WHEN BREATH Becomes Air

PROLOGUE

Webster was much possessed by death And saw the skull beneath the skin; And breastless creatures under ground Leaned backward with a lipless grin.

-T. S. Eliot, "Whispers of Immortality"

I FLIPPED THROUGH THE CT scan images, the diagnosis obvious: the lungs were matted with innumerable tumors, the spine deformed, a full lobe of the liver obliterated. Cancer, widely disseminated. I was a neurosurgical resident entering my final year of training. Over the last six years, I'd examined scores of such scans, on the off chance that some procedure might benefit the patient. But this scan was different: it was my own.

I wasn't in the radiology suite, wearing my scrubs and white coat. I was dressed in a patient's gown, tethered to an IV pole, using the computer the nurse had left in my hospital room, with my wife, Lucy, an internist, at

my side. I went through each sequence again: the lung window, the bone window, the liver window, scrolling from top to bottom, then left to right, then front to back, just as I had been trained to do, as if I might find something that would change the diagnosis.

We lay together on the hospital bed.

Lucy, quietly, as if reading from a script: "Do you think there's any possibility that it's something else?"

"No," I said.

We held each other tightly, like young lovers. In the past year we'd both suspected, but refused to believe, or even discuss, that a cancer was growing inside me.

About six months before, I had started losing weight and having ferocious back pain. When I dressed in the morning, my belt cinched one, then two notches tighter. I went to see my primary care doctor, an old classmate from Stanford. Her sister had died suddenly as a neurosurgery intern, after contracting a virulent infection, and so she'd taken a maternal watch on my health. When I arrived, however, I found a different doctor in her office—my classmate was on maternity leave.

Dressed in a thin blue gown on a cold examining table, I described the symptoms to her. "Of course," I

said, "if this were a boards exam question—thirty-fiveyear-old with unexplained weight loss and new-onset back pain—the obvious answer would be (C) cancer. But maybe it's just that I'm working too hard. I don't know. I'd like to get an MRI to be sure."

"I think we should get X-rays first," she said. MRIs for back pain are expensive, and unnecessary imaging had lately become a major national point of cost-saving emphasis. But the value of a scan also depends on what you are looking for: X-rays are largely useless for cancer. Still, for many docs, ordering an MRI at this early stage is apostasy. She continued: "X-rays aren't perfectly sensitive, but it makes sense to start there."

"How about we get flexion-extension X-rays, then maybe the more realistic diagnosis here is isthmic spondylolisthesis?"

From the reflection in the wall mirror, I could see her googling it.

"It's a pars fracture affecting up to five percent of people and a frequent cause of back pain in the young."

"Okay, I'll order them, then."

"Thanks," I said.

Why was I so authoritative in a surgeon's coat but so

meek in a patient's gown? The truth was, I knew more about back pain than she did—half of my training as a neurosurgeon had involved disorders of the spine. But maybe a spondy *was* more likely. It did affect a significant percent of young adults—and cancer in the spine in your thirties? The odds of that couldn't be more than one in ten thousand. Even if it were one hundred times more common than that, it'd still be less common than a spondy. Maybe I was just freaking myself out.

The X-rays looked fine. We chalked the symptoms up to hard work and an aging body, scheduled a follow-up appointment, and I went back to finish my last case of the day. The weight loss slowed, and the back pain became tolerable. A healthy dose of ibuprofen got me through the day, and after all, there weren't that many of these grueling, fourteen-hour days left. My journey from medical student to professor of neurosurgery was almost complete: after ten years of relentless training, I was determined to persevere for the next fifteen months, until residency ended. I had earned the respect of my seniors, won prestigious national awards, and was fielding job offers from several major universities. My program director at Stanford had recently sat me down and said,

"Paul, I think you'll be the number one candidate for any job you apply for. Just as an FYI: we'll be starting a faculty search for someone like you here. No promises, of course, but it's something you should consider."

At age thirty-six, I had reached the mountaintop; I could see the Promised Land, from Gilead to Jericho to the Mediterranean Sea. I could see a nice catamaran on that sea that Lucy, our hypothetical children, and I would take out on weekends. I could see the tension in my back unwinding as my work schedule eased and life became more manageable. I could see myself finally becoming the husband I'd promised to be.

Then, a few weeks later, I began having bouts of severe chest pain. Had I bumped into something at work? Cracked a rib somehow? Some nights, I'd wake up on soaked sheets, dripping sweat. My weight began dropping again, more rapidly now, from 175 to 145 pounds. I developed a persistent cough. Little doubt remained. One Saturday afternoon, Lucy and I were lying in the sun in Dolores Park in San Francisco, waiting to meet her sister. She glimpsed my phone screen, which displayed medical database search results: "frequency of cancers in thirty- to forty-year-olds."

"What?" she said. "I didn't realize you were actually worried about this."

I didn't respond. I didn't know what to say.

"Do you want to tell me about it?" she asked.

