

Can bacterial infection fight off a brain tumor?

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Among the people waiting to see chairman of the neurosurgery department at the University of California at Davis, Paul Muizelaar November 10, 2010, was Terri Bradley, a 56-year-old woman on whom he had operated the previous May, to remove a malignant brain tumor.

Bradley's condition had suddenly deteriorated, and new scans revealed that her tumor — a deadly type known as glioblastoma multiforme, or GBM — had returned. Bradley, partially paralyzed and dependent on a wheelchair, had already undergone chemotherapy and radiation; her doctors believed that more drugs were pointless.

The previous month, Muizelaar had operated on another patient who also suffered from glioblastoma. The tumor had spread to his brain stem and was shortly expected to kill him. Muizelaar cut out as much of the tumor as possible. But before he replaced the “bone flap” — the section of skull that is removed to allow access to the brain — he soaked it for an hour in a solution teeming with *Enterobacter aerogenes*, a common fecal bacterium. Then he reattached it to Egan's skull, using tiny metal plates and screws.

For four weeks, Egan lay in intensive care, most of the time in a coma. Then, on the afternoon of November 10th, Muizelaar learned that a scan of Egan's brain had failed to pick up the distinctive signature of glioblastoma. The pattern on the scan suggested that the tumor had been replaced by an abscess — an infection — precisely as the surgeons had intended.

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