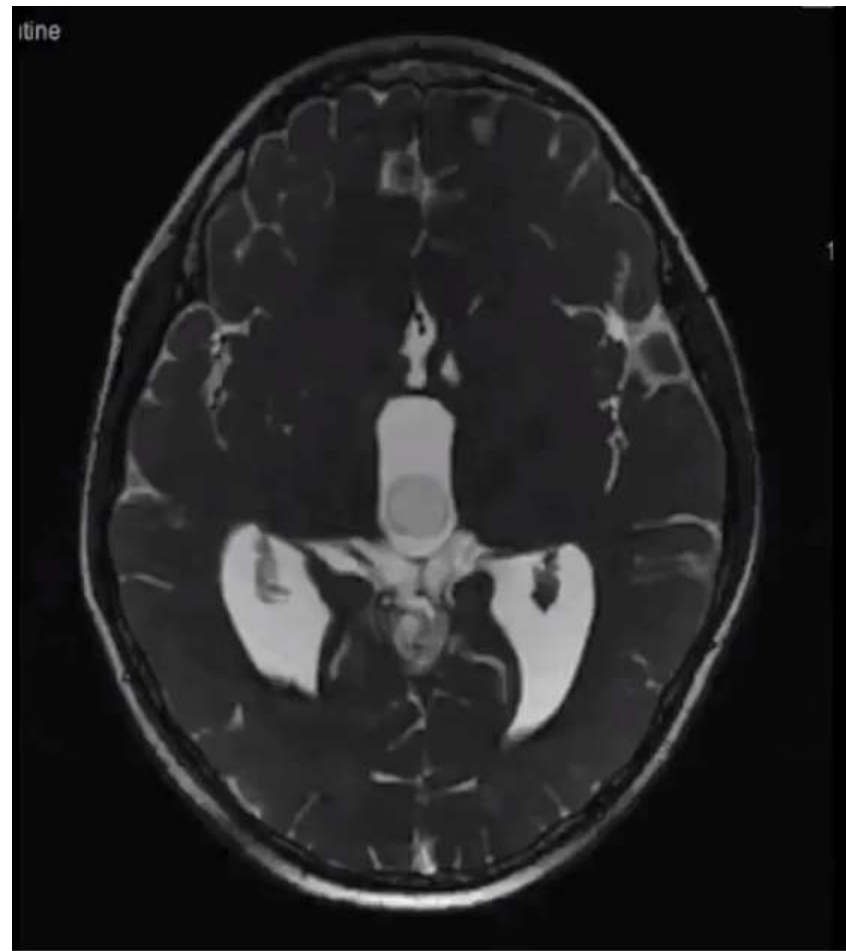


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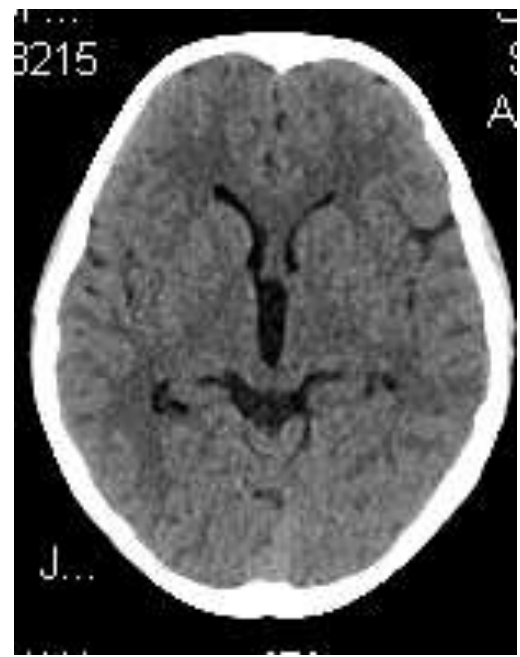
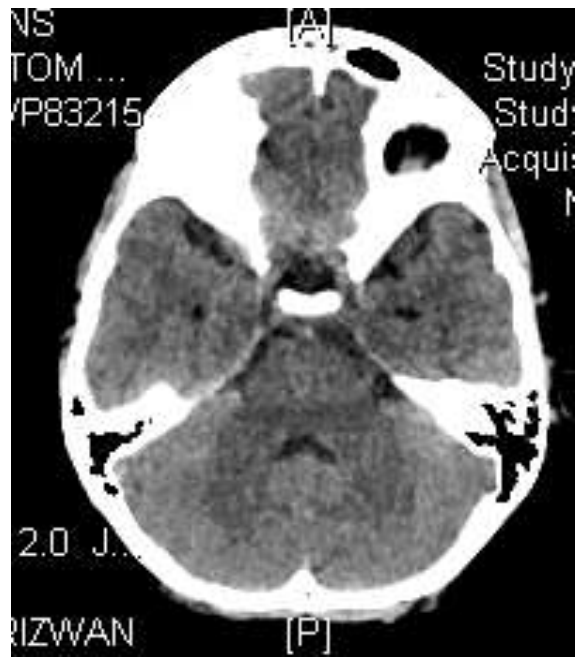




