# PROLOGUE

*The following private journal entries were written by the late Kate Hurley, a thirty-seven-year-old, physically fit (played lots of tennis and was careful about her diet), moderately compulsive, third-grade elementary school teacher and doting mother of two boys, aged eleven and eight. Until her death during a horrific home invasion, she lived with her family at 1440 Bay View Drive in Mount Pleasant, South Carolina, across the harbor from Charleston. The house stands in a relatively secluded wooded section at the very end of the road. She was married to Robert Hurley, an aggressive personal-injury lawyer.*

## Saturday, March 28, 8:35 A.M.

It is a dreary, gray day as I look out the window of my hospital room in the Mason-Dixon Medical Center. Hardly the spring weather we all expect. I haven't been good about writing in my journal over the last six months even though doing so has always been a great solace for me. Unfortunately I have been exhausted at night and much too busy getting the boys and myself ready for school

in the morning, but I will make an effort to change. I could use the consolation. I am in the hospital, feeling sorry for myself after a dreadful night. It had started promisingly enough as Bob and I had met Ginny and Harold Lawler for dinner on Sullivan's Island. They all had fish, and in retrospect, I wish I had done the same. Unfortunately I had chosen the duck, which was prepared on the rare side and which I would later learn from the emergency room physician probably had been contaminated, most likely with salmonella. I began to feel strange even before finishing the entrée, and it got progressively worse. While Bob was taking home the babysitter, I had my first episode of vomiting—not pleasant! I made a mess of myself and the bathroom. Luckily I was able to clean it up before Bob returned. He was sympathetic but tired from a busy day at the office and soon turned in. Since I still felt horrid, I parked myself in the bathroom and threw up several more times, even after I thought there was no way there could be any more food in my system. By two A.M. I realized I was weak and getting weaker. It was then that I woke up Bob. He took one look at me and judged that I needed to be seen by a doctor. Our health plan directed us to the Mason-Dixon Medical Center over in Charleston. Luckily we were able to get Bob's mom to come over to be with the kids. She's been a lifesaver on a number of occasions, this being one of them. At the emergency room, the nurses and the doctors were great. Of course I was mortified as the vomiting continued and bloody diarrhea began. I was started on an IV and given some medication, which I'm sure they explained, but I don't remember. They also advised that I be admitted. I felt so out of it that I didn't object, even though I have always feared hospitals. I also must have been given a sedative, because I don't even remember Bob leaving or my being transferred from the ER to a hospital room. Yet a few hours later I do remember partially awakening when someone, probably a nurse, came into the dark room and adjusted or added something to the IV. It was as if I were dreaming, because the person appeared like an apparition, with

blond hair and dressed in white. I tried to talk but couldn't, at least not intelligently. When I awoke this morning I felt like I had been run over by a truck. I tried to get out of bed to use the bathroom but couldn't, at least initially, and had to call for assistance. It is one of the things that I dislike about being in a hospital: you're not in control. You have to give up all autonomy when you check in.

The nurse who helped me said that a doctor would be by shortly. I will finish this entry when I get home to talk about how this episode has made me realize how much I take general health for granted. I had never had food poisoning before. It is much worse than I had imagined. In fact it is god-awful! That's all I can say.

## Sunday, March 29, 1:20 P.M.

Obviously I already have failed to follow my resolution about writing in this journal more frequently. I did not finish yesterday's entry as I promised myself because things did not go as I had planned. Soon after I had written the above, I was visited by one of the hospital's resident physicians, Dr. Clair Webster, who noticed something that I hadn't, namely that I had a fever. It wasn't a high fever, but it was a change, since I had a normal temperature the night before. Although I didn't realize it, machines were recording my pulse, blood pressure, and temperature continuously, which was why I hadn't seen anyone during the night except for the person who had adjusted my intravenous. Even my IV is being controlled by a small computerized device. So much for the human touch in the modern hospital! Dr. Webster said my temperature had started rising about six A.M. and that she wanted to wait to see what it did before discharging me. I called Bob to let him know about the delay.

As it turned out, it was more than a delay, as my temperature did not return to normal but rather proceeded to climb all day and all night up to 104° F, so here I am still. And there have been some

further complications. Right after Bob and the boys left from their afternoon visit yesterday (the boys were not supposed to visit because of their ages but Bob snuck them up to the room) I started to get very achy, and now I understand what people mean when they say they have joint pain. Worse than that, I have begun to have some breathing problems, and as if that is not enough, when I took a shower yesterday, I noticed I had a slight rash under my arms, and under my breasts, that are flat, tiny red dots. Luckily they don't itch. The nurse said I had some on the whites of my eyes also. All that brought the resident doctor back. She said that she was confused because the symptoms were suggesting I might have typhoid fever, and she insisted I be seen by an infectious-disease specialist. So he came by and examined me. Thankfully he said it wasn't typhoid and gave a number of reasons, chief of which was that I didn't have the right strain of salmonella. Still, he was concerned that my heart had speeded up while I've been in the hospital. To check this out, he called in a cardiologist, a Dr. Christopher Hobart, who examined me as well. My room was like a convention center, with all these doctors coming and going. Dr. Hobart immediately ordered a chest X-ray because he thought I was having some fat embolization! As soon as I had a chance I looked up *fat embolization* online (thank God for the Internet) and found out it is globules of fat in the bloodstream, a condition usually seen in patients with severe trauma, including broken bones. Of course I haven't had any trauma except emotional, so the cardiologist concluded it was from severe dehydration. But since I already had the intravenous line, he said there was no need for any further treatment, especially since my breathing seemed entirely normal. I was pleased about that, but, I have to say, all this has made my hospital phobia skyrocket. I read something about hospital complications a few months ago in the *Post and Courier*, and what was going on with me seemed similar and was making me really anxious. The only thing that was wrong

with me when I came in Friday night was food poisoning, and now I was supposedly having fat embolization. I called Bob and told him how I felt and that I wanted to get out of this place and come home. He advised me to be patient and that we would discuss it later, when he comes to visit, after his mother comes over to the house to watch the kids. I will finish this entry after Bob and I talk. On top of my other symptoms I'm having some trouble concentrating.

