Drawing depicting Generals Robert E. Lee and Stonewall Jackson.
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How postoperative respiratory distress conspired with friendly fire to kill “Stonewall” Jackson

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Before Stonewall Jackson was fatally wounded by his own men at Chancellorsville on May 2, 1863, he fought twenty battles for the Confederacy in which he earned a reputation as one of America’s preeminent military commanders. No less an authority than British General-in-Chief Lord Frederick Roberts stated, “In my opinion, Stonewall Jackson was one of the greatest natural military geniuses the world ever saw. I will go even further than that—as a campaigner in the field, he never had a superior. In some respects I doubt whether he ever had an equal.” While Jackson lived, the Confederate States believed they might prevail in their desperate pursuit of a lost cause. Only after his light flickered and then went dark did they begin to suspect that God would let them be defeated. His death was all the more mysterious and demoralizing because Jackson at first seemed to recover from his wounds. Why he then faltered and died has been a source of controversy for a century and a half.

Case summary

Thomas J. “Stonewall” Jackson was raised by a series of relatives after losing his alcoholic father to typhoid fever when he was two and his mother to pulmonary trouble (presumed tuberculosis) when he was seven. An older sister also died of typhoid fever at age six and an older brother of tuberculosis at age twenty. A younger sister survived him to age eighty-five, as well as a half brother, to age unknown.

Jackson suffered with chronic dyspepsia most of his life, which he treated with an ascetic diet heavy in fruit. On reaching manhood, he became convinced that all of his organs malfunctioned intermittently to the detriment of his vision, hearing, throat, digestion, liver, kidneys, blood, circulation, nervous system, muscles, and joints. To counteract these perceived disabilities, he dosed himself with a variety of medicines and compresses. He inhaled glycerin, silver nitrate, and the smoke of burning mullein. He also ingested a number of ammonia preparations. For a time, he imagined that one side was wasting away and sought to remedy the asymmetry by
exercising the withered arm and leg with pumping motions each morning. To some of his acquaintances these complaints amplified a wonderful eccentricity. To others they were symptomatic of an underlying insanity.

Not all of Jackson’s physical complaints were imagined. When he was seventeen, he had a brief episode of paralysis of unknown etiology. He had attacks of uveitis in his twenties, otitis media in his mid-thirties that left him deaf in his right ear, and an attack of “bilious fever” at age thirty-six, for which he took the water cure. War seemed to agree with his health. However, while campaigning the year before he died, he suffered briefly with fever and exhaustion, was battered and bruised as a result of a fall from his horse, and had a recurrence of his earache.

Jackson was thirty-nine when struck simultaneously by three .69 caliber bullets fired by his own men. One entered his left arm three inches below the shoulder, splintering the bone and tendons of the upper arm before exiting. Another entered the left forearm an inch below the elbow, ripped through the lower arm, and exited on the opposite side just above the wrist. The third passed through the right palm, fractured two fingers and lodged just under the skin of the back of the hand. He was hit in the head by a tree branch when his horse bolted, knocking off his cap, lacerating his face and nearly unseating him. Somehow he managed to catch the reins and bring the horse under control.

On initial examination, Jackson’s left arm was markedly swollen but not bleeding. A handkerchief was tied around the upper wound and the arm placed in a crude sling. Jackson’s legs were rubbery and his thinking foggy, so soldiers gingerly placed him on a canvas stretcher, raised it to their shoulders, and hurried to escape oncoming enemy fire. During the retreat, the man supporting the left front corner of the litter was shot and fell, pitching Jackson to the ground—in all probability on his left shoulder. When a replacement for the injured bearer was found, Jackson was again placed on the litter, only to be dropped a second time on his shattered arm when one of the bearers entangled his foot in a vine and fell. By this time there was heavy bleeding from the left arm, likely due to a torn brachial artery.

A rough tourniquet was applied to the left upper arm to control brisk hemorrhaging. A little whiskey mixed with water was given in an attempt to relieve Jackson’s excruciating pain. He was then placed in a wagon and bounced over a rutted road to the nearest aid station. When examined by his personal physician, Dr. Hunter Holmes McGuire, his clothes were saturated with blood still oozing from the wound in his left arm. His skin was clammy, his face pale. His thin lips were compressed so tightly his teeth could be seen through them. Whiskey and morphine were administered. Jackson was placed back in the wagon and pitched and bumped another four miles to a field hospital.

Five hours after the injury, the left arm was amputated just below the shoulder under chloroform anesthesia. A round ball from an old smoothbore musket was extracted easily from the subcutaneous of the right hand; isinglass plasters were applied to the facial lacerations. Thirty minutes later, Jackson was awake, alert, and able to drink a cup of coffee. Within six hours, his pain had subsided, and he felt strong enough to take a little food. Neither chills nor fever were present. He appeared to be regaining strength rapidly. However, in the mid-morning he complained of pain in his side (laterality not recorded) for which no evidence of injury could be detected. The lung was functioning well, and the pain soon abated. The general became his old self, issuing a rash of orders. McGuire was encouraged greatly by his appearance.