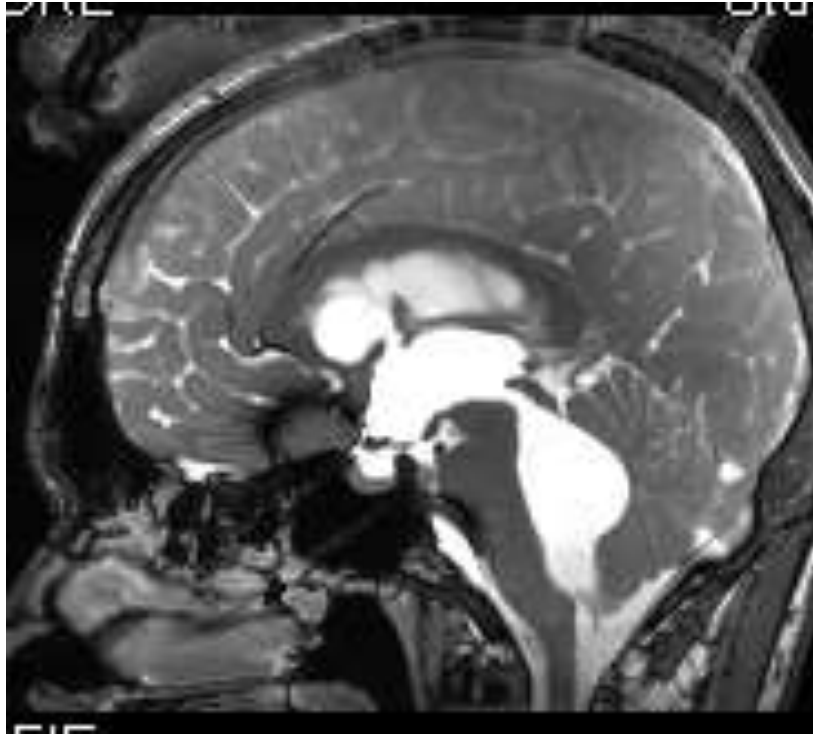
20/01/2016
Sonu Kumar 11yr/M
Intraventricular NCC

Prof. B.S. Sharma
Dr. Dattaraj

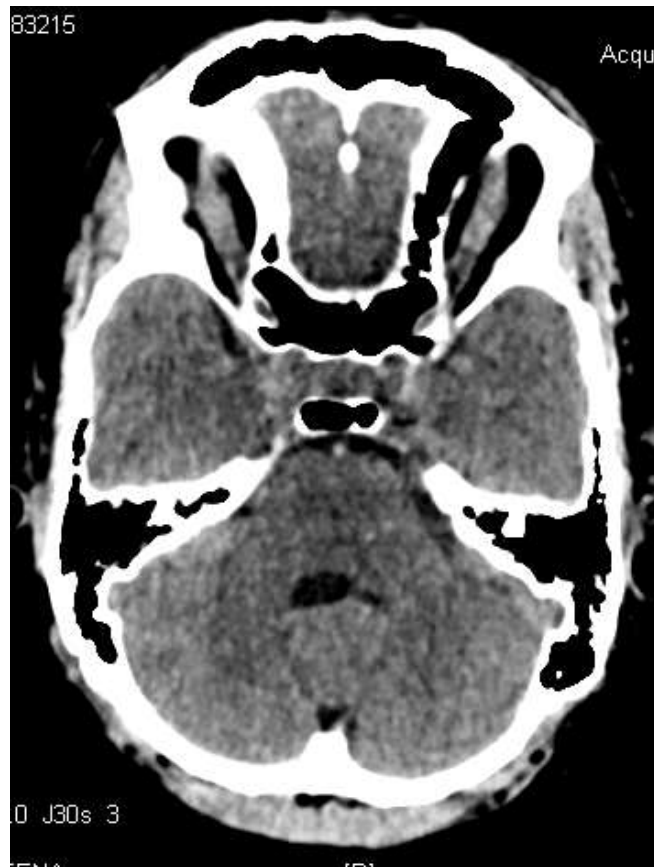
Follow up scan



Case 2



Follow up scan



Conclusion: We conclude that endoscopic approach using rigid endoscope and 6F IFT catheter

- Safe, simple and effective
- Allow minimally invasive removal of the fourth ventricle cyst and treatment of hydrocephalus without any morbidity in selected patients of
 - Isolated 4th ventricular NCC with HCP
 - With dilated Foramen of monro and aqueduct &
 - Without ependymitis



Thank you