### Monday, March 30, 9:30 A.M.

Once again I failed to write in the journal, as I had planned after Bob's visit. My excuse was feeling spaced out. That's the best way I can describe it. I had written yesterday at the very end of the entry that I was having trouble concentrating. It got worse. I don't even remember all that Bob and I talked about when he was here, although I do remember that he, too, got upset about all my emerging symptoms, demanding to talk to the doctors who had come to examine me. Whether he did or not, I don't know. And I don't remember much else that he said, although I do remember that he was going to call Dr. Curtis Fletcher, our old family doctor, and get him involved.

I vaguely remember getting agitated after Bob left, worrying that I was getting worse and not better. That got Dr. Webster back, and she prescribed a sedative to calm me down, which certainly did. The next thing I remembered was again waking up in the middle of the night. This time it was with someone doing something to my belly that felt like a needle prick. Maybe it was the same person who had adjusted my IV the night before. I'm not sure. When I awoke this morning, I wondered if it had been a dream until I found a slightly tender area on my abdomen. Are some sedatives given there? I will try to remember to ask. My fever is down slightly, although still above normal. More importantly, I don't feel so spaced out, and

the achiness is much improved with ibuprofen. Maybe they will let me go home. I hope so. My dislike and fear of hospitals have not improved. They've gotten worse.

### 10:35 A.M.

I am back writing! I am very upset. I am not going home. Dr. Chris Hobart just returned with bad news. He said he had ordered an albumin test yesterday, which turned out to show that the albumin was okay but that I had another blood protein that was way up! He said I was developing a monoclonal gammopathy, whatever the hell that is. I have yet to look it up on the Internet. I hate it when doctors talk as if they don't want you to understand. I know this sounds paranoid, but I think doctors do it on purpose. To his credit, he did say that the elevated protein was probably not a problem, but he wanted me to have another consult with a blood specialist, meaning I wasn't going to be discharged.

### 3:15 P.M.

The blood specialist just left, promising to return in the morning. If her visit was supposed to calm me down, it didn't work. My worst fears about hospitals are coming to pass in spades. This new doctor is a blood cancer doctor! An oncologist! I'm now terrified I'm going to come down with something like leukemia. The doctor's name is Siri Erikson, which sounds Scandinavian, and she looks it. All I can say is that I want to go home! Unfortunately I still have a high fever, and Dr. Erikson said it would be better for me to stay another few days to see if they can find out what is causing my temperature to go up, or, at the very least, let it come back to normal.

But I'm really anxious. Everything that is happening is convinc-

ing me that hospitals are not safe places to be unless you really need them, like I suppose I did Friday night. It seems that the longer I stay here, the more problems I get. I will talk to Bob about all this when he comes to visit after work. On the plus side, my GI system is getting back to normal. My diet has been upped to normal foods, which I am tolerating fine. I just want to get out of here and get home with Bob and the boys.

### 4:45 P.M.

Bob expects to be here around six P.M. In the meantime I put in a call to Dr. Fletcher, our old family doctor, which Bob had forgotten to do after he said he would. I remembered seeing the GP for a physical about two months ago, when Bob and I were toying with the idea of getting some life insurance. The examination had included some basic blood work, and I wondered if it included blood proteins. At the time I had been told everything had been normal. When Dr. Fletcher called me back to commiserate about my bout of food poisoning, he told me that the blood work he had done did include a blood protein screen. He confirmed it had been normal. When I told him about possibly having a protein problem now, he was surprised, although he said such a problem can start at any time but usually only involving people much older than I. His advice was that the test should be repeated, and I told him that it had already been ordered. As far as getting him involved in my in-hospital care, he said he couldn't do it. He said that he did not have privileges at the Mason-Dixon but would be happy to talk to any of the doctors taking care of me if they wanted. I thanked him and told him that I would suggest it. Needless to say, I'm disappointed with what's going on, and I have decided, no matter what, I will check myself out of the hospital tomorrow as long as Bob is okay with the plan.

### 7:05 P.M.

Bob just left. Unfortunately I've gotten him really upset. After telling him what I had learned from Dr. Fletcher, that my blood proteins were normal a few months ago, he wanted to sign me out of the hospital immediately. Strangely enough, his emotional response made me hesitant about leaving, especially since I had been told that it would entail signing out against medical advice. Finally I was able to convince Bob that we should wait at least until the morning, when I would be seeing Dr. Erikson again. After all, blood problems were her specialty, and I wanted to be reassured I didn't have something really bad, like cancer.

Now, lying here at the mercy of this place and listening to the sounds drifting in from the corridor, I wonder if I should have let Bob check me out no matter what I needed to sign. To make matters worse, I have just noticed what might be a new symptom: my belly feels slightly tender. Or at least I think it does when I press deeply. But maybe it always feels that way. I don't actually know. Maybe I'm being overly melodramatic and even a little paranoid. I'm going to ask for my sleeping pill and try to forget where I am.