She was upset because she had been worried about it, too. She was upset because I wasn't talking to her about it. She was upset because I'd promised her one life, and given her another.

"Can you please tell me why you aren't confiding in me?" she asked.

I turned off my phone. "Let's get some ice cream," I said.

We were scheduled for a vacation the following week to visit some old college friends in New York. Maybe a good night's sleep and a few cocktails would help us reconnect a bit and decompress the pressure cooker of our marriage.

But Lucy had another plan. "I'm not coming to New York with you," she announced a few days before the trip. She was going to move out for a week; she wanted

time to consider the state of our marriage. She spoke in even tones, which only heightened the vertigo I felt.

"What?" I said. "No."

"I love you so much, which is why this is so confusing," she said. "But I'm worried we want different things from our relationship. I feel like we're connected halfway. I don't want to learn about your worries by accident. When I talk to you about feeling isolated, you don't seem to think it's a problem. I need to do something different."

"Things are going to be okay," I said. "It's just residency."

Were things really so bad? Neurosurgical training, among the most rigorous and demanding of all medical specialties, had surely put a strain on our marriage. There were so many nights when I came home late from work, after Lucy had gone to bed, and collapsed on the living room floor, exhausted, and so many mornings when I left for work in the early dark, before she'd awoken. But our careers were peaking now—most universities wanted both of us: me in neurosurgery, Lucy in internal medicine. We'd survived the most difficult part of our journey. Hadn't we discussed this a dozen times?

Didn't she realize this was the worst possible time for her to blow things up? Didn't she see that I had only one year left in residency, that I loved her, that we were so close to the life together we'd always wanted?

"If it were just residency, I could make it," she said. "We've made it this far. But the problem is, what if it's *not* just residency? Do you really think things will be better when you're an academic neurosurgery attending?"

I offered to skip the trip, to be more open, to see the couples therapist Lucy had suggested a few months ago, but she insisted that she needed time—alone. At that point, the fuzziness of the confusion dissipated, leaving only a hard edge. Fine, I said. If she decided to leave, then I would assume the relationship was over. If it turned out that I had cancer, I wouldn't tell her—she'd be free to live whatever life she chose.

Before leaving for New York, I snuck in a few medical appointments to rule out some common cancers in the young. (Testicular? No. Melanoma? No. Leukemia? No.) The neurosurgical service was busy, as always. Thursday night slipped into Friday morning as I was caught in the operating room for thirty-six hours straight, in a series of deeply complex cases: giant aneurysms, intra-

cerebral arterial bypasses, arteriovenous malformations. I breathed a silent thanks when the attending came in, allowing me a few minutes to ease my back against a wall. The only time to get a chest X-ray was as I was leaving the hospital, on the way home before heading to the airport. I figured either I had cancer, in which case this might be the last time I would see my friends, or I didn't, in which case there was no reason to cancel the trip.

I rushed home to grab my bags. Lucy drove me to the airport and told me she had scheduled us into couples therapy.

From the gate, I sent her a text message: "I wish you were here."

A few minutes later, the response came back: "I love you. I will be here when you get back."

My back stiffened terribly during the flight, and by the time I made it to Grand Central to catch a train to my friends' place upstate, my body was rippling with pain. Over the past few months, I'd had back spasms of varying ferocity, from simple ignorable pain, to pain that made me forsake speech to grind my teeth, to pain so severe I curled up on the floor, screaming. This pain was toward the more severe end of the spectrum. I lay down

on a hard bench in the waiting area, feeling my back muscles contort, breathing to control the pain—the ibuprofen wasn't touching this—and naming each muscle as it spasmed to stave off tears: erector spinae, rhomboid, latissimus, piriformis...

A security guard approached. "Sir, you can't lie down here."

"I'm sorry," I said, gasping out the words. "Bad ... back ... spasms."

"You still can't lie down here."

I'm sorry, but I'm dying from cancer.

The words lingered on my tongue—but what if I wasn't? Maybe this was just what people with back pain live with. I knew a lot about back pain—its anatomy, its physiology, the different words patients used to describe different kinds of pain—but I didn't know what it *felt* like. Maybe that's all this was. Maybe. Or maybe I didn't want the jinx. Maybe I just didn't want to say the word *cancer* out loud.

I pulled myself up and hobbled to the platform.

It was late afternoon when I reached the house in Cold Spring, fifty miles north of Manhattan on the Hudson River, and was greeted by a dozen of my closest

friends from years past, their cheers of welcome mixed with the cacophony of young, happy children. Hugs ensued, and an ice-cold dark and stormy made its way to my hand.

"No Lucy?"

"Sudden work thing," I said. "Very last-minute."

"Oh, what a bummer!"

"Say, do you mind if I put my bags down and rest a bit?"

I had hoped a few days out of the OR, with adequate sleep, rest, and relaxation—in short, a taste of a normal life—would bring my symptoms back into the normal spectrum for back pain and fatigue. But after a day or two, it was clear there would be no reprieve.

