

Barrow scientists 'rewrite' history books: Brain surgery saved Russian general who helped defeat Napoleon

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Researchers at Barrow Neurological Institute have spent years of medical sleuthing across three continents to uncover a brain surgery that changed history.

After more than two-years of international investigation, the scientists have concluded that Napoleon likely would have conquered Russia in 1812 if not for the life-saving brain surgery performed on Russian general Mikhail Kutuzov by the French surgeon Jean Massot, who operated on Kutuzov after bullets twice passed through his head.

"It's a story of how medicine changed the course of civilization," says Mark C. Preul, MD, PhD, and chair of neurosurgery research director at Barrow, which is part of Dignity Health St. Joseph's Hospital and Medical Center.

Dr. Preul led the research team in collaboration with fellow Barrow Neurological Institute researchers Dr. Sergiy V. Kushchayev and Dr. Evgenii Belykh and five other researchers. The study, titled "Two bullets to the head and an early winter: fate permits Kutuzov to defeat Napoleon at Moscow," was published in the [*Journal of Neurosurgery*](#).

For more than two centuries, history has focused on Kutuzov's incredible story. He survived being shot in the head in 1774 and 1788 and went on to become one of Russia's legendary heroes by repelling Napoleon's

invaders. His story has been called a miracle. But by combing primary sources in Russian and French, the Barrow team found that Massot played a critical role in the drama, employing techniques that foreshadowed modern neurosurgery to help Kutuzov survive what appeared to be mortal wounds.

"We wanted to find out what really happened and basically identify this surgeon who saved Mikhail Kutuzov," Dr. Preul says. "Massot's facts were somewhat buried. He is at the vanguard of surgical technique. He uses incredibly modern techniques that we still use today."

What they found was evidence that the first bullet wound, sustained in a battle with the Turks in Crimea in 1774, had destroyed Kutuzov's frontal lobe. That explained Kutuzov's erratic behavior after the injury - but it also provided clues to the brilliant strategy he used to defeat Napoleon and his seemingly invincible Grande Armée.

Kutuzov's injury most likely impaired his ability to make decisions. Eye witnesses remark about his altered personality after the first gun shot wound. So instead of challenging Napoleon's superior forces in the autumn of 1812, Kutuzov put off a confrontation. He ordered Moscow burned and fled with his army to safety east of Moscow. Napoleon's army pursued, invading Moscow, but lacking food and supplies, succumbed to a horribly brutal early Russian winter. Napoleon abandoned the army in December and returned to Paris in defeat.

"The other generals thought Kutuzov was crazy, and maybe he was," Dr. Preul says. "The [brain surgery](#) saved Kutuzov's life, but his brain and eye were badly injured. However ironically the healing resolution of this situation allowed him to make what turned out to be the best decision. If he had not been injured, he may well have challenged Napoleon and been defeated."

Dr. Preul says some questions about Kutuzov's injuries - and Massot's operations on them - can't be completely answered without a medical examination. Kutuzov's body has not been examined since his autopsy shortly after his death in April 1813. But this much is clear: Kutuzov would not have been in command without Massot's efforts.

"Although some would say fate allowed the brilliant Russian general, who became the personification of Russian spirit and character, to survive two nearly mortal head wounds, the best neurosurgical technique of the day seems to have been overlooked as a considerable part of Kutuzov's success," the researchers wrote.

Provided by St. Joseph's Hospital and Medical Center

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