### Tuesday, March 31, 9:50 A.M.

I just hung up with Bob. I'm afraid I have ignited a firestorm. I told him that Dr. Erikson had come by with the news that the protein abnormality, or gammopathy, in my blood was real, and the level was even slightly higher than in the previous test. When she saw how upset I became, she tried to backtrack and calm me down. But her reassurances fell on deaf ears. Not after reading what I had on the Internet about blood protein abnormalities. As soon as she left, I called Bob and, bursting into tears, I told him what had hap-

pened. He told me to start packing my things because he was coming in to sign me out. And that was not all: he said he is going to sue the bejesus out of Middleton Healthcare, the corporate owners of the Mason-Dixon Medical Center and thirty-one other hospitals. When I asked why, he told me he'd pulled an "all-nighter" doing research using his inside channels (he actually pays informants at area hospitals to find out about difficult cases so he can contact the patients directly). He said he had learned something disturbing concerning Middleton Healthcare hospitals that he needs to follow up further and will explain when I get home. Meanwhile, he wants me out of the Mason-Dixon Medical Center pronto (his word). He said that the Middleton Healthcare hospitals had excellent stats in relation to hospital-based infections, but when it comes to a discharge diagnosis of a new, unsuspected blood-protein abnormality, like I supposedly have, their numbers are off the charts. He believes that he may have stumbled onto a class-action lawsuit that could make his career. He said that his intuition was telling him that Middleton was doing something strange, meaning some sort of corporate wrongdoing, and he intended to find out what it was and do something about it. We talked for quite a while, with him doing most of the talking. I have to admit I progressively felt a bit betrayed. His main interest had morphed from my problems and mind-set to a lawsuit supposedly in the public interest.

After I assured him I would be ready when he got to the medical center, and we disconnected, I stared out the window, feeling particularly lonely and worrying that Bob's state of mind was going to cause problems for us over the long haul. We had to use Mason-Dixon Medical Center, as it was the only area hospital in our insurance network. The problem is, when Bob gets started on something like this, involving a major lawsuit, he is like a dog with a bone. I can't imagine why Middleton Healthcare Hospitals would see more blood-protein abnormalities than other hospitals. It doesn't make sense. Does Bob think they are drumming up business? I can't

imagine that could be true! But his aggressiveness about the hospital gives me a bad feeling, especially since the doctors and nurses really did help me when I was in need on Friday night. What if the boys need hospitalization in the near future? Could Bob jeopardize that? What I do know, and know better than anybody else, is when Bob says he is going to sue somebody, it happens. I suppose I can hope that once I am home I can calm him down, and we all get back to normal.

# BOOK 1

# 1.

## Monday, April 6, 6:30 A.M.

Spring in Charleston, South Carolina, is a resplendent affair, and by the beginning of April, it is always well under way. The azaleas, camellias, hyacinths, early-blooming magnolias, and forsythias, as if competing for attention, all contribute to the riot of color and fragrance. And on this particular day, as the sun prepared to rise, there was the promise that it would be glorious for almost everyone in this scenic, historic town. Everyone, that is, except for Carl Vandermeer, a successful young lawyer who had grown up in nearby West Ashley.

Most mornings, regardless of the time of the year but particularly in the springtime, Carl would be part of a sizable group of joggers who ran along the Battery, which was located at the southern tip of Charleston's peninsula. The Battery fronted that portion of the expansive Charleston Harbor formed by the confluence of the Cooper and the Ashley Rivers. Lined with restored nineteenth-century mansions and boasting a public garden, the Battery was one of the city's most attractive and popular locales.

Like most of his fellow runners, Carl lived in the immediate and

charming residential neighborhood known to the locals as SOB, the acronym for "South of Broad." Broad Street was a thoroughfare that ran east to west across the Charleston peninsula between the two rivers.

The reason Carl was not jogging this beautiful spring morning was the same reason he had not been jogging for the previous month. He had torn the anterior cruciate ligament in his right knee during the final basketball game of the past season. He and a half dozen other athletically inclined lawyers had formed a team to play in a city league.

Carl had always been into sports through high school and Duke University, where he played Division 1 lacrosse with considerable renown. Having made it a point to keep himself in shape even during law school, he thought of himself as generally immune to injury, especially since he was only twenty-nine years old. Throughout his athletic career he had never suffered more than a couple of sprained ankles.

So the knee injury had come as an unwelcome surprise. One minute he was perfectly fine, having played the entire first half of the game and scoring eighteen points in the process. With the ball in his possession, he had faked the fellow guarding him to the left and then went to the right, to drive to the basket. He never made it. The next thing he knew, he was sprawled on the floor, unsure of what had happened. Embarrassed, he got right to his feet. There was some discomfort in his right knee, but it wasn't bad. He took a few steps to walk it out and immediately collapsed a second time. That was when he knew it was serious.

A visit to Dr. Gordon Weaver, an orthopedic surgeon, had confirmed the diagnosis to be a torn anterior cruciate ligament. Even Carl, a complete medical novice by choice, had been able to see it on the MRI. The bad news was that he'd have to have surgery if he wanted to play any kind of sports. Dr. Weaver said the best opera-

tion involved diverting a portion of his own patellar tendon up through his joint. The only good news was that his health plan would cover the whole deal, including the rehab. His bosses at the law firm where he worked were not thrilled about the necessary downtime, but missing work was not what bothered Carl. What bothered Carl was that he had a particularly strong distaste for anything having to do with medicine and needles. He had been known to pass out from merely having blood drawn, and he didn't even like the smell of rubbing alcohol because of its associations. He had never been hospitalized, but he had visited friends who had been, and the experience had freaked him out, so going into the hospital that morning for surgery was going to be a challenge, to say the very least.

