

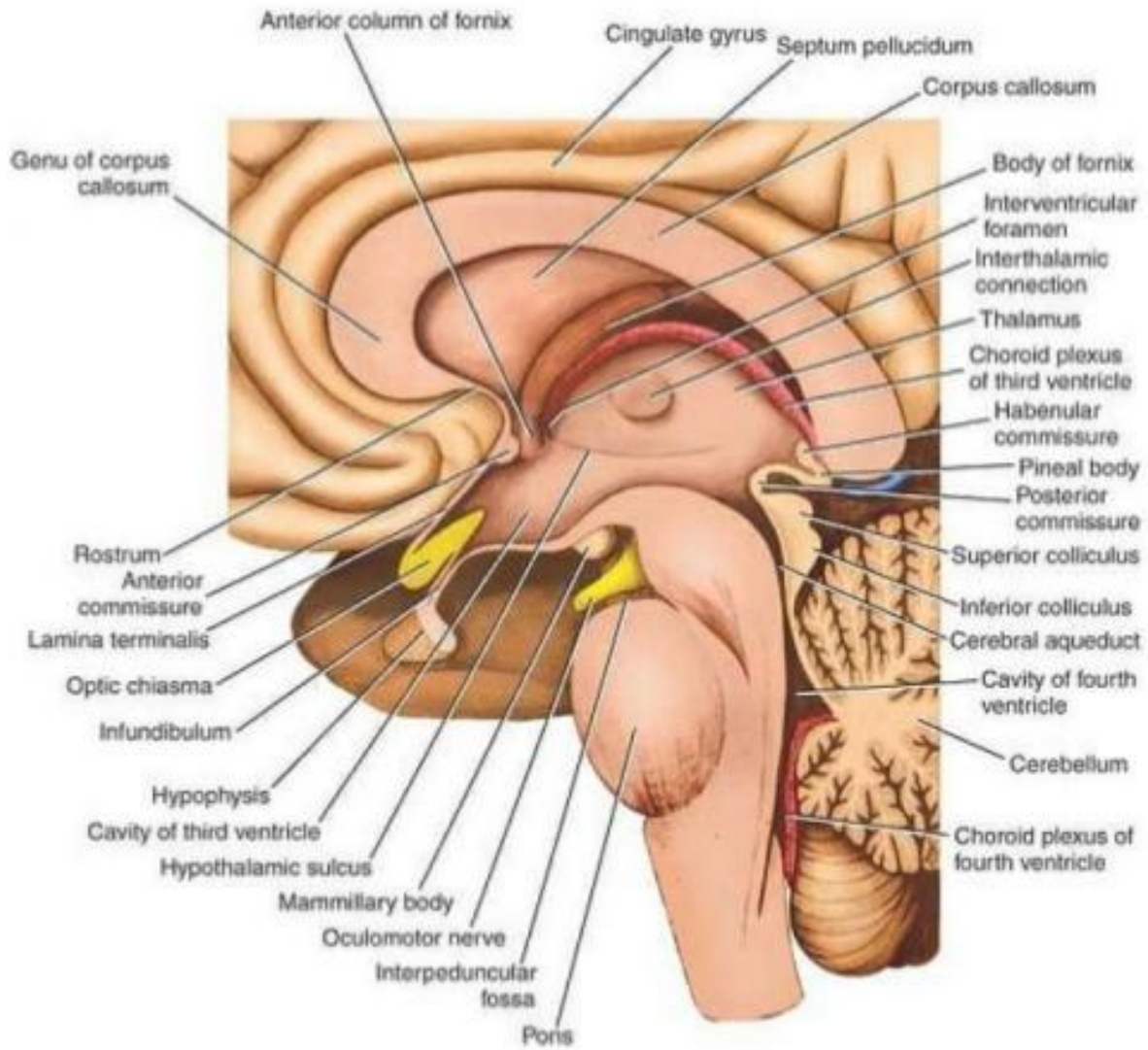
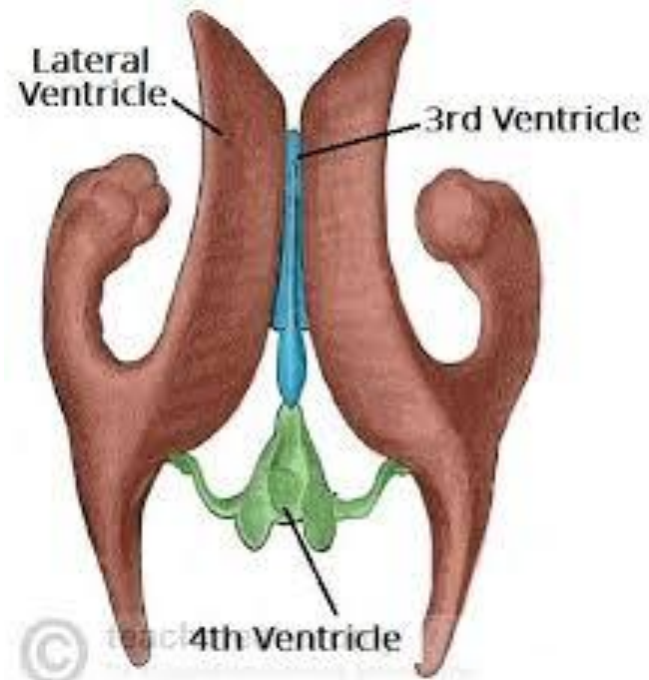
THIRD VENTRICLE APPROACHES