Jackson slept well that night and awoke refreshed and
in admirable condition. He was then transported by wagon twenty-seven miles farther to the rear. During much of the fourteen-hour journey, he was bright and talkative. However, by its end, he was having renewed pain in his side and nausea. A wet towel placed over his abdomen gave him relief. When finally placed in a double rope-trellis bed in a little frame house at Guinea Station, he eagerly ate some bread, drank a little tea, and soon drifted into a sound sleep.

Jackson awoke the next day in good condition. He was cheerful and ate a good breakfast. The wound in the hand was draining and painful. A stabilizing splint and simple lint and water dressing were applied. The next day he continued to improve. However, at 1:00 AM on the fourth postoperative day, he was feverish and nauseated and complaining of intense pain in his left side. Towels soaked in spring water were placed on his painful side, this time to no effect. Paroxysms of pain in the side grew worse and every breath caused a piercing sensation. When finally examined by Dr. McGuire, Jackson was breathing heavily and gasping; his pulse was rapid. Although he was apparently not coughing (nor is a cough recorded at any time during his terminal illness), McGuire was convinced that “dreaded pneumonia” had developed, and applied mustard plasters, wrapped Jackson in blankets, and began administering regular doses of laudanum (a mixture of opium and whiskey). The laudanum alleviated Jackson’s pain but also put him into a stupor from which he never fully recovered.
During the next three days, Jackson wandered in and out of consciousness. His breathing was heavy. For a brief period the pain in his side abated, he appeared more comfortable and rational, and evinced optimism that he would recover. His wounds were healing naturally with moderate suppuration. However, the fever, labored breathing, and delirium soon returned. He became progressively weaker, slipped into a deep coma and died on the seventh postoperative day.

**Differential diagnosis**

Jackson's medical history has been a subject of ongoing analysis and debate since his death 150 years ago. Investigators have posthumously diagnosed various underlying disorders ranging from Asperger's syndrome to chronic dyspepsia due to a lingering *H. pylori* infection or hiatal hernia. It is unlikely that any of these was responsible for his postoperative deterioration and death.

What we know of events that followed Jackson's wounding on May 2, 1863, comes mostly from a report entitled “Last Wound of the Late Gen. Jackson (Stonewall)—The Amputation of the Arm—His Last Moments and Death,” published by Dr. Hunter Holmes McGuire in the *Richmond Medical Journal* in May 1866. McGuire was at the general's side shortly after his wounding, performed the amputation of his left arm, and attended Jackson thereafter until he died. Although the manuscript remains the most comprehensive description of Jackson's final days, it wasn't published until three years after the events in question. Given the many other momentous events that transpired in the life of McGuire between 1863 and 1866, it would have been challenging, to say the least, for him to have recalled all of the critical details of his famous patient's case history. Moreover, as he explained in a footnote in his manuscript: “A detailed account of [Jackson's] treatment is prevented by the loss of notes kept of the case. These notes, with other papers, were captured by the Federals, March 1865.” Despite at least one concerted effort to locate them in 1963 by Dr. L. Whittington Gorman and experts at the National Archives in Washington, DC, these records have never been recovered.

In his report, McGuire gives “pleuro-pneumonia” as the cause of Jackson's pleuritic pain, labored breathing, raised pulse and eventual death, without elaborating on the results of his examination of his patient's lungs in arriving at the diagnosis. According to his thinking, “Contusion of the lung, with extravasation of blood in his chest, was probably produced by the fall referred to, and shock and loss of blood, prevented any ill effects until reaction had been well established, and then inflammation ensued.”

Modern investigators have proposed several alternative or expanded diagnoses to explain Jackson's unexpected death. On examining the information included in McGuire's report, L. Whittington Gorham in a 1963 article in the *Archives of Internal Medicine* considered pneumonia, fat embolism, and pulmonary emboli as possible causes of Jackson's fatal postoperative complication. Given Jackson's apparently modest fever and lack of cough or sputum production, Gorham felt that pneumonia was unlikely. Although fat emboli were worth considering given their association with long bone injuries and amputations, he concluded that this diagnosis was also unlikely in the absence of early pulmonary distress or mental status changes or a petechial rash. All things considered, Gorham settled on pulmonary emboli with pulmonary infarction followed by a massive pulmonary thrombosis as Jackson's fatal postoperative complication. Gorham believes that ligation of the proximal vessels of the left arm during the amputation created a nidus upon which the fatal thrombus formed. His diagnosis was endorsed by Alan DeForest Smith in 1973 in an article published in the 1973 *Bulletin of the New York Academy of Medicine*.