The irony of his embarrassing and secret medical phobia was that his steady girlfriend for the last two years, Lynn Peirce, was a fourth-year medical student. She often made him light-headed with her stories of her daily experiences at the Mason-Dixon Medical Center, where Carl was scheduled to have his surgery in a few hours. She had been the one who had recommended Dr. Weaver and had explained in agonizing detail exactly how Carl's knee was going to be repaired.

It also had been at Lynn's insistence that he request that his operation be Dr. Weaver's first case on a Monday morning. The rationale, she explained, was that everyone would be fresh and on the ball, meaning there would be less chance for mistakes or scheduling problems. Carl knew that Lynn meant well with all this, but her comments only made him even more nervous.

Lynn had offered to spend the night as she had on Saturday night to make sure Carl followed his pre-op orders and got to the hospital on time, but Carl had begged off. He was afraid she might end up innocently saying something that would make him even more worried than he already was. But he didn't tell her that. He

said he thought he'd sleep better alone and reassured her that he would follow his pre-op instructions to the letter. She had accepted gracefully and said that she'd come visit him in his hospital room as soon as he came back from the PACU, or post-anesthesia care unit.

Carl had never mentioned his medical phobia to Lynn for fear that she, at a minimum, would laugh at him. Nor did he let on how anxious he felt about his upcoming surgery. To preserve his ego, there were some things better left unsaid.

Carl let the alarm ring unabated for a time out of fear of falling back asleep. He'd slept poorly and had had trouble getting to sleep the night before. His instructions from Dr. Weaver's nurse were to have nothing by mouth after midnight except water and to take a good, hot shower with antimicrobial soap when he got up with particular attention paid to his right leg. He was supposed to arrive at the hospital no later than seven, which was going to be a rush, since it was already six-thirty. He wanted it to be a rush, thinking he'd have less chance to think, but here he was, not even out of bed and already anxious.

As if sensing his distress, Pep, his nimble eight-year-old Burmese cat, awoke at the foot of the bed and came up to rub her wet nose against Carl's stubbled chin.

"Thank you, girl," Carl said, tossing back the covers and making a beeline to the bathroom. Pep tagged along as always. Carl had saved the cat at the end of his undergraduate senior year at Duke when one of his classmates was going to abandon her at the pound after graduation in the hope that it would be adopted. Carl couldn't abide by the plan, considering it a possible death sentence. He took the cat home for the summer, became hopelessly enamored with her, and ended up taking her along to law school. Frank Giordano, a close friend and fellow basketball-playing lawyer, who would be arriving shortly to drive Carl to the hospital, had volunteered to take care of the cat by coming to Carl's house and making sure it had

food and water until Carl's homecoming in three days. Everything was in order, or so Carl thought.

As Carl Vandermeer eased into a hot shower, Dr. Sandra Wykoff leaped out of her BMW X3. She was in a hurry not because she was late but because she was enamored with her work. Unlike Carl Vandermeer, she loved medicine so much that she had not taken a real vacation in the three years she'd been on staff at the Mason-Dixon Medical Center. She was a board-certified anesthesiologist who had trained across town at the older Medical University of South Carolina. She was thirty-five years old, a workaholic, and relatively recently divorced after a short marriage to a surgeon.

From her reserved parking spot on the first floor of the parking garage, she avoided the elevator and took the stairs. It was only one flight, and she liked the exercise. The state-of-the-art operating rooms of the medical center, which was built just after the millennium, were on the second floor. In the surgical lounge she gazed up at the monitor displaying the image of the operating room's white board. She was assigned to OR 12 for four cases, the first being a right anterior cruciate repair with a patellar allograph by Gordon Weaver under general anesthesia. She was pleased. She particularly liked Gordon Weaver. Like most of the orthopedic guys, he was a gregarious fellow who enjoyed his work. Most importantly, from Sandra's perspective, he didn't dawdle and was vocal if there was more blood loss than expected. To her, such communication was important, but not every surgeon was as cooperative. Like all anesthesiologists, she knew that she was the one responsible for the patient's well-being during an operation, not the surgeon, and she appreciated being informed if anything occurred with the surgery that was out of the ordinary.

Using her tablet PC, Sandra typed in the patient's name, Carl

Vandermeer, along with his hospital number and her PIN to access his nascent EMR, electronic medical record. She wanted to look at his pre-op history. A moment later she knew what she was dealing with: a healthy twenty-nine-year-old male with no drug allergies and no previous anesthesia. In fact there had been no previous hospitalizations for any reason whatsoever. It was going to be an easy, straightforward case.

After changing into her scrubs, she made her way into the OR proper, passing the OR desk commandeered by the extraordinarily competent OR supervisor, Geraldine Montgomery. On her right she passed the entrance to the PACU, which used to be called more simply the recovery room. The pre-operative holding area was on the left. There was a lot of frenetic activity in both rooms. A bevy of nurses and orderlies were preparing for the soon-to-begin and inevitably busy Monday-morning schedule.

As a generally friendly although private person, Sandra greeted anyone who caught her eye, but she didn't stop to chat or even slow down. She was on her usual early-morning mission. She was eager to check out the anesthesia machine she would be using for the day, something all anesthesiologists and nurse anesthetists were required to do. The difference was that Sandra was more conscientious than most and couldn't wait to start.

