

PROLOGUE

JUNE 27, BOSTON, MASSACHUSETTS

Due to the seasonal tilt of the earth's axis, the dawn of June 27 came swiftly to Boston, Massachusetts, in sharp contrast to mornings in the dead of winter when the sun's arc was low in the southern sky. Starting at 4:24 A.M., progressively bright summer light quickly filled the streets of the Italianate North End, the narrow byways of elegant Beacon Hill, and the broad boulevards of stately Back Bay. At exactly 5:09 A.M. the sun's disc appeared at the horizon out over the Atlantic Ocean and began its steady rise into a cloudless early-morning sky.

Of the varying spires of the Boston Memorial Hospital, known as the BMH, the first to catch the golden rays was the very top of the central, twenty-one-story Stanhope Pavilion. This modern glass tower was the newest addition to the mishmash of structures comprising the famous tertiary-care Harvard teaching hospital that overlooked the Boston Harbor. Its clean silhouette was strikingly different from the older, low-rise, red-brick buildings dating back more than a hundred and fifty years.

The state-of-the-art Stanhope Pavilion had every modern hospital accoutrement, including a suite of twenty-four of the most up-to-date operating rooms, called "Hybrid ORs of the Future." Each bristled with

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high tech and looked like it had been designed as a set for a *Star Trek* movie, far different from the old standard operating rooms. The entire suite was oriented in two radii of twelve rooms around two central command stations. Windows provided direct visual contact of each OR interior by OR supervisors to augment closed-circuit TV monitors.

Within each of these new hybrid ORs, capable of supporting a wide variety of surgical procedures, from brain surgery to complicated heart surgery to routine knee replacement, a number of large and exquisitely adjustable utility booms hung from the ceiling and supported various types of state-of-the-art medical technology. The suspension system allowed all the equipment to be instantly available yet kept the floor open to maximize movement of the personnel and speed up the transition between cases. One boom supported the anesthesia station, another included a heart-lung perfusion system, a third had an operating microscope, and a final C-shaped boom supported a biplane digital imaging and navigating system that used a combination of infrared light and X-rays to provide real-time three-dimensional images of internal human structure. Each OR also had multiple banks of high-definition video screens plugged into the hospital's clinical information system so that patient data and medical images such as x-rays and sonograms could be displayed instantaneously by voice command.

The rationale for all this super-modern and inordinately expensive equipment was to increase the efficiency and efficacy of the surgery as well as enhance patient safety. Yet on this beautiful late-June day all this modern technological wizardry and rational design was not to be a guarantee against unintended consequence and human