

Death has always been a concrete concept for me. I've trained most of my life as a scientist, which has allowed me many benefits- primarily that I can emotionally isolate for as long as I need to solve a problem. Despite my years of unflinching dissections, I wasn't prepared for my dog L's death two weeks ago. While I lost my grandfather when I was in high school and my other dog S this past Christmas, I was not present for either and both came unexpectedly. L, however, was my first experience with death in its entirety. She was 15 years old and had been failing for a long time, regardless of our near-constant state of denial. As I'm sure it is to most people, the idea of making an appointment with death was foreign and uncomfortable for me. The term "euthanasia" held unknown horrors. Contradicting my beliefs, I recently discovered the Greek origin of the word to be "good death."

For me as a biologist, here's what happened: L was given a heavy dose of sedative, which allowed her to gently lose consciousness. Her breaths slowed, her muscles relaxed, and her heart rate decelerated. Her brain regions eventually stopped integrating external information and the number of interactions between her cortical networks shrunk. While her reflexive processes (like breathing and pumping blood) continued, she lost awareness of the outside world. The euthanizing agent was then administered intravenously, directly depressing her neurons necessary for life function. This was followed by hypoxia, as the oxygen in her body was displaced by carbon dioxide. This process rendered her cerebral cortex nonfunctional, resulting in death. Biologically, death is confirmed with a combination of criteria, including "lack of pulse, breathing, corneal reflex... inability to hear respiratory sounds and heartbeat by use of a stethoscope, graying of the mucous membranes, and rigor mortis" (AVMA Guidelines for the Euthanasia of Animals: 2013 Edition). Thinking back, that definition seems so basic and so inadequate for what we as a family experienced emotionally.

For me as a human, here's what happened: After the sedative, Lady sat down in her bed more gently than I could remember her ever doing (she was stubborn and had been having hip trouble for years, so sitting was a truly rare occurrence for her). As the drugs took effect (and even before, in my opinion) she slowly lay down with her head in my lap and released an incredible sigh. While there are many explanations for this, the one I choose is relief. It was like the knot in her soul finally came undone and she set it free. She rested with her eyes just barely open, and her mouth closed, corners slightly turned up in what looked like contentment. We as humans do much anthropomorphizing, but this seemed different. I looked at Lady and knew with absolute certainty that she was ready. When she died she had her family around her and she slipped away from us as gently as she used to fall asleep.

This could evolve into an involved discussion on human euthanasia and what becomes most important as someone's life ends, and although I think that's a conversation worth having I'm not sure that's what this writing is about. I don't really know what I'm trying to do here, other than support the human capacity for emotion. There is a reason we have a developed amygdala- a tiny structure in our brains that mediates love, friendship, and affection. Death cannot be a checklist alone. The loss of life is so much more complex than can be scientifically defined. It can really only be experienced and perceived, not explained. Death is abstract and untouchable. For all the majesty of science, there are some fundamental processes it cannot truly describe. Processes like life and death are left to individual interpretation. I believe those who experience death have a changed understanding of life.