Sandra worshipped the newer anesthesia machine, which was essentially computer driven. In fact it was the expanding role that the computer played in anesthesia that had attracted her to the specialty in the first place. As her father's daughter, Sandra was also attracted to most everything mechanical. Her father, Steven Wykoff, was an automotive engineer brought to Spartanburg, South Carolina, from Detroit, Michigan, by BMW in 1993. The fact that computers were destined to become more and more involved in medicine was the reason she went to medical school. It was during her third-year surgery rotation that she was introduced to anesthesia, and she was

captivated from the start. The specialty was a perfect blend of physiology, pharmacology, computers, and mechanical devices, all of which suited Sandra just fine.

Entering OR 12, Sandra greeted Claire Beauregard, the assigned circulating nurse, who was already busy setting up for the case. But there was no conversation. Sandra stepped over to her trusted mechanical partner, with which she was going to spend most of the day. It bristled with varicolored cylinders of gas, multiple monitors, meters, gauges, and valves. The machine, like all the equipment in the relatively new hospital complex, was a state-of-the-art computer-controlled model. It was number 37 out of nearly 100 total. The number was on a sticker on the machine's side, which also included its service history.

From Sandra's perspective the apparatus in front of her was a marvel of engineering. Among its many features was an automatic checklist function that satisfied what the FDA required before use, akin in many respects to the checklist required in a modern aircraft before takeoff to make certain all systems functioned properly. But Sandra did not turn on the machine immediately to initiate the automatic checklist. She liked to check the machine the old-fashioned way, particularly the high-pressure and the low-pressure systems, just to be 100 percent certain everything was in order. She liked to physically touch and operate all the valves. Her hands-on inspection made her feel much more confident than relying on a computer-controlled algorithm.

Satisfied with what she found, Sandra rolled over the stool that would be her perch for the day, sat down, and pulled herself directly up to the anesthesia machine's front. Only then did she turn on the machine. Spellbound as usual, her eyes stayed glued to the monitor as the apparatus went through its own automated checklist, which included most of what she had already done. A few minutes later the machine indicated all was in order, including the alarms for trouble,

such as changes in the patient's blood pressure and heart function or low oxygen levels in the blood.

Sandra was pleased. When something was amiss, even a minor thing, she was obliged to contact the Clinical Engineering Department, which serviced the anesthesia machines. She found the technicians to be a weird bunch. Those she had had interaction with were all expat Russians with varying fluency in English, most of whom seemed like the teenage computer nerds of her youth. She particularly did not like Misha Zotov, who had sought her out in the hospital cafeteria to engage her in conversation the day after she'd gone down to the department to ask a simple service-related question. He gave her the creeps, even more so by calling her at home a few days later to ask her to have a drink with him. How he'd gotten her unlisted number she had no idea. Her response was to fib and say she was in a committed relationship.

With the anesthesia machine ready to go, Sandra then began checking her supplies and pharmaceuticals with equal diligence. She liked to touch everything she might need so she would know where it was. If there was an emergency, she didn't want to search for anything. She wanted everything at her fingertips.

"Want me to park and come in with you?" Frank Giordano asked Carl as he turned into the Mason-Dixon Medical Center a few minutes after seven. They had been driving in silence. Initially Frank had tried to make conversation as they started northward up King Street, but Carl wasn't holding up his side. Frank guessed that Carl was stressed out about his upcoming surgery, especially after Carl admitted he was as nervous as hell before they had started out.

"Thanks, but no," Carl said. "I'm a little late, which I hope means I'm not going to be sitting around." It was clear he was agitated.

"Hey, man," Frank said, "you got to relax! It's no big deal. I had my tonsils out when I was ten. It was a piece of cake. I remember

being told to count backward from fifty. I got to about forty-six and the next thing I knew I was being awakened, and it was all done."

"I have a bad feeling about this," Carl said. He turned to look at Frank.

"Shit, man, why are you going to go and say something stupid like that? Be positive! Look, you got to get it done, and you got to get it done now so, come next December, you're good to go for the next basketball season. We need you healthy."

Carl didn't respond. There was a line of cars backed up under the porte cochere. People were getting out with overnight bags. Carl guessed they, too, were arriving for surgery. He wished he could take it all in stride as it appeared others were doing. He glanced at his cell phone. It was now almost five after seven. He had meant to arrive exactly on time so there would be no sitting around.

"I'll get out here," Carl said suddenly, opening the passenger-side door as he spoke. He climbed out.

"I'll have you at the door in thirty seconds," Frank said.

"I don't think so. It will be faster if I walk." Carl slammed the car door and opened the trunk. He lifted the backpack containing his essentials and slung it over his shoulder. "Don't forget about the cat!"

"No worries," Frank said as he, too, alighted from the car. He came around and gave Carl a quick hug. Carl didn't respond, just looked him in the eye when his friend stepped back. But when Frank raised a fist, Carl followed suit. Their knuckles touched in a fist bump. "Later, dude!" Frank added. "You're going to be fine."

Carl nodded, turned, and negotiated the small tangle of cars waiting to get closer to the front door to disgorge their passengers. As he entered the hospital he remembered reading Dante's description of hell in civilization class at Duke.

A pink-smocked volunteer directed him down the hall to surgical admitting. Carl gave his name to one of the clerks seated behind a chest-high counter.

"You're late," the woman said with a mildly accusatory tone of voice. She had an uncanny visual resemblance to Carl's sixth-grade teacher, Miss Gillespie. The association made him feel as if he were going back to an earlier stage in his life when he truly wasn't in control of his fate. Carl had been an irrepressible twelve-year-old and had clashed with Miss Gillespie. The clerk picked up a packet of paperwork that was on the desk in front of her and handed it to Carl. "Take a seat! A nurse will be with you shortly."