Not everyone agrees with Gorham's diagnosis. On reviewing the available evidence on Jackson's death, Thomas Layton concluded that McGuire's original diagnosis was probably correct, and that the chest trauma resulting from Jackson's falls rendered him at considerable risk for subsequent pneumonia. Matthew Lively has hypothesized further that a lung contusion caused by the falls from the stretcher contributed to poor pulmonary clearance, which was responsible for a subsequent fatal pneumonia. In a radically different interpretation, Timothy Koch and Joseph B. Kirsner concluded that the general did not die of a pulmonary complication at all, but of a perforated peptic ulcer or catastrophic gastrointestinal bleed related to *H. pylori*-induced chronic dyspepsia. To arrive at this diagnosis, they pointed to Jackson's boyhood spent in a region known to be hyper-endemic for *H. pylori* (West Virginia), his gastric distress dating to his service in Mexico under General Winfield Scott, and the various treatments he had long used to control his dyspepsia. They hypothesized further that, unknown to McGuire, the stress reaction resulting from Jackson's multiple wounds caused a long-standing peptic ulcer or chronic gastritis to perforate and/or bleed. Their hypothesis is weakened by the absence of hematemesis, hematochezia, melena, and/or signs of peritoneal irritation in McGuire's report.

Sepsis and contusion of the spleen with subsequent rupture are other remote possibilities worth considering as the cause of Jackson's postoperative deterioration and death. Sepsis could have originated from an infected amputation site, a common complication of amputations performed during the Civil War. Moreover, when Jackson arrived at the Chandler house at Guiney Station, a case of erysipelas in the big house was one of the reasons he was placed in the tiny frame building next door. However, according to McGuire, Jackson's wounds were healing properly. In addition, his deterioration was gradual and not precipitous, as would have been expected if he had been septic or the victim of streptococcal necrotizing fasciitis or toxic shock, and he only occasionally experienced...
fever. With regard to a ruptured spleen, Jackson had pain in the appropriate location—the left side. However, the pain was intermittent, which would have been atypical of an expanding splenic hematoma, and Jackson did not exhibit the usual signs of progressive exsanguinations (i.e., pallor, rising pulse rate, decreasing pulse pressure), all of which one would have expected McGuire to have detected and properly interpreted. How then do we reconcile these seemingly divergent viewpoints in the face of the scant and potentially unreliable information provided in McGuire’s case summary?

First, it is important to recognize that Dr. McGuire was a capable physician who was confident in his diagnosis of pneumonia. Although just twenty-seven years old at the time of Jackson’s injury, he was already one of the most gifted physicians of his era and would go on to have one of the most illustrious careers of any Civil War physician. It is true that his May 1866 report fails to list the specific physical findings upon which he based his diagnosis. Nevertheless, he would have been familiar enough with the signs and symptoms of pneumonia to have recognized it, even without the assistance of the chest radiograph that physicians rely on today in making the diagnosis.

Second, in his Richmond Medical Journal report, McGuire clearly states that when he examined Jackson at the time the patient first complained of pain in his side, “No evidence of injury could be discovered by examination; the skin was not broken or bruised, and the lung performed, as far as I could tell, its proper functions.” He might well have missed a pulmonary contusion at that time. However, he would have been much less likely to have missed fractured ribs or a painful spleen, both of which would have caused continuous, rather than intermittent, pain.

Third, Jackson had unmistakable signs and symptoms of massive hemorrhage and shock in the early hours after his wounding. His clothes were blood soaked, his lips pale, and his extremities cold. Blood loss of such magnitude would have placed him at great risk of a postoperative complication like pneumonia or pulmonary emboli.

Fourth, as noted above, evidence supporting alternative diagnoses such as sepsis and splenic rupture is inadequate. Fat emboli, likewise, are an unlikely cause of Jackson’s postoperative deterioration, even given the extent of massive destruction of the bones of his left arm, since he exhibited no petechial rash and no mental status changes or pulmonary distress during the first few days after his injury.

On careful consideration of all of the possible causes of Jackson’s fatal disorder, we are left with McGuire’s diagnosis—postoperative pneumonia—and pulmonary emboli. Both are complications of battle injuries that continue to plague wounded soldiers even today. Despite state-of-the-art diagnostics, highly effective antibiotics, and modern anticoagulants, the incidence of infection and of pulmonary emboli among combat casualties in Iraq and Afghanistan exceeds five percent. Moreover, the risk of these two complications is especially high among soldiers with fractured long bones and amputations.

