

Endoscopic Treatment of CSF Pathways Obstructions in Ventricular Tumors Piero Andrea Oppido MD, PhD; Fabio Cattani; Veronica Villani MD Neurosurgery Dpt., national Cancer Institute Regina Elena



# Introduction

Neuroendoscopy is presently considered a scarcely invasive surgical approach to expanding lesions bulging into the ventricle, as a relevant tool to perform bioptic procedures, discontinuation of cystic walls or tumor removal in selected cases. Furthermore, the diffusion of neuroimaging and the accurate follow-up of brain tumor patients have more frequently allowed documenting tumoral and pseudo-tumoral cystic areas causing the obstruction of cerebrospinal fluid (CSF) pathways. Neuroendoscopic procedures enable fenestration of cystic lesions, in addition with third ventriculostomy or septostomy to restore CSF pathways

# Methods

We analyse our experience regarding in 77 patients affected by brain tumors arising by the wall of the third or lateral ventricle. In all cases hydrocephalus or obstruction of CSF flow was present. By endoscopic technique septostomy, cistostomy, third ventriculostomy (ETV) and tumor resection were performed to control intracranial hypertension.

Histopathological diagnosis		
Diagnosis	No of Patients	_
Glioma low grade	9	
Glioma high grade	13	
Tectal Glioma	4	
Malignant teratoma	2	
Colloid Cyst	5	
Radionecrosis	7	
Craniopharyng ioma	7	
PNET	5	
Lymphoma	4	
Metastases	9	
Leptomeningeal Metastases	5	
Epidermoid Cyst	2	
Non specific Tumour	5	

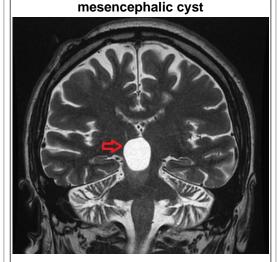
# Results

In 53 patients with noncommunicating hydrocephalus the ETV was performed. In 4 LG astrocytoma the ETV was the only surgical treatment, definitely. In 12 cystic tumors cystostomy and marsupialisation into the ventricle solved a relevant mass effect with clinical intracranial hypertension syndrome. In 10 patients neuroendoscopic relief of CSF pathways by septostomy with implant of Ommaya reservoir or one catheter shunt was possible. In 5 colloid cysts and 2 cystic craniopharyngiomas removal was possible, by restoring CSF flow without other procedures. After intracranial hypertension control, in 13 malignant gliomas and 6 leptomeningeal metastases the quality of life improved to provide for tumor adjuvant therapy.

### Conclusions

In this series the endoscopy, due to its mininvasive characteristics and reduced complicances, was found to be safe and effective without any relevant post-operative morbidity, by avoiding major surgical approaches.Based on these results,the endoscopic techniques should be considered a selected approach to treat CSF obstructions by paraintraventricular tumors. The result is a reconstruction of CSF pathways by passing the tumor occlusion This surgical procedure is not limited to relief of non-communicating hydrocephalus,

Sylvius aqueduct subocclusion by



preop. MRI: the red arrow show the cyst



#### flexible endoscopic view

but also it is useful for tumor removal or biopsies and evacuation of cystic lesions. In patients affected by malignant tumors, neuroendoscopy can be performed to control intracranial hypertension before starting adjuvant chemotherapy or radiotherapy.



cyst marsupalisation by laser

3 m. postop MRI the cyst reduction



Learning Objectives CSF obstructions in ventricular tumors can be treated safely by neuroendoscopic procedures, even in patients with intracranial hypertension. After the ICP control, a correct treatment can be planned

### References

14.Oppido PA, Fiorindi A, Benvenuti L, Cattani F, Cipri S, Gangemi M, Godano U, Longatti P, Mascari C, Morace E, Tosatto L. (2011) Neuroendoscopic biopsy of ventricular tumors: a multicentric experience. Neurosurg Focus. 30(4):E2 (DOI : 10.3171/2011.1.FOCUS10326)