Although similarly as bossy as the clerk, the nurse was significantly more congenial. She smiled when she asked Carl to follow her back to a curtained-off area where there was a gurney made up with fresh sheets and a pillow. Draped across it was the infamous hospital johnny. After checking his picture ID and asking his name and birth date, she put a name tag on his wrist. Once that was done, she told him to put his valuables in a zippered canvas bag that was also on the gurney, take off his clothes, put on the johnny, and lie down. From the inside, she pulled the curtain around to allow privacy. She watched as Carl picked up the johnny and tried to figure out how it was supposed to be worn.

"The opening should be in the back," the nurse said, as if that were going to solve Carl's confusion. "I'll be back shortly when you are done." She then disappeared through the curtain. It was apparent she was in a hurry.

Carl did as he was told but had trouble with the johnny, particularly in terms of figuring out how to secure it. One tie was at the neck, the other at the waist, which made no sense. He did the best he could. No sooner had he gotten onto the gurney and pulled the sheet up around his torso than the nurse was outside the curtain, calling to ask if he was finished.

Back inside the curtain, the nurse then went through a litany of questions: Did you eat anything this morning? Do you have any allergies? Do you have any drug intolerance? Do you have any removable dentures? Do you smoke? Have you ever had anesthesia? Have

you had any aspirin in the last twenty-four hours? It went on and and on, with Carl dutifully answering *no* over and over until she queried how he felt.

"What do you mean?" Carl asked. He was taken aback. It was an unexpected question. "I feel nervous. Is that what you are asking?

The nurse laughed. "No, no, no! I mean do you feel well right now and did you feel normal during the night. What I'm trying to ask is whether or not you feel like you might be coming down with something. Have you had any chills? Do you feel like you have a fever? Anything like that?"

"I get it," Carl said, feeling embarrassingly naive. "Unfortunately I feel fine health-wise, so there's no excuse not to go forward with all this. To be honest I'm just anxious."

The nurse looked up from her tablet, where she had been recording all of Carl's responses. "How anxious do you feel?"

"How anxious should I feel?"

"Some people find the hospital stressful. We who work here don't because being here is an everyday event. You tell me, say on a scale of one to ten."

"Maybe eight! To be honest, I'm really nervous. I don't like needles or any other medical paraphernalia."

"Have you ever had a hypotensive episode in a medical setting?"

"You'll have to translate that into English."

"Like fainting?"

"I'm afraid so. Twice. Once having my blood drawn for some tests in the college infirmary, and once trying to give blood in college."

"I'm going to note this in your record. If you'd like, I'm sure they will give you something to calm you down."

"That would be nice," Carl said, and he meant it.

The nurse took Carl's blood pressure and pulse, which she remarked were normal. She then had a conversation with Carl about which knee was to be operated on, and when Carl pointed to his right knee, she made an X with a permanent marker on Carl's thigh,

four inches above his right kneecap. "We want to be sure not to operate on the wrong knee," she said.

"Me too," Carl responded with alarm. "Has that ever happened?"

"I'm afraid so," the nurse said. "Not here, but it has happened."

*Holy fuck,* Carl thought. Now he had something else to worry about. As nervous as he felt, he wondered if he had been wrong in discouraging Lynn from coming by to at least say hello before the procedure. Maybe he needed an ombudsman.

Dr. Wykoff, the patient is in the CSPC," Claire said, coming back into OR 12, referring to the center for surgical patient care, an extra-long name for the patient holding area.

"How about Dr. Weaver?" Sandra responded.

"He's changing. We're good to go."

"Perfect," Sandra said. She stood and picked up her computer tablet. "How are you doing, Jennifer?" Jennifer Donovan was the scrub nurse, who was already gowned, gloved, and setting out the sterilized instruments. It was 7:21 A.M.

"I'll be ready," Jennifer said.

As Sandra walked back down the central corridor, she checked Carl's EMR and noticed the admitting nurse's entries. There were no red flags for trouble. The only thing she picked up on was that the patient was unusually anxious and had a history of several hypotensive episodes in the past associated with drawing blood. In Sandra's experience she'd come across a number of men with such a phobia, but it had never been a problem. People rarely fainted when lying down. As far as she was concerned, anxiety was par for the course. That's why she liked midazolam, or Versed, so much. It worked like a charm, relaxing even the most skittish patients. In the pocket of her scrubs she had a syringe with the proper dose, according to Carl's weight.

She found Carl Vandermeer in one of the pre-op bays of the

CSPC. She couldn't help but notice that he was a handsome man with dark, thick hair and startlingly wide-open blue eyes. Except for his apparent anxiety, he was the picture of health. The thought went through her mind that working with him was going to be a pleasure.

"Good morning, Mr. Vandermeer," Sandra said. "I'm Dr. Wykoff, I will be your anesthesiologist."

"I want to be asleep!" Carl stated with as much authority as he could muster under the circumstances. "I went over this with Dr. Weaver, and he promised me that I would be asleep. I don't want an epidural."

"No problem," Sandra said. "We're all prepared. I understand you are a little anxious."

Carl gave a short, mirthless laugh. "I think that is an understatement."

"We can help you, but it does require me to give you an injection. I know you don't like needles, but are you okay with getting one? It will help, I guarantee."

"To be truthful, I'm not excited about it. Where will you give it?"

"Your arm will be fine."

Steeling himself, Carl dutifully exposed his left arm and looked away to avoid seeing the syringe. After a quick swipe with an antiseptic wipe, Sandra gave the injection.