DR.LE TRON VUONG
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□ PURPOSE

- ✓ Anatomy
- ✓ Tumor
- ✓ Approachs
- ✓ Transcallosal
 - Advantages
 - Disadvantages
 - Complication
 - Result
 - prognose

❖ ANATOMY



❖ Clinical tumor

❑ Intracranial hypertension

Headache

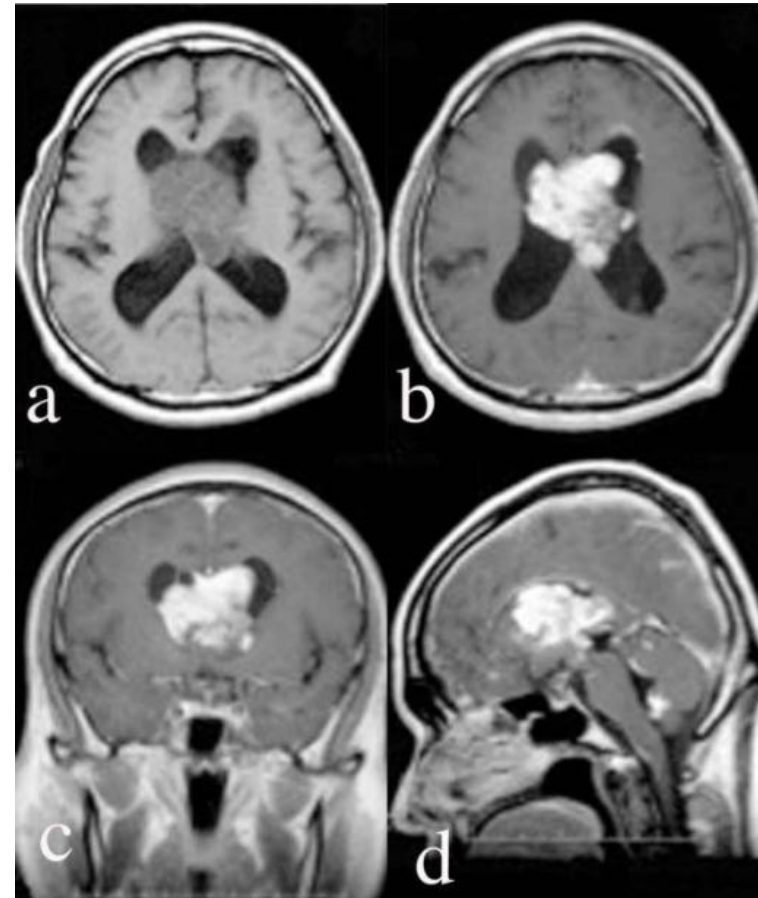
Vomiting

Papilloedema