I slept through breakfasts and shambled to the lunch table to stare at ample plates of cassoulet and crab legs that I couldn't bring myself to eat. By dinner, I was exhausted, ready for bed again. Sometimes I read to the kids, but mostly they played on and around me, leaping and yelling. ("Kids, I think Uncle Paul needs a rest. Why don't you play over there?") I remembered a day off as a summer camp counselor, fifteen years prior, sitting on the shore of a lake in Northern California, with a bunch

of joyous kids using me as an obstacle in a convoluted game of Capture the Flag, while I read a book called *Death and Philosophy*. I used to laugh at the incongruities of that moment: a twenty-year-old amid the splendor of trees, lake, mountains, the chirping of birds mixed with the squeal of happy four-year-olds, his nose buried in a small black book about death. Only now, in this moment, I felt the parallels: instead of Lake Tahoe, it was the Hudson River; the children were not strangers', but my friends'; instead of a book on death separating me from the life around me, it was my own body, dying.

On the third night, I spoke to Mike, our host, to tell him I was going to cut the trip short and head home the next day.

"You don't look so great," he said. "Everything okay?"

"Why don't we grab some scotch and have a seat?" I said.

In front of his fireplace, I said, "Mike, I think I have cancer. And not the good kind, either."

It was the first time I'd said it out loud.

"Okay," he said. "I take it this is not some elaborate practical joke?"

"No."

He paused. "I don't know exactly what to ask."

"Well, I suppose, first, I should say that I don't know for a *fact* that I have cancer. I'm just pretty sure of it a lot of the symptoms point that way. I'm going to go home tomorrow and sort it out. Hopefully, I'm wrong."

Mike offered to take my luggage and send it home by mail, so I wouldn't have to carry it with me. He drove me to the airport early the next morning, and six hours later I landed in San Francisco. My phone rang as I stepped off the plane. It was my primary care doctor, calling with the chest X-ray result: my lungs, instead of being clear, looked blurry, as if the camera aperture had been left open too long. The doctor said she wasn't sure what that meant.

She likely knew what it meant.

I knew.

Lucy picked me up from the airport, but I waited until we were home to tell her. We sat on the couch, and when I told her, she knew. She leaned her head on my shoulder, and the distance between us vanished.

"I need you," I whispered.

"I will never leave you," she said.

We called a close friend, one of the attending neurosurgeons at the hospital, and asked him to admit me.

I received the plastic arm bracelet all patients wear, put on the familiar light blue hospital gown, walked past the nurses I knew by name, and was checked in to a room—the same room where I had seen hundreds of patients over the years. In this room, I had sat with patients and explained terminal diagnoses and complex operations; in this room, I had congratulated patients on being cured of a disease and seen their happiness at being returned to their lives; in this room, I had pronounced patients dead. I had sat in the chairs, washed my hands in the sink, scrawled instructions on the marker board, changed the calendar. I had even, in moments of utter exhaustion, longed to lie down in this bed and sleep. Now I lay there, wide awake.

A young nurse, one I hadn't met, poked her head in.

"The doctor will be in soon."

And with that, the future I had imagined, the one just about to be realized, the culmination of decades of striving, evaporated.

PART I

In Perfect Health I Begin



- The hand of the LORD was upon me, and carried me out in the spirit of the LORD, and set me down in the midst of the valley which was full of bones,
- And caused me to pass by them round about: and, behold, there were very many in the open valley; and, lo, they were very dry.

And he said unto me, Son of man, can these bones live?

-Ezekiel 37:1-3, King James translation

I KNEW WITH CERTAINTY that I would never be a doctor. I stretched out in the sun, relaxing on a desert plateau just above our house. My uncle, a doctor, like so many of my relatives, had asked me earlier that day what I planned on doing for a career, now that I was heading off to college, and the question barely registered. If you had forced me to answer, I suppose I would have said a writer, but frankly, thoughts of any career at this point seemed absurd. I was leaving this small Arizona town in a few weeks, and I felt less like someone preparing to climb a career ladder than a buzzing electron about to achieve

Paul Kalanithi

escape velocity, flinging out into a strange and sparkling universe.

I lay there in the dirt, awash in sunlight and memory, feeling the shrinking size of this town of fifteen thousand, six hundred miles from my new college dormitory at Stanford and all its promise.

I knew medicine only by its absence—specifically, the absence of a father growing up, one who went to work before dawn and returned in the dark to a plate of reheated dinner. When I was ten, my father had moved us-three boys, ages fourteen, ten, and eight-from Bronxville, New York, a compact, affluent suburb just north of Manhattan, to Kingman, Arizona, in a desert valley ringed by two mountain ranges, known primarily to the outside world as a place to get gas en route to somewhere else. He was drawn by the sun, by the cost of living—how else would he pay for his sons to attend the colleges he aspired to?-and by the opportunity to establish a regional cardiology practice of his own. His unyielding dedication to his patients soon made him a respected member of the community. When we did see him, late at night or on weekends, he was an amalgam of sweet affections and austere diktats, hugs and kisses