When Decapitation Doesn't Mean Death

A medical debate over the definition of death has led to some gruesome questions about exactly how far life can be stretched.

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A few years ago, I was working in the intensive-care unit when an elderly male, pale as chalk, was rushed into one of the empty rooms. He had recently been admitted to the hospital with a brain aneurysm so large that it was threatening to burst. But before he could get surgery, his heart stopped. After almost an hour of CPR failed, the man's surgeon went to the waiting room to tell his family he didn't make it.

Fifteen minutes later, as I was managing a patient with a serious infection, a nurse came up to me and said that there was a problem: The dead man had a pulse. I went back to the man's room and saw a clear, regular rhythm on the heart monitor. His wrist had a thready beat.

The man had experienced something extremely rare: auto-resuscitation, also referred to as the Lazarus effect. Sometimes patients spontaneously recover a pulse after all resuscitative efforts have failed. It's hypothesized this occurs because of some residual medications floating around in their sera, which provide a final push to their hearts to start beating. Whatever the cause, these patients' resurrected heartbeats almost always fade again soon.

Humanity has always sought to draw a clear line between life and death. In the 1800s, physicians went to increasingly absurd lengths to determine if someone had died. One such test involved the insertion of long pins through cadavers' chests all the way down to their hearts; tiny flags attached to the ends of these pins were supposed to signal beating if they

flapped. Modern medicine developed tools to sharpen this line, but it achieved quite the contrary. Now that monitors can detect the faintest of activity in the heart and brain, and technology can sustain bodies in which the brain, heart, or lungs have failed, the distinction between life and death is blurrier than ever.

In the past few decades, as scientists have waged battles in academic journals and conferences over the definition of death, one phenomenon inextricably stark in its optics and simple in its mechanics has remained a clear marker of life's end: decapitation. But even decapitation, it turns out, can be ambiguous. A philosophical dispute about the possibility of life despite decapitation is forcing researchers to grapple with the most fundamental questions about what it means to be alive.

For an example of decapitation's traditional place as a symbol of unambiguous death, look no further than the very first episode of *Game of Thrones*, which sets up its epic war between the living and the dead with the beheading of a ranger at the hands of the protagonist, Eddard Stark—whose head is subsequently severed eight episodes later. In a genre that is full of fake deaths, surprise recoveries, and magical resurrections, *Thrones* reinforces decapitations as one of the only guaranteed ways of killing.

This notion harkens to a simpler but more brutal time. Throughout history, decapitation has been the purveyor of a death so certain, so absolute, that I daresay no one has ever bothered to check a pulse on a body without a head, or poked the eyes of a head without a body to check for the blinking reflex. Certainly, no symbol has been as synonymous with a swift death throughout modern history quite like the guillotine has been since the French Revolution. By severing the connections between the brain and the heart and lungs, the three traditional foci of human life, decapitation strikes at our concept of physical existence in the most direct way.

The modern controversy around what constitutes death focuses specifically on brain activity, and how little of it can be present for a body to live. In the 1950s and '60s, major medical developments firmly established the brain as the organ that was considered the center of life. CPR could restart an

aborted heart and mechanical ventilators could overcome an inability to breathe, so the state of the brain ultimately determined whether life could be sustained.

The brain can grossly be divided into two parts: the mushroom-like cortexes on top and the root-like brain stem below. The brain stem is responsible for carrying out so-called vegetative functions, like breathing and blinking. The cortexes are responsible for higher-level functions, like thinking and talking. Because brain injuries can inflict varying degrees of brain damage, a commission was set up at Harvard in the 1960s to standardize the declaration of death. It concluded that if a person's brain stem alone is operational, despite complete loss of higher function, that person is still considered alive. Only when a person's entire brain irreversibly shuts down—the state now known as brain death—then that person is considered dead.

The development of this definition of brain death—a definition whose specifics continue to be debated—also was necessitated by organ transplantation, another major new medical advance at the time. As surgeons developed techniques to take organs from dead donors and transplant them into recipients, it became apparent that there needed to be more clarity about the *dead* part. In fact, when Christiaan Barnard performed the first heart transplant in South Africa, rather than wait for any agreement to emerge about when exactly someone was dead enough to have their organ extracted, he jumped the gun, actively stopping the donor's heart from beating with a lethal injection to avoid any uncertainty.

To explain brain death in a way that people could understand, bioethicists often equate it to beheading. If someone is decapitated, provided that the blade lacerates across the neck, both the cortex and brain stem are physically disconnected from the rest of the body; the body is left quite literally brainless. The analogy specifically was used in early descriptions of brain death to ease peoples' reluctance to accept death in the case of a body with a still-beating heart but no brain function.

Yet some bioethicists attack this equation of death and decapitation.

Prominent among these critics are Franklin Miller, at the National Institutes of Health, and Robert Truog, at Harvard University. In denying decapitation as a definition of death, they cite a 1995 experiment that was so gruesome, it would make Edgar Allan Poe shudder. In the investigation, a sheep about to give birth to a lamb was beheaded. Its headless body was then connected to a breathing machine, with a tube going down its severed neck. Thirty minutes later, a caesarian section operation was performed and the headless body gave birth to a now-motherless baby lamb. To Miller and Truog, "there is no ambiguity here: the sheep remained alive during the experiment." Therefore, they conclude, "decapitated animals are not necessarily dead."

This critique was subsequently challenged by John Lizza, a philosophy professor at Kutztown University. "Any criterion for determining death that would count artificially sustained decapitated human bodies among the living 'we' is mistaken," he argues.

The more one thinks about decapitation, the more confusion it creates. If one agrees that a functional headless body is alive, what then of the bodiless head? If anything, the head—if it could be independently sustained—is closer to retaining personhood than the body, and therefore has a stronger case to be considered the heir of life from the initial, fully formed person. And if one is to consider both personhood and functionality as hallmarks of life, then decapitation, far from subtracting life in this bizarre hypothetical, in fact multiplies it, by bestowing it both to the personable head and the functional body.

Watching *Game of Thrones,* one would never realize the philosophical questions raised by the heads that are frequently scythed off. Yet the debate surrounding decapitation sheds light on personal identity and life. The current definition of death can be seen as conflating human identity with the human body. Per modern bioethical standards, the things that most people associate with life—consciousness, identity, sentience—are not what makes a human being alive. The desire to define human life through a strictly biological lens misses the point as to what differentiates our view of

life from other organisms. A body which beats to the drum of random nerves firing which keep it breathing is now considered the essence of human life.

As I see it, my life is my person, not my body. Who I am is defined not by my pancreas or lymph nodes; I am the man who inhabits this 29-year-old body. In the hospital, after I witnessed that elderly man regain his pulse, I stood frozen outside the patient's room, unsure what I should tell his family. In all but a technical sense, the man was dead. Was a technical explanation worth any extra pain and confusion?

I waited a few minutes, but his pulse remained consistent, so I went to the family room and found his two daughters, both in jeans and T-shirts, crying. In the simplest terms I could think of, I told them that while their father had regained a pulse, he was likely to not last much longer.

He didn't. Within a few hours, he passed away for the second time. Yet to his two daughters, he was already gone.