

INTRAOPERATIVE SQUASH SMEAR CYTOLOGY OF CENTRAL NERVOUS SYSTEM LESIONS AND ITS CLINICOPATHOLOGICAL CORRELATION



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INTRODUCTION

The use of intraoperative diagnosis by cytology was started in 1930 by Eisenhardt and Cushing, followed by Badt in 1937.[1,2] Lesions within the central nervous system are diverse entities ranging from inflammatory conditions to neoplasms and remain one of the most challenging domains of neuropathologists.[3]

The biggest advantage of squash smear cytological diagnosis is rapid intraoperative diagnosis which further helps the surgeon to plan the extent of surgery and modify accordingly.[4]

The accuracy of cytological diagnosis depends on the consistency of tissue. The soft and friable tissues are easy to make smears and yield good cellularity. This is exhibited by central nervous system tumors such as gliomas, pituitary adenomas, medulloblastomas and metastatic carcinomas.[5]

Aims & Objectives

To study the diagnostic accuracy of squash smears cytology in central nervous system lesions and to compare squash smears with the histopathological diagnosis

Material & Methods

Intraoperative biopsy tissue of central nervous system lesions tissue in normal saline is received.

A small tissue of 1-2 mm is dissected out with a scalpel blade.

Squashed between two glass slides and make 2-3 smears will be prepared by applying optimal pressure and stain with rapid hematoxylin and eosin method

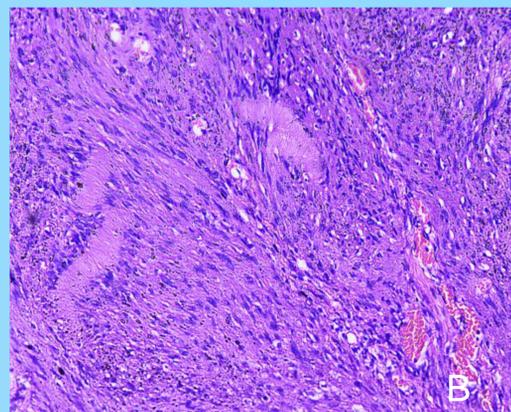
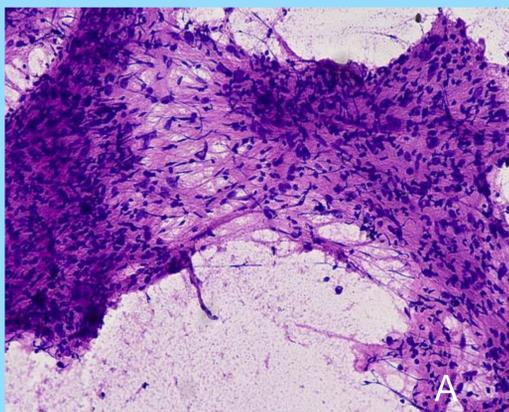


Fig1: Schwannoma A: Squash cytology B: Histopathological examination

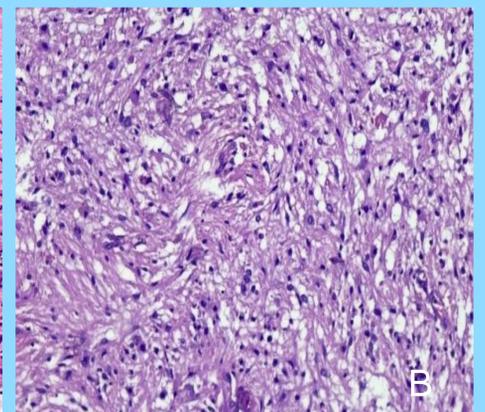
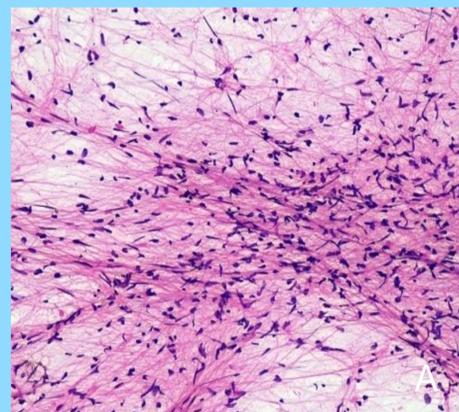