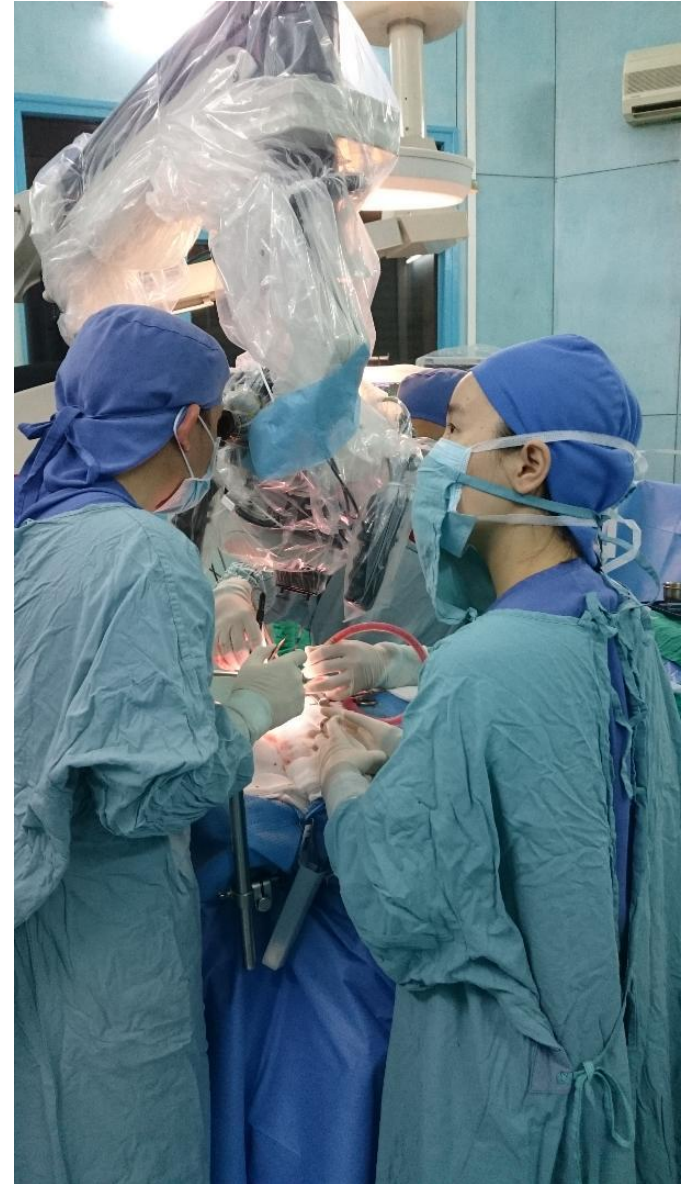
❑ Bulging fontanell

❑ Ophthalmologic signs

❑ Endocrine disorders



□ Microsurgery

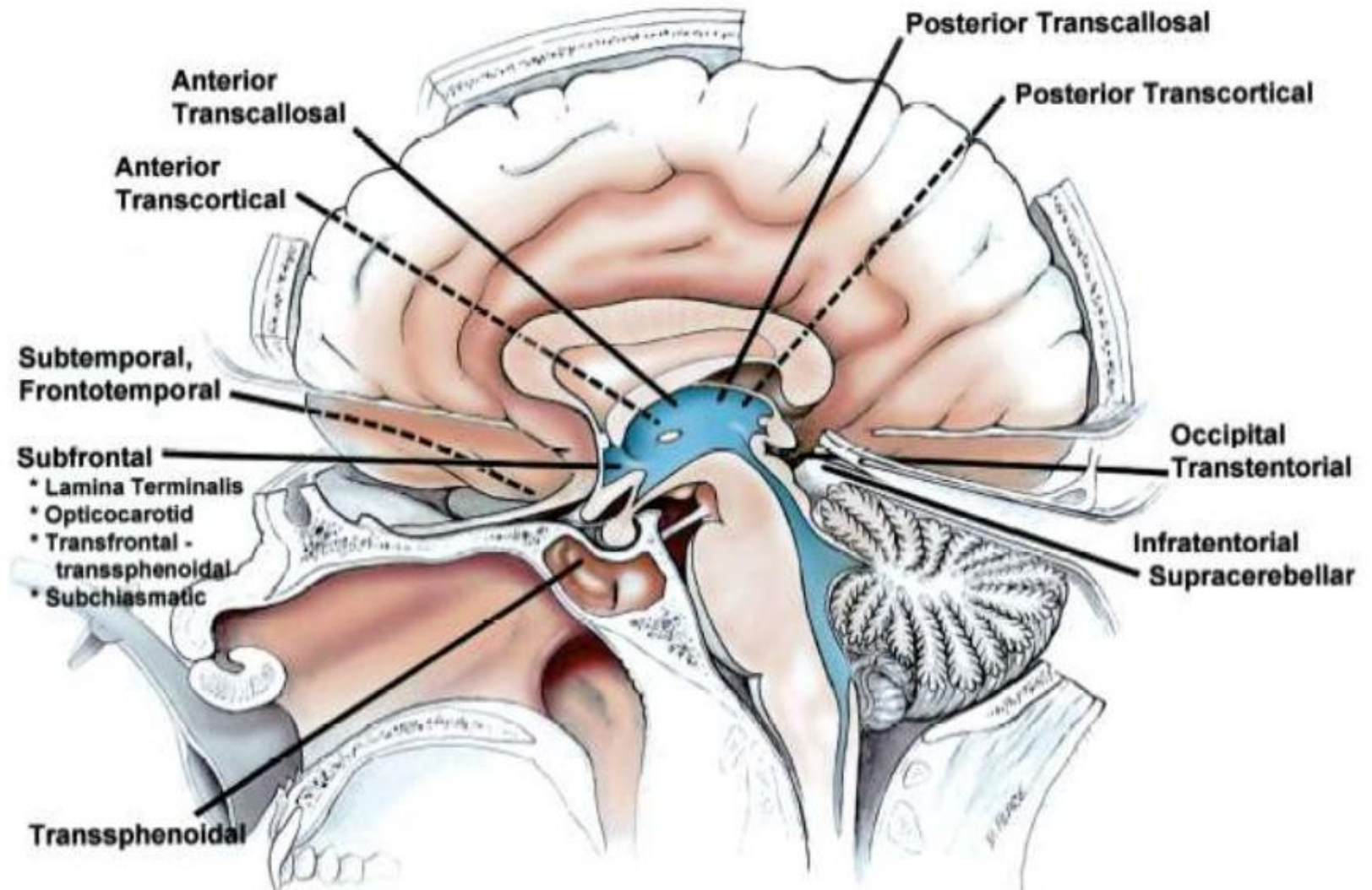


□ Microsurgery

