Different Approaches and Outcome of Surgery for Tumors of the Lateral and Third Ventricle: an Institutional Series of 42 Patients

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Introduction

Intraventricular mass lesions have unique surgical challenges since they have deep locations and they are related to important and critical structures.

Introduction

• Choosing the appropriate approach for each patient depends on many factors, such as:
  • Location of the tumor.
  • Diagnosis.
  • Size of the tumor.
  • Vascularity.
  • Venous drainage.
  • Relationship to surrounding structures.

*Secer HI et al. Tumors of the Lateral Ventricle: The Factors that Affected the Preference of the Surgical Approach in 46 Patients.
Introduction

• The transcallosal approach offers direct access to the ventricular system bilaterally
  • Risk of seizures is much lower compared with transcortical approach.¹
  • One recent study showed that the transcallosal approach was associated with a significant increase in risk of seizures.²

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¹ Jeeves Ma et al. Functional consequences of the transcallosal removal of intraventricular tumours.
² Milligan BD et al. Morbidity of transcallosal and transcortical approaches to lesions in and around the lateral and third ventricles.
Methods

• Retrospective chart review study.
• A review of 42 patients who underwent surgery for tumors of the lateral and third ventricle from 2004 to 2015.
  • Demographic, clinical, radiological, surgical, histopathology, and follow up data were reviewed and analyzed.
Results

• A total of 42 patients; 20 males and 22 females
  • The mean age was 25 years, (range 1-65 years).
  • The mean duration of follow-up was 30 months.
Results

• The tumors were located:
  • Third ventricle in 23 patients (54.8%)
  • Lateral ventricles in 18 patients (42.8%)
  • Both lateral and third ventricle in one patient (2.4%)
Craniopharyngioma
Germinoma
Central Neurocytoma
Pineal tumor
Thalamic and caudate tumor (GBM)
• **Mortality: 2 cases (4.7%).**
  • One died from hypothalamic syndrome.
  • One died from brain abscess and ventriculitis.
Discussion

• In our series the risk of postoperative seizures was 12%.
• The risk after transcortical approach was 20%.
  • The reported risk of postoperative seizures after transcortical approaches ranges from 19% to 75%.*

• The true incidence of postoperative seizure is hard to determine as there are many factors that can contribute to a seizure disorder including:
  • Tumor type.
  • Presence of residual tumor.
  • Subdural effusion.
  • Electrolyte imbalance.

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*Fornari M, Meningiomas of the lateral ventricles: Neuroradiological and surgical considerations in 18 cases.
*Kobayashi S: Intraventricular meningiomas.
Discussion

• Postoperative Complications reported in (40 cases of lateral, 3rd, and 4th ventricular tumors) were:
  • Hydrocephalus in 15%.
  • Meningitis in 12.5%.
  • Ventricular hemorrhage in 10%.
  • Motor deficit in 5%
  • Subdural collection in 2.5%.
  • No report of postoperative seizure.

• Mortality in one patient from ventricular hemorrhage.

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Discussion

• Postoperative Complications in 46 patients with lateral & 3rd ventricular tumors as:
  • Neurological deficits in 8.8%.
  • Epidural, subdural hematoma, or both in 8.8%.
  • Severe brain edema in 4.4%.
  • Postoperative seizure in 2.2%.

• They reported one mortality from intraventricular hemorrhage
• Conclusion

• The primary treatment method of the ventricular tumors is surgical resection and considering the advantages and disadvantages of each approach.

• The transcortical approach is associated with increase in risk of postoperative seizures.
• Professor: Sherif Elwatidy
Thank you