Fig2: Pilocytic Astrocytoma A: Squash cytology B: Histopathological examination

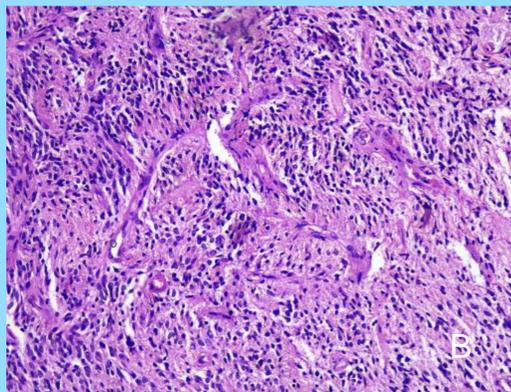
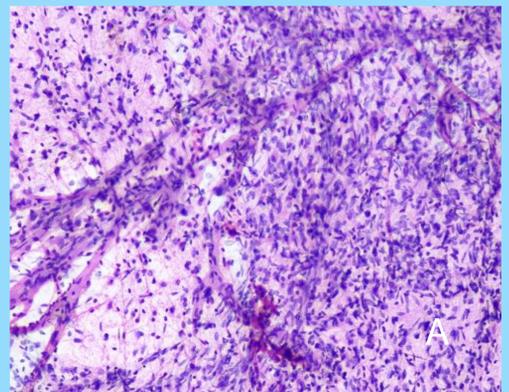


Fig3: Anaplastic Astrocytoma A: Squash cytology B: Histopathological examination

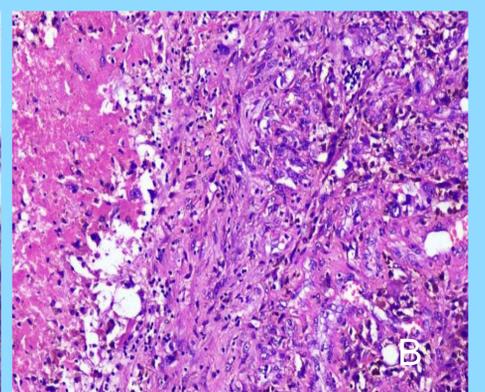
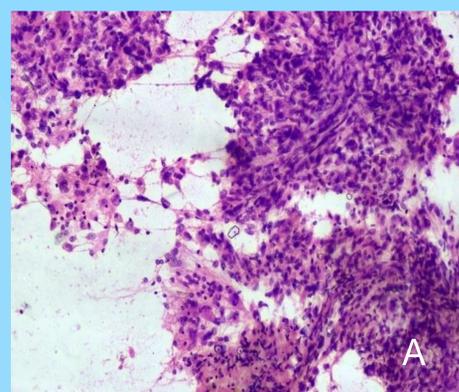


Fig4: Glioblastoma A: Squash cytology B: Histopathological examination

RESULT & DISCUSSION

- A total of 100 cases fulfilling the inclusion criteria were enrolled in the study.
- The age of patient ranged from 3 months to 65 years, maximum number of cases was aged between 21 to 50 years (56%). Majority of patients were male (61%) and females (39%).
- Most common presenting symptom was headache (70%) followed by nausea and vomiting.
- The most common site of CNS lesions was brain 90% followed by spinal cord lesion 10%.
- Spinal cord space occupying lesions are dorsal, thoracic region was most common (6%) followed by cervical (3%) region. Only 1% specimen were collected from lumbar region.
- The brain space occupying lesions are posterior fossa SOL (16%), CP angle (14%), suprasellar SOL (12%), frontal SOL (8%) and temporal SOL (6%) were the most common sites. Schwannoma (17%) shows predominance of CNS lesions followed by medulloblastoma (11%)
- Clinical diagnosis provided diagnostic accuracy of 84% with histopathological diagnosis.
- Cytological diagnostic accuracy of 90% with gold standard histopathological diagnosis.
- The sensitivity was maximum for Schwannoma (94.1%) and minimum for high grade glioma (66.7%). The specificity was minimum for low grade glioma (94.0%) and maximum for medulloblastoma (100%).

CONCLUSION

It can provide a preliminary diagnosis in CNS lesions which guides the surgeon to plan further management and extent of surgery of patient on operating table and should always be confirmed with histopathological examination which is the golden standard

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Thank You