

Use Of Neuro-Robotic Exoscope For Neurosurgery In Pakistan: A Case Series

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Objective:

“Neuro-robotic exoscope”™ is a recent advance. Reports on the use of this operative visualization system are few. In this study, we have described our initial experience with the use of Bright Matter™ system for various neurosurgical procedures.

Methods:

All patients who underwent neurosurgery using Bright Matter™ (Synaptive Medical) at the Aga Khan University Hospital (AKUH) from April 2016 to October 2016 were included in this retrospective study. Data were collected from medical charts. Descriptive analysis was performed using SPSS v 21.

Results:

Bright Matter™ systems were used for a total of 71 cases. The exoscope was used with neuro-navigation and Diffusion Tractography Imaging (DTI) in 28 cases while in 7 cases it was used without navigation. During the same study period, neuro-navigation alone was performed for 36 additional cases but the exoscope was not used. The exoscope was used for a total of 53 hours while the Operating Microscope (OM) was used for 33.5 hours. A total of 12 cases were completed using the exoscope alone, without the need of the OM. Twenty-four lesions were found to be involving different white matter tracts of the brain. Gross Total Resection was done in 17 (of 30) patients. Perioperative mortality was 0%. Five patients had a new neurologic deficit postoperatively.

Conclusion:

Early experience with the use of exoscope is promising. Upcoming improvements in the exoscope such as three-dimensional stereoscopic system and angled lenses will further improve the functionality of this system.