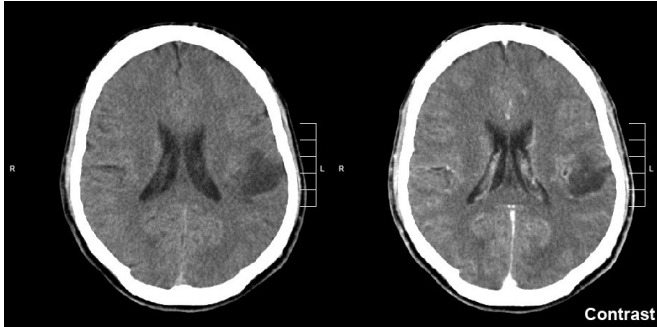


A cerebrospinal fluid test to track tumor progression in some gliomas

24 January 2019, by Bob Yirka



Glioma of the left parietal lobe. CT scan with contrast enhancement. Credit: Mikhail Kalinin/CC BY-SA 3.0

A team of researchers from Memorial Sloan Kettering Cancer Center and Weill Cornell Medical College used genetic testing of cells found in cerebrospinal fluid to track certain brain tumors. In their paper published in the journal *Nature*, the group describes tests they conducted with cancer patients and analysis of their cerebrospinal fluid, and what they found.

Doctors who treat patients with brain cancer face unique challenges when attempting to track tumor progression due to the difficulty of extracting tumor samples. Performing simple biopsies generally involves invasive and dangerous brain surgery. In this new effort, the researchers found that biopsies for some patients can be done via [lumbar puncture](#), a procedure in which fluid is removed from the spinal column and tested.

Many tumors, including those that form in the brain, shed cells into the body around them. Such cells often make their way into the bloodstream. Testing for these can offer information about the tumor. Brain tumors cell shedding, unfortunately, does not usually result in [tumor cells](#) entering the bloodstream due to the blood/brain barrier. But they do sometimes make their way into

cerebrospinal fluid, the researchers found, where it is relatively easy to extract and test them. Testing involves conducting DNA sequencing on suspicious cells to see if they are normal body cells or tumor cells.

To find out if tumor cells in cerebrospinal fluid could be tested as a form of biopsy to track [tumor progression](#), the researchers collected samples from 85 adult brain [cancer patients](#). They report that they found tumor cells in 42 of the samples, suggesting the technique could be viable for some patients. They report also that some of the same patients also underwent brain surgery as part of biopsy collection, and the cells in their tumors matched exactly with tumor cells in their cerebrospinal fluid. They also found that those patients with larger tumors were more likely to have tumor cells in their cerebrospinal fluid. They note that they do not know why shed tumor cells did not enter the [cerebrospinal fluid](#) for the other 43 patients.

More information: Alexandra M. Miller et al. Tracking tumour evolution in glioma through liquid biopsies of cerebrospinal fluid, *Nature* (2019). [DOI: 10.1038/s41586-019-0882-3](https://doi.org/10.1038/s41586-019-0882-3)

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