Carl turned back. "That was easy. Are you finished already?"

"All done! Now I want to go over with you the material the admitting nurse recorded."

Rapidly Sandra asked the same questions about Carl not having had anything to eat since midnight, about allergies, about drug intolerance, about medical problems, about previous anesthesia, about removable dentures, on and on. By the time Sandra got to the end, Carl's attitude had completely changed, thanks to the midazolam. Not only was he no longer anxious, he was now finding the whole situation entertaining.

At that point, Sandra started her IV. Carl couldn't have cared less and watched her preparations with a sense of detachment. It helped that she was extremely confident and competent with the procedure. She always made a point to start her own so she could trust it. She used an indwelling catheter rather than a simple IV. Carl never stopped talking through the process, particularly about his girlfriend, Lynn Peirce, who he said was a fourth-year medical student and the best-looking woman in her class. Sandra diplomatically let the issue drop.

A few minutes later Dr. Gordon Weaver appeared to have a few words with Carl, including which knee they were going to work on. He checked that the X that the admitting nurse had made with the permanent marker was on the proper thigh.

"You people are really hung up on which knee," Carl joked.

"You better believe it, my friend," Dr. Weaver said.

With Sandra guiding in the front and Dr. Weaver pushing from the back, they wheeled Carl down and into OR12, stopping alongside the operating table directly under the operating room light. Somewhere en route Carl had drifted off into light sleep in midsentence, again reminding Sandra why she was so fond of the midazolam. Only much later would Sandra question the dose she had given in the process of reviewing everything she had done. Sandra, Dr. Weaver, and Claire Beauregard moved Carl over onto the operating table with practiced efficiency.

When Dr. Weaver went out to scrub, Sandra pulled the anesthesia machine close to Carl's head. This was the part of the case that she liked the best. She was center stage and about to prove once again the validity of the science of pharmacology. Anesthesia was a specialty marked by extreme attention to detail; periods of intensive activity, like what she was now beginning; and then long segments of relative boredom, which required dedicated effort to stay focused. Whenever she thought about it, the analogy of being a pilot

came to mind. At the moment she was about to take off. After that had been accomplished she would be in the equivalent of midflight autopilot and have little to do besides scanning the monitor and the gauges. It wouldn't be until the landing that she'd again be called upon for intense activity and attention to detail.

Since there were no specific contraindications to any of the current anesthetic agents, she planned on using isoflurane, supplemented with nitrous oxide and oxygen. She had used the combination in thousands of cases and felt comfortable with it. There was no need for any paralyzing drugs because a knee operation didn't require any muscular relaxation like with an abdominal operation, and she wasn't going to use an endotracheal tube. Instead she would use what was known as a laryngeal mask airway, or LMA. Sandra was a stickler for detail in all aspects of her life but most specifically for anesthesia, and had never had a major complication.

Like all anesthetists who are specially trained nurses and anesthesiologists who are specially trained doctors, Sandra knew that the ideal anesthetic gas should be nonflammable, should be soluble in fat to facilitate going into the brain, but not too soluble in blood so that it could be reversed quickly, should have as little as possible toxicity to various organs, and should not be an irritant to breathing passageways. She also knew that no current anesthetic agent perfectly fulfilled all these criteria. Yet the combination she intended to use with Carl came close.

The first thing that Sandra did was to set up all the patient monitoring so that she would have a constant readout of Carl's pulse, ECG, blood oxygen saturation, body temperature, and blood pressure, both systolic and diastolic. The anesthesia machine would monitor the rest of the levels that needed to be watched, such as oxygen and carbon dioxide levels in inspired and expired gases and ventilation supply variables.

As Sandra positioned the monitors, particularly the ECG leads

and the blood pressure cuff, Carl became conscious. There was no anxiety on his part. He even joked that with everyone wearing masks it was like being at a Halloween party.

"I'm going to give you some oxygen," Sandra said as she gently placed the black breathing mask over Carl's nose and mouth. "Then I will be putting you asleep." Patients liked that comfortable metaphor rather than what Sandra knew anesthesia really to be: essentially being poisoned under controlled and reversible circumstances.

Carl didn't complain and closed his eyes.

At that point Sandra injected the propofol, a fabulous drug in her estimation that was unfortunately made infamous by the Michael Jackson tragedy. Knowing what propofol did to arterial blood pressure, ventilation drive, and cerebral hemodynamics, Sandra would never give the drug to someone without appropriate physiologic monitors and a primed and ready anesthesia machine.

In the induction phase, Sandra was now in her most attentive mode. With an eagle eye on all the monitors she continued to use the black breathing mask to allow Carl to breathe pure oxygen. In the background she was vaguely aware of Dr. Weaver coming into the room and putting on his sterile gown and gloves. After approximately five minutes, Sandra put the breathing mask aside and picked up the appropriately sized LMA. In a practiced fashion she inserted the triangular, inflatable tip into Carl's mouth and pushed it into place with her middle finger. Quickly she inflated the tube's cuff and attached the tube from the anesthesia machine. The immediate detection of carbon dioxide by the anesthesia machine in the exhaled gas suggested the LMA was properly seated. But to be sure, Sandra listened to breath sounds with her stethoscope. Satisfied, she taped the LMA tube to Carl's cheek so that it could not be moved. She then dialed in the proper levels of isoflurane, nitrous oxide, and oxygen. The nitrous oxide had some anesthetic properties but not enough to be used on its own. What it did do was lessen the amount of isoflurane needed, which was helpful, because the

isoflurane did have some mild irritant effects on breathing passageways. She then taped Carl's eyes shut after putting in a bit of antibiotic ointment to protect his corneas from drying.

