

Introduction

Histopathological investigation is essential in the management of brain tumors. However, some cases are not suitable to surgery with great extent of resection because of its location

- 1) deep-seated
- 2) eloquent area

Previously we had undertaken stereotaxic biopsy for these lesions. Stereotactic biopsy is less invasive and useful to reach the lesion accurately. However there are some impossibility in direct observation and immediate adjustment.

That's the reason why we have introduced endoscope for brain tumor biopsy.

Materials and Methods

We used fiber scope and rigid scope for intra- and para-ventricular lesion, and rigid scope with clear sheath and navigation system for intra-parenchymal lesion.

19 patients, 8 men and 11 women underwent endoscopic biopsy by the trans-ventricular approach, and 21 patients, 13 men and 8 women underwent endoscopic biopsy via the trans-cortical route between January 2007 and February 2012.

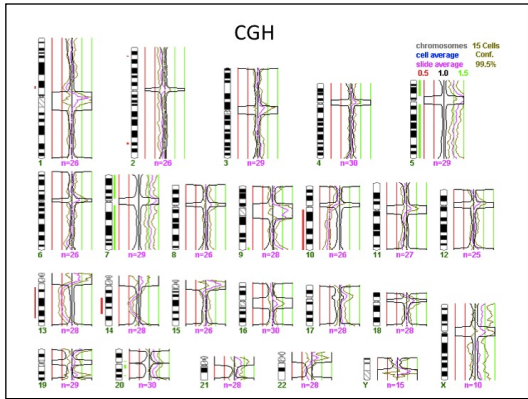
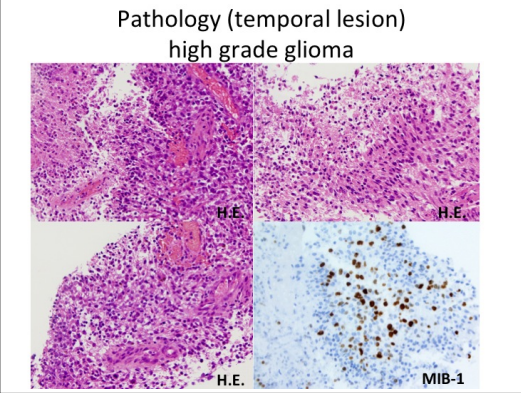
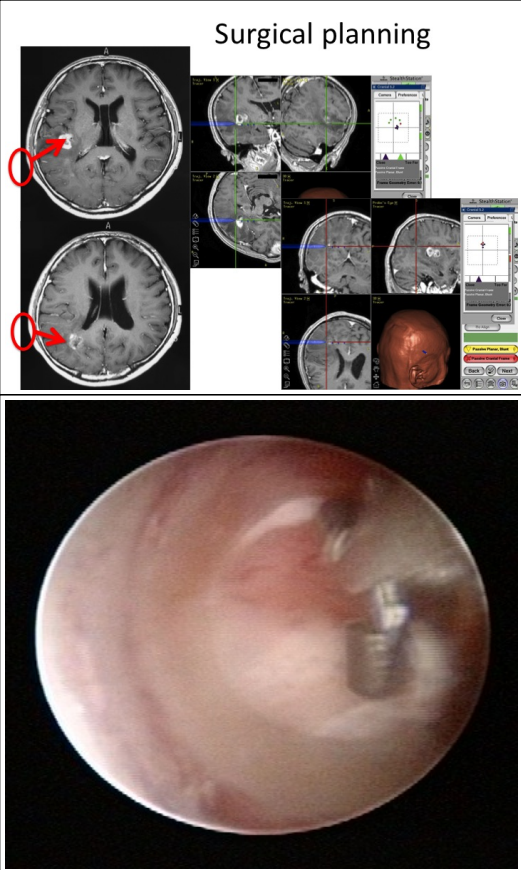
Trans-cortical approach

Each patient's head was held using a head clamp, and the placement of the burr hole and trajectory to the lesion were planned using a neuro-navigation system . A pointer probe was inserted to reach the lesion through the burr hole under navigation guidance , and a clear sheath was introduced along the path created by the pointer probe. The rigid scope with multi-channel sheath was then delivered with artificial cerebrospinal fluid irrigation. Some small specimens that appeared abnormal were resected by wire forceps under direct observation and underwent intra-operative histological investigation.

Case Presentation

This case was 66 years old, and he came our hospital with convulsive seizure. CT showed multi-focal lesions at the right temporal lobe and parietal lobe.

We planed that the endoscope was delivered to both lesions through same burr hole. The navigation system helped us to decide the best surgical pathway.



The genetic diagnosis was also obtained. This result approved this tumor as GBM.

Results

Total : 40 biopsies
intra- and para- ventricular : 19
3rd ventriculostomy was performed in 5 cases
intraparenchymal : 21
Definitive diagnosis was obtained in All cases.
Complications
Postoperative small ICH occurred in 1 case.
No deterioration of neurological symptoms in All cases

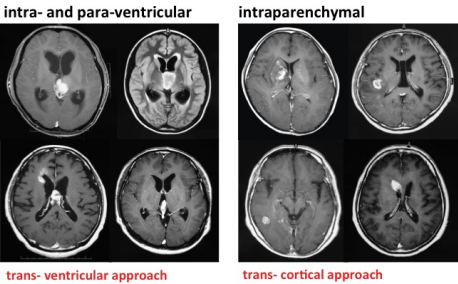
Advantages of endoscopic biopsy

Endoscopic surgery provides the clear view and enables to differentiate the tumor tissue from normal brain adjust easily and immediately confirm hemostasis obtain accurate histological and genetic diagnosis
Furthermore, able to perform ventriculostomy in cases associated with hydrocephalus

Conclusions

The endoscopic biopsy is more effective than stereotaxic biopsy in terms of reliability and safety.

two categories



We divided our cases to two categories. One was trans-ventricular approach for intra- and para-ventricular lesions, the other was trans-cortical approach for intraparenchymal lesions.