Pneumonia and recurrent pulmonary emboli are equally likely as the cause of Jackson’s postoperative deterioration and death. McGuire’s belief in the former diagnosis, one supported by numerous consultants who assisted him in caring for Jackson, must not be overlooked. He was a highly skilled physician with vast experience in diagnosing and treating pneumonia among Confederate casualties. Moreover, Jackson’s chest pain, dyspnea, and fever are all consistent with the diagnosis. However, the absence of cough, the waxing and waning of Jackson’s chest pain, respiratory distress, and fever are atypical of progressive, ultimately fatal, pneumonia. If Jackson did die of pneumonia, the absence of a productive cough could only be explained by its having been suppressed by the laudanum he received to control his pain. Otherwise, recurrent pulmonary emboli would be more consistent with Jackson’s clinical course, and since this disorder was unknown to physicians of McGuire’s era, it might easily have been confused with pneumonia. Unfortunately, in the final analysis, there is no way to determine in retrospect which of these two likely postoperative complications was responsible for Jackson’s death.

“The Christian Soldier”

Jackson was widely hailed in his day, and no less so today, as “Stonewall,” though “The Christian Soldier” would be more appropriate. His military experience prior to 1861 was in artillery, yet he excelled as a commander of infantry. His soldiers adored him, and told countless stories about “Old Jack,” even though he was a tight-lipped, sternly disciplined eccentric. Fellow generals were in awe of him. He was a man of few words whose silence concealed a fiery combative ness smoldering deep within. Indeed, it was the silence and the accompanying secrecy of his movements that led to mortal wounds inflicted by his own men.

Jackson’s Civil War service lasted but two years, despite the fact that he more than any other Confederate became the radiant hope of the Southern cause. More astounding are the number of people—from his time to ours—who assert that had he not died in 1863, his genius would have enabled the Confederate States to achieve their independence.

Such was the mystique of Thomas Jonathan Jackson.

An overwhelming faith is the key to understanding Jackson the general. He viewed the coming of civil war quite differently from other Americans. To Jackson, God for reasons that man could not know had placed a scourge over the land. North and South must fight to a conclusion. The side that displayed the greater faith would triumph in the end.

Jackson thus entered Confederate service intent on becoming not another Frederick the Great or Napoleon Bonaparte but another Joshua or Gideon. The enemies were not Yankees;
they were Philistines who must be destroyed in the name of God. And because Jackson was fighting with blind obedience to God's will, he expected the same blind obedience from the soldiers he was leading to glory. He ignored all acclaim and would accept no accolades. Credit for victory belonged to God. Jackson was merely a devoted servant waging a holy crusade.

Jackson's death drew a clear line of demarcation in the history of the Army of Northern Virginia. Delegation of authority, under orders that not only permitted but encouraged a wide degree of latitude in their execution by subordinates, had been the basis of Lee's great victories during the ten months Jackson was with him. Yet at Gettysburg, with Jackson only seven weeks in the grave, the system failed Lee. He tried to do it all himself, and it didn't work.

In Pennsylvania, Lee had no executive officer of first-class ability, no great tactician who could shout "Press on! Press on!" as Jackson had done on so many occasions. The price of victory at Chancellorsville was the cost of defeat at Gettysburg.

But beyond Gettysburg was a decidedly deeper effect of Jackson's passing. There was no other Jackson. Hence, never again did Lee attempt the spectacular dividing of his army that he had risked not once but five times when Jackson was with him. Mobility—the prime ingredient the Confederate army had to have for survival—disappeared with Jackson. Thereafter, Lee's ill-equipped, heavily outnumbered men had to engage in a toe-to-toe slugging match with the all-powerful Army of the Potomac. It was a fight the Southerners could not win.

The Road to Appomattox may well have begun in the chaotic darkness of May 2, 1863, when a burst of friendly fire doomed the hopes of the Southern Confederacy.

Conclusion

Some historians believe that until Farragut's victory at Mobile, and then Sherman's capture of Atlanta and Sheridan's devastation of the Shenandoah Valley, the South had a chance of winning its independence—not through victories on the battlefield but by breaking the Union resolve to fight to the finish. They suggest that Jackson might have allowed the South to do so had he not died at Guinea Station. Other historians maintain that the defeat of the Confederacy was inevitable. The North had far greater numbers of soldiers, a limitless supply of war matériel, a common cause (preserving the union and ending slavery), and a dedicated leader in Lincoln, who had the will and the ability to prosecute the war to a successful conclusion. Although according to the Richmond Examiner, "Hannibal might have been proud of [Jackson's] campaign in the Valley," his performance during the Seven Days Campaign was near catastrophic. How he would have fared against Grant, Sheridan, and the other competent Union generals who emerged after 1863 is open to speculation. He was gone before they arrived in northern Virginia. Because he died before Gettysburg and long before the war's end, he was never humiliated in defeat, nor did he have to struggle to regain his dignity in civilian life after the war's end.17

References