Sandra watched the anesthesia machine with its readout of all the vital signs. Everything was in order. The takeoff had been smooth. Metaphorically they were nearing cruising altitude and soon the seat belt sign could go off. Sandra's pulse, which had jumped considerably during the induction of anesthesia, dropped back to normal. It had been a tense few minutes, as it always was, yet it provided her a shot of euphoria of a job well done and a patient well served.

"Everything okay?" Dr. Weaver questioned. He was eager to begin.

Sandra gave a thumbs-up as she manually checked Carl's blood pressure yet again. She then helped Claire put up the anesthesia screen, which would be covered with sterile drapes to isolate the patient's head from the sterile operative field. After the screen was in place she sat back down. She was now in midflight.

As he worked during the course of the operation, Dr. Weaver kept up a mostly one-sided conversation with everyone in the room. He talked about what he was doing technically as he fashioned the patellar graft, he talked about his kids, and he talked about his weekend house on Folly Island.

Sandra listened with half an ear, as she imagined the scrub nurse and circulating nurse did as well. Sandra spoke up only once when there was a break in Dr. Weaver's monologue. She took the opportunity to ask how long he thought he'd be.

The surgeon straightened up, paused briefly, and assessed his progress. "I'd guess another forty minutes or so. It's all going smoothly. Everything okay up there with you?"

"Everything is fine," Sandra said. She glanced down at her notes. The machine did the anesthesia report in contrast to the old days, but she kept her own record for her own use and to remain focused. Another forty minutes would put the total time for the procedure

at just a little more than an hour and a half, meaning Dr. Weaver was acting true to form. There were other orthopedic guys who would take nearly double his time.

Sandra moved a bit to keep her circulation going and stretched out her legs. She had the option of having someone come and relieve her for a few minutes if she so desired, but she rarely took advantage of the opportunity and wouldn't now, even though everything was going perfectly smoothly.

Sandra heard the sound of the drill start, meaning Dr. Weaver was creating a pathway through bone into which he would thread the patellar allograph. Knowing that the periosteum was richly enervated with pain fibers, Sandra looked up at the integrated patient monitor screen to see if there were any observable changes to suggest Carl's level of anesthesia wasn't what it should be. All the tracings were exactly as they had been throughout the case. She homed in on the heart rate. It was at seventy-two, without the slightest change. But as she was watching, the screen did something she had never seen it do before. It seemed to blink, as if for a split second it had lost its feed.

A bit concerned about this blip, Sandra leaned closer to get a better look as her own pulse ratcheted upward. The idea of losing all the monitors in the middle of the case was not a happy thought. Holding her breath, she watched to see if there was another episode. A few seconds went by and then a few minutes. There wasn't another blink.

After five minutes she began to relax, especially since the tracings on the monitor all stayed completely normal, including the ECG. Whatever it had been clearly hadn't happened again. The only change, and she wasn't even sure there had been a change, was that all the tracings appeared very slightly higher on the screen than they had been, as if there had been a slight baseline or calibration change. But that couldn't have happened, because she hadn't changed anything.

Sandra shook her head as if to loosen imagined cobwebs. Maybe she did need a break. Yet her fear that the possible artifact had been real kept her glued to her seat and watching the patient monitor closely. It was mesmerizing as the tracings raced across the screen, particularly the ECG, with its rapid, repetitive, staccato up-and-down movements.

After about ten minutes Dr. Weaver got Sandra's attention by telling her that he was within twenty minutes from closing the skin. That meant that her second most busy time had arrived. She shut off the isoflurane but maintained the nitrous oxide and oxygen. The second she did so, disaster struck! The blood oxygen alarm went off, making Sandra jump.

Sandra's eyes shot to the monitor. The oxygen had suddenly gone from nearly 100 percent down to 92 percent. That wasn't terrible, but it was a change, as it had been pegged at maximum during the whole case. It was also encouraging that it was now at 93 percent and already heading upward. But why did it drop? Sandra didn't have the foggiest notion. That was when she noticed the ECG had changed, too. At the same moment the oxygen level had fallen, there was sudden tenting of the T wave, suggesting endocardial ischemia, meaning lack of adequate oxygen to the heart. That was not good. But how could it be? How the hell could the heart be lacking oxygen when the blood level hadn't changed but an instant earlier and not by much? This was nuts!

Sandra forced herself to be calm by sheer force of will. She had to think. Something was wrong, that was clear. But what? Quickly she upped the oxygen percentage, cutting back on the nitrous oxide. That was when she noticed the tidal volume was seemingly falling, meaning Carl wasn't taking as deep breaths as he had been. Immediately Sandra dialed in ventilation assist. She wanted to push in more oxygen to get the low-oxygen alarm to turn off.

"Hey!" Dr. Weaver yelled out with alarm. "Both his legs are hyperextending. Is he seizing? What the hell is going on?"

"Oh, God, no!" Sandra cried out silently. She leaped up, snatching a penlight in the process. Pulling off the tape holding Carl's eyelids closed, she shined a beam of light into his pupils. What she saw terrified her. Both pupils were widely dilated and only sluggishly reactive! She felt a sudden weakness in her legs, requiring her to momentarily support herself by grabbing the edge of the operating table. Her fear was that the hyperextension of the legs was something called decorticate rigidity, suggesting that the cortex of the brain, the most sensitive part, was not getting the oxygen it needed. When the cerebral cortex of the brain is deprived of oxygen, the millions of brain cells don't merely malfunction like the heart—they die!