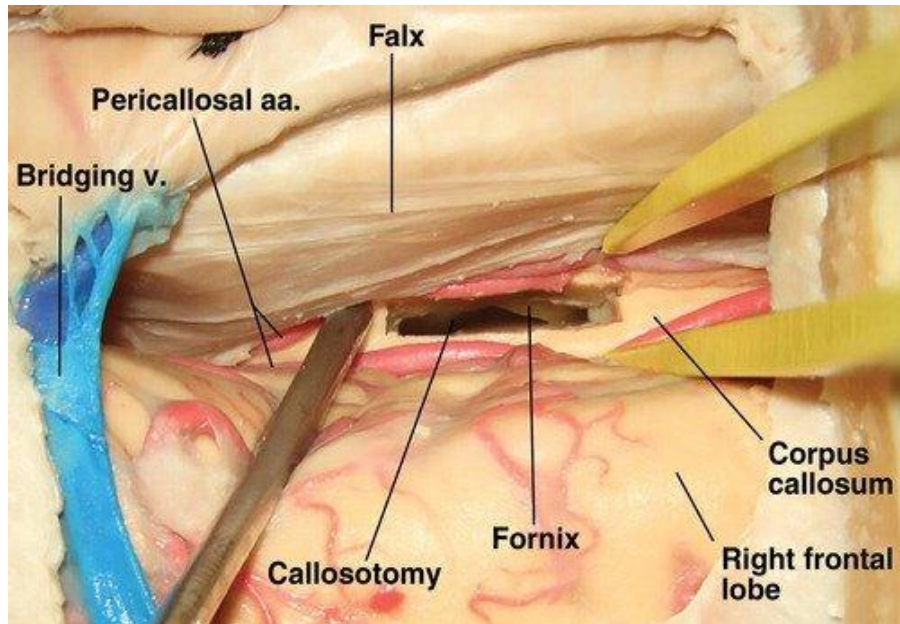
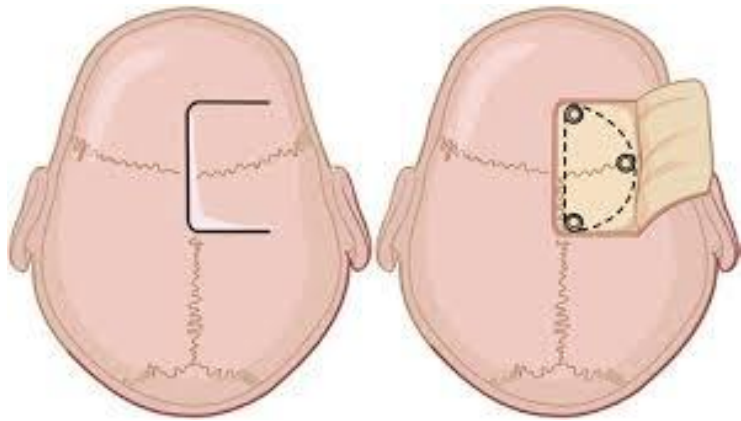
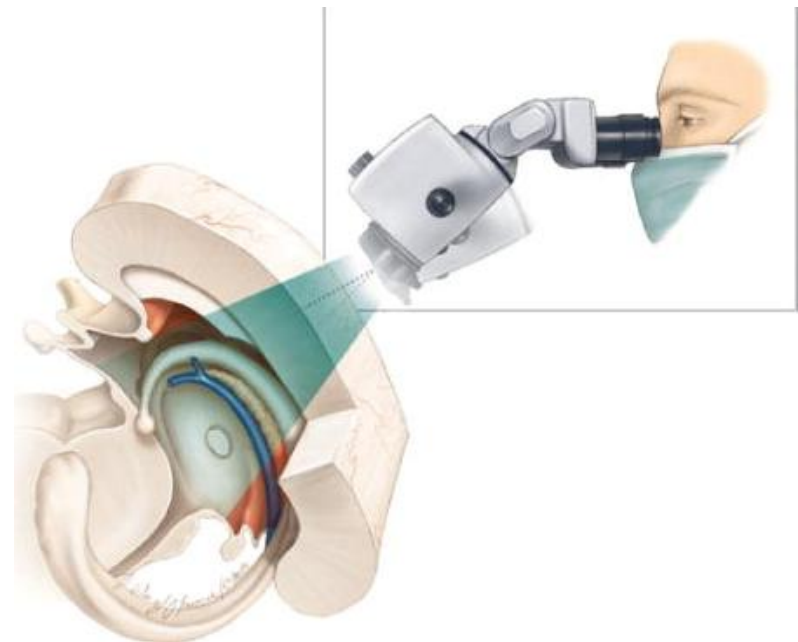
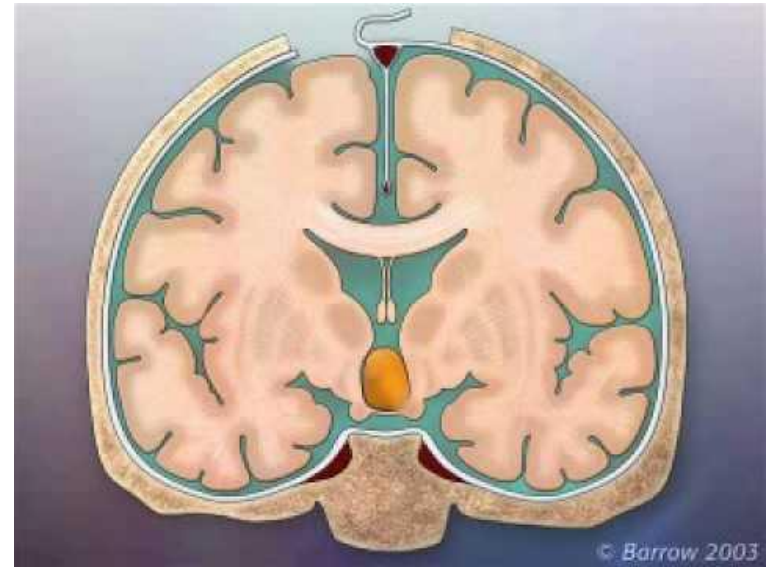
□ Choise of approach:

