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Minimally invasive resection of intracranial lesions using Tubular Retractors-a case series

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INTRODUCTION

-Lesions located in subcortical areas are difficult to safely access.

-Tubular retractors is increasingly used successfully with low complication profile to access lesions by minimizing brain retraction trauma and distributing pressure radially .

-Aid in providing better visualization with minimal damage to neural structures, that are innocent bystanders overlying the path of deep-seated lesions. Surgeon friendly with their ergonomic design and improved stability.

-This is a retrospective study done at our institute to analyze the efficacy of transparent tubular retractors during cranial surgery for deep-seated lesions.

AIMS / OBJECTIVES

➢To evaluate the safety , efficacy , ease of use, extent of resection, and complications were analyzed for excision of lesions using transparent tubular retractor

MATERIALS / METHODS

➢Place of Study: Department of Neurosurgery, SVIMS Tirupati

➢Retrospective study from July 2022 to June 2024

➢Patients underwent pre op CT and MRI scans.

➢3 to 4 cms area of brain's cortical surface is exposed following craniotomy and durotomy. Depending on the depth of the lesion an appropriate retractor is chosen and gently inserted along with a transparent obturator perpendicular to brain surface . Tumor is visualized, the obturator is withdrawn. Tumor can be seen bulging within the retractor. Microinstruments are used to debulk/excise the tumor .

RESULTS & DISCUSSION

➢6 patents with various deep-seated intracranial lesions were operated using the transparent tubular retractor.

➢Out of which 4 patients are diagnosed as gliomas and 2 patients with metastatic lesions.

➢5 cases total tumor excision was achieved in all cases (83%). 1 patient biopsy was done.

➢Extent of excision was confirmed using CT scan on within the first 24 hours following surgery.

➢The complications related to operation were found in only 1 case in form of weakness immediate post op, but gradually improved.

Lesion type	Percentage	Percentage of excision	Post op complications
Glioma	4(66%)	100%	16%
Metastasis	2(34%)	100%	nil

CONCLUSION

- Our study and the current trend in literature predict that tubular retractors provide a definite advantage during surgery for deep-seated intracranial lesions.
- They contribute to minimal invasiveness by causing uniform distribution of retraction pressure and also cause minimal disruption of fiber tracts.
- The outcome for any cranial procedure can be further enhanced by preoperative planning which can incorporate neuronavigation