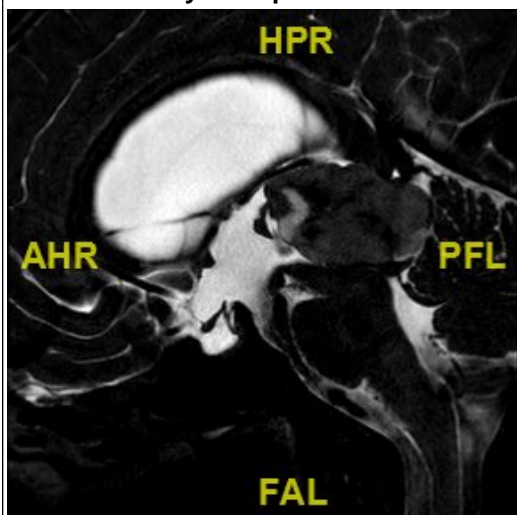


Introduction

Pineal tumours are an uncommon presentation to even the largest neurosurgical service. They will often present with pressure symptoms and signs of obstructive hydrocephalus. This hydrocephalus is usually amenable to endoscopic third ventriculostomy (ETV), and this has been used to great effect for tumour related hydrocephalus. Wherever possible, we aim to take biopsies of the lesion in question during the same procedure. These are limited by access and by the small biopsy forceps available for endoscopic use, as well as the associated crush artefact these induce. Thus, this project set out to evaluate the efficacy of biopsies taken in this manner.

Pineoblastoma patient with hydrocephalus



Patient A, pre operative imaging demonstrates hydrocephalus and large pineal tumour

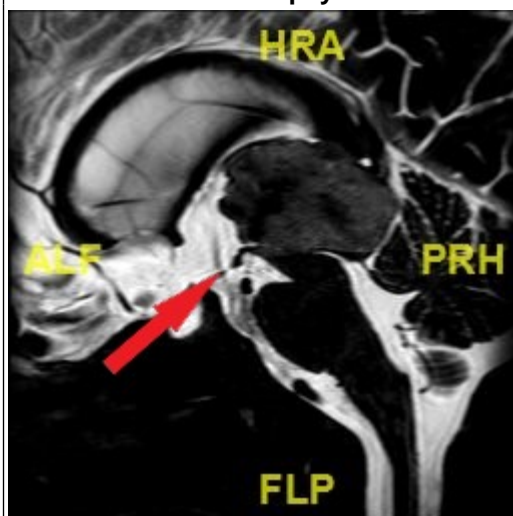
Methods

Retrospective chart review of patients undergoing combined ETV and pineal biopsy between 2006 and 2015.

Results

Twenty two patients underwent combined ETV and biopsy of a pineal tumour. Definitive histological diagnoses could be made in 17 (77%) of the patients. All the patients who had a failed endoscopic biopsy subsequently underwent stereotactic biopsy and obtained definitive diagnosis.

Pineoblastoma patient following ETV and biopsy



Same patient, following successful ETV with flow jet (arrowed) and diagnostic biopsy

Discussion and Conclusions

Diagnostic imaging has made significant advances in aiding diagnosis, but histological confirmation of tumours is still required for molecular markers and to aid accurate pathological staging. CSF sampling is, on occasion, sufficient with disseminated disease, but in the majority of cases histopathological examination of a surgical biopsy is required. Many of the patients with tumours in the vicinity of the ventricular system will present with hydrocephalus, and whilst stereotactic biopsy is a reasonably safe procedure, the option to treat raised intracranial pressure and obtain a histological diagnosis at the same sitting for minimal additional risk makes surgical sense.

More than three quarters of patients could obtain an accurate diagnosis from endoscopic biopsy, despite small sample size and crush artefact, and this should be the first option in such patients, where the surgical and neuropathological expertise exists to make use of it.

Stereotactic biopsy, whether framed or frameless, also has an excellent diagnostic rate and can be used to diagnose those patients in whom endoscopic biopsy fails.

It is worth noting the majority of series find stereotactic biopsy to be superior in terms of diagnostic accuracy - this may well be the case, but we still feel, given the high success rates of ETV, that endoscopic biopsy is a prudent first choice in appropriate patients.

Learning Objectives

By the conclusion of this session, participants should be aware of the feasibility and efficacy of endoscopic pineal biopsy when performed as a synchronous procedure.

References

Endoscopic biopsy and third ventriculostomy for the management of pineal region tumors. Ahmed AI, Zaben MJ, Mathad NV, Sparrow OC. World Neurosurg. 2015 Apr;83(4):543-7. doi: 10.1016/j.wneu.2014.11.013.