- ✓ Goal
- ✓ Size
- ✓ Location
- ✓ Around structures
- ✓ Experience

THIRD VENTICLE-APPROACHES



□ Transcallosal



ARTICLE

Technical strategies for the transcallosal transforaminal approach to third ventricle tumors: expanding the operative corridor
Clinical article

Prayash Patel, M.D.¹, Aaron A. Cohen-Gadol, M.D., M.Sc.², Frederick Boop, M.D.^{1,3,5}, and Pat ... Show all

TABLE 2:

Complications by category

Category (total)	Complications (no.)
CSF-related (6)	CSF wound leak (1); pseudomeningocele (2); new shunt (2); shunt revision (1)
neuroendocrine (5)	temporary diabetes insipidus (2); hypothyroidism (1); panhypopituitarism (2)
vascular (3)	stroke (2); hemorrhage (1)
wound	none
approach-related (1)	forniceal injury (1)
non-neurological (2)	GI hemorrhage (1); DVT (1)

Results

Presentation

Twelve patients met our study criteria (Table 1). There were 5 female patients (42%) and 7 male patients (58%) with a mean age of 9 years (range 2–19 years). Nine patients (75%) were Caucasian, 2 (17%) were African American, and 1 (8%) was of Asian descent. The mean follow-up duration for patients was 16 months (range 6–34 months).

[Click to view table](#)

TABLE 1:

Summary of 12 patients who underwent the expanded transforaminal approach to the third ventricle*

Most patients presented with symptoms of raised intracranial pressure, specifically headaches with or without emesis but with normal mentation (n = 7, 58%) and lethargy with a history of headaches (n = 5, 42%). Nine patients (75%) had acute hydrocephalus at presentation; 4 (33%) of these patients required placement of an emergency external ventricular drain (EVD). Of the remaining 3 patients who were not found to have acute hydrocephalus at presentation, 2 had existing ventriculoperitoneal shunts. Two patients with large midbrain tumors filling the third ventricle had bilateral oculomotor nerve palsies on presentation.

