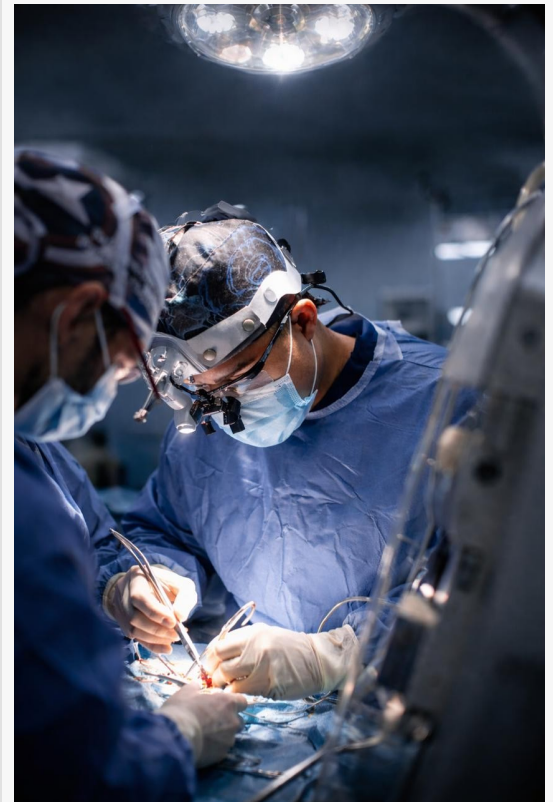


Chinese PLA General Hospital Study Shows Smarter Brain Surgery Improves Survival

Real-time MRI and brain function monitoring during neurosurgery help remove a rare brain tumor affecting the corpus callosum more effectively and safely

BEIJING, CHINA, July 17, 2026 /EINPresswire.com/ -- Brain tumor surgeries are particularly challenging due to the difficult trade-off neurosurgeons often face—remove more tumor and risk neurological injury, or preserve function and leave more tumor behind. The corpus callosum is a deep-seated major communication bridge between the two hemispheres of the brain and lies close to important functional pathways, making surgical removal of tumors affecting this area all the more difficult. 'IDH-mutant low-grade corpus callosum glioma (ccLGG)' is a rare tumor population arising from the 'glial cells' that support nerve cells in this highly critical region. Conventional surgery for the removal of ccLGG is guided by 'neuronavigation', a technique used to map the 3D location of the tumor within the brain using MRI images taken before surgery. However, during surgery, that position might slightly vary, risking damage to adjacent normal structures and incomplete removal of the tumor.

Newer technology called 'intraoperative MRI (iMRI)' can capture MRI images on the operating table to help surgeons see whether any tumor remains and remove more if needed. Another modality called neuromonitoring can continuously monitor the functioning of the brain and nerves during surgery, warning surgeons if they get too close to important areas controlling movement, speech, sensation, etc. A new study published in Volume 12 of [Chinese Neurosurgical Journal](#) on May 1, 2026, by researchers from Chinese People's Liberation Army General Hospital, China, directly compares conventional neuronavigation-guided surgery with multimodal surgery combining neuronavigation, intraoperative MRI, and



Multimodal brain surgery combining real-time MRI, neuronavigation, and brain function monitoring enabled more complete removal of rare IDH-mutant low-grade corpus callosum gliomas, resulting in over 3 years of longer survival compared to conventional surgery

neuromonitoring. "Few studies have examined the combined effect of these technologies specifically in this rare tumor population," says senior author Dr. Jianning Zhang.

The researchers reviewed medical records of patients diagnosed with IDH-mutant ccLGG who underwent surgery between 2014 and 2022 at their hospital. 64 patients who underwent surgery with multimodal techniques were compared with 34 patients who underwent conventional surgery. The amount of tumor removed, any damage to brain or nerve function, quality of life, time before further tumor progression, and survival after surgery were the criteria for comparison. "We wanted to find out whether using several advanced surgical technologies together in a 'multimodal' approach helps neurosurgeons remove more of the tumor safely, which factors help patients live longer, and which factors prevent the tumor from coming back," explains Dr. Meng Cui, the first author.

They found that complete tumor removal was much more common with advanced techniques, nearly doubling the likelihood of complete removal of the tumor compared with conventional surgery. Moreover, better tumor removal with multimodal surgery gave patients about 30 extra months after treatment before the tumor grew back or worsened, and more than three extra years of survival. Thus, the use of multimodal techniques was found to have the potential to improve the quality of patients' lives without causing any extra disability. "This study suggests that when resources permit, multimodal surgical guidance should be considered for complex gliomas involving critical brain structures," says Dr. Zhang.

When combined with chemotherapy after surgery, the benefits improved even more. Particularly, patients who received more cycles of chemotherapy with a drug called temozolomide tended to have longer survival. Smaller tumors that had spread less, those that involved only the front part of the corpus callosum called the genu, and those that had not spread to both sides (called butterfly tumors) were also associated with better outcomes. Patients with a higher KPS score, a scale measuring how well a person can perform daily activities, at 3 months, and those with MGMT methylation, a biological marker linked to better response to treatment, also did well.

Broader investments in advanced medical technologies like iMRI and neuromonitoring can help doctors remove difficult tumors like IDH-mutant ccLGG safely, providing patients with more complete tumor removal, longer survival, and longer tumor-free periods.

Reference

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About Chinese People's Liberation Army General Hospital, Beijing, China

Chinese People's Liberation Army General Hospital (PLAGH), is one of China's largest and most

prestigious tertiary teaching hospitals. Founded in 1953 and headquartered in Beijing, the hospital integrates clinical care, medical education, and scientific research across multiple medical centers. PLAGH provides comprehensive healthcare services, supports advanced biomedical research, and serves as a major training center for medical professionals in China. The hospital is internationally recognized for its expertise in complex clinical care, innovative surgical techniques, and translational medical research.

About Dr. Meng Cui from Chinese People's Liberation Army General Hospital, China

Dr. Meng Cui is a researcher and surgeon in the Department of Neurosurgery at Chinese PLA General Hospital, Beijing, China. His research focuses on neuro-oncology and advanced neurosurgical techniques, particularly the surgical management of gliomas and other complex brain tumors. He completed his bachelor's degree in clinical medicine from the Naval Medical University, Shanghai, and his master's degree in neurosurgery from Chinese PLA General Hospital, Beijing. He has 15 works to his credit.

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