□ Patient: 12

Mean age: 9ys

Mean follow-up: 16ms

• Gross-total : 02

• Return: 1

❖ Neuroendocrine: 5

❖ Forniceal injury: 2

❖ Stroke: 2

❖ Hemorrhage: 1

❖ Oculomotor palsies: 2

ARTICLE

Transcallosal interforniceal approach to pineal region tumors in 150 children

Clinical article

Wenqing Jia, M.D.¹, Zhenyu Ma, M.D.¹, Isabelle Yisha Liu, M.D.², Yuqi Zhang, M.D.¹, Ge Jia, M.D.¹ ... Show all

Results

In 150 patients, 129 tumors were totally removed, 15 were subtotally removed, and 6 were partly removed (Figs. 5 and 6). There were no deaths and no instances of disconnection syndrome. Short-term memory deficits appeared in 94 patients, but these deficits resolved within 6 months in most of the patients, and persistent deficits remained in only a few. There were 2 patients with mutism that resolved within 10 days. Parinaud syndrome was observed in 45 patients after surgery; 21 of these cases were apparent preoperatively. The syndrome resolved within 6 months in 31 patients, while it remained in the other 14.

☐ 150 case

❖ Total : 129

❖ Subtotal: 15

❖ Partial: 6

❖ Death: 0

❖ Disconnection syndrome: 0

❖ Short-term memory deficits: 94, resolved within 6 months

❖ Mutism: 2, resolved within 10 days

❖ Parinaud syndrome: 45, resolved within 6 months in 31

Retractorless surgery for third ventricle tumor resection through the transcallosal approach.

Wang X¹, Liu YH², Mao Q².

Author information

- 1 Department of Neurosurgery, West China Hospital of Sichuan University, China. Electronic address: wangxiangtim@gmail.com.
- 2 Department of Neurosurgery, West China Hospital of Sichuan University, China.

RESULTS: Thirty-one tumors were located in the anterior, middle, and posterior of the third ventricle. Total or gross total resection was achieved in 25 patients (80.6%). Postoperative neurological function deficits occurred in 4 patients (12.9%), and patients with mutism had a good recovery 3 weeks post-surgery. Retraction injuries around the surgical pathway were not obvious on T2 imaging. In addition, no subdural hygroma and subcutaneous fluid accumulation occurred.

CONCLUSIONS: The application of retractorless surgery in third ventricle tumors is feasible with enough exposure of tumors. This application could decrease the occurrence of postoperative neurological deficits and complications by avoiding the retraction injury on the deep brain structures.

□ 31 patients, since 2014

❖ **Total: 25 patients (80.6%)**

❖ **Neurological function deficits: 4 patients (12.9%), recovery 3 weeks**

❖ **subdural hygroma and subcutaneous fluid: 0**

INTRAVENTRICULAR TUMOR

Transcortical surgery for lateral ventricular tumors

Richard G. Ellenbogen, M.D.

*Comparison of incidences of complications after removal of lateral ventricular tumors between this report and the literature**

Complication	Incidence (%)	
	Previous Series	Present Series
death	10–75	0
seizure disorder	19–70	6.9
motor or sensory deficit	4.8–30	13.8†
visual field deficit	9.5–64	20.6
subdural fluid (w/ shift)	9.5–50	13.8‡
hydrocephalus	12–40	10.3
cognitive deficit	10–40	10.3
language deficit	8–36	6.9

Result

A summary of the relationship of the surgical approach to the outcome and complications is shown in Table 2. There were no deaths in this series. Six (20.7%) of the 29 patients underwent a subtotal resection of their tumor. The remaining patients underwent gross-total excision of their tumor. All incompletely resected tumors were astrocytoma, which arose from deep structures and grew into the ventricle. Five tumors involving the thalamus were judged to be incompletely resected based on their invasive nature, although three demonstrated no enhancement after gadolinium administration postresection. These patients not only had an incomplete tumor resection but also suffered the worst functional outcomes. Two of those patients died of complications from tumor progression over 1 year postsurgery despite undergoing aggressive adjuvant therapy for malignant tumors (anaplastic astrocytoma). All ependymoma, choroid plexus neoplasms, and other tumors were successfully excised.

The patient outcome analysis was simplified to three categories: good, fair, and poor. Patients with a good outcome (86%) experienced either no permanent deficits or minor deficits, which permitted them to return to school or work. Patients with postoperative deficits that prevented their return to school or work were classified as having a fair outcome (14% of cases). No patient was made significantly worse by surgical intervention (poor outcome).

The complications were carefully noted and are listed in Table 3. Two patients (6.9%) suffered a long-term seizure disorder. Three of the six patients in whom choroid plexus neoplasms were excised required permanent CSF diversion. Persistent subdural fluid collections were present in four patients, but only one required a burr hole to drain the fluid collection. Six patients suffered a visual field cut, which was related to the parietal or occipital approach to their tumor.

❑ 29 case from 1995 to 2000
age: 3 to 35 ys

❖ Seiruze: 6,9%

❖ Motor or sensory deficit: 13,8%

❖ Visual field deficit: 20,6%

❖ Language deficit: 6,9%

❖ Cognitive deficit: 10,3%

❖ Subdural fuild: 13,8%

[Tumors of the third ventricle: review of 262 cases].

[Article in French]

Lejeune JP¹, Le Gars D, Haddad E.

⊖ Author information

1 Clinique Neurochirurgicale, Hôpital Roger-Salengro, CHRU, 59037 Lille Cedex.

MORTALITY AND MORBIDITY: The overall mortality in the national series is 13.7 % (36/262 died). The death occurred before any treatment (4 patients), or was directly correlated to the surgical procedure (13 cases), to long-term complications of hydrocephalus (2 patients), to general complications (7 patients), or to recurrence of the tumor (10 cases). The final outcome analysis recorded neurological impairment in 29% of cases, neuropsychological deficit in 50% of patients, and residual endocrine disorders in 19%. Social independence was recovered by 86% of patients, 76% of them returned to work, 72% of students returned to normal school attendance. **The long-term neurological outcome was better with the transcallosal approach.** No conclusion was possible concerning neuropsychological outcome, as postoperative neuropsychological assessment was not available for most of the patients operated on with the transcortical approach.

- ❑ 262 case
- ❑ 17.5% of the patients were children
- ❑ Transcortical approach (159 cases)
- ❑ Transcallosal route (35 patients)
- ❖ The long-term neurological outcome was better with the transcallosal approach

SUMMARY

Advantages

1. Control of both foraninal monro
2. Lesser neural incision
3. Multiple corridors to TV
4. No requirement of ventriculomegaly

Disadvantages

1. Narrow
2. Risk of superior sagittal sinus and bridging venous damage
3. Difficult in case of increased ICP

Complication

- ❑ Fornicial injury: recent memory disturbances
- ❑ Vascular injury: basal ganglia infarcts
- ❑ Thalamic infarcts: limbic system ischemia
- ❑ Disconnection syndrome

Prognose

Resection

Type

Damage

Postoperation

[Tumors of the third ventricle: review of 262 cases].

[Article in French]

[Lejeune JP](#)¹, [Le Gars D](#), [Haddad E](#).

⊖ **Author information**

1 Clinique Neurochirurgicale, Hôpital Roger-Salengro, CHRU, 59037 Lille Cedex.

PROGNOSIS: The results of treatment were evaluated only for the most frequent lesions (colloid cysts and gliomas). The outcome was worse for gliomas when compared to colloid cysts, considering mortality (13% vs 8%), neurological impairment (36% vs 21%), residual endocrine disorders (34% vs 0%), and ability to return to work (83% vs 56%).

Colloid cysts

- Mortality: 8%
- neurological impairment: 21%
- endocrine disorders: 0%
- Return: 56%

Gliomas

- Mortality: 13%
- neurological impairment: 36%
- endocrine disorders: 34%
- Return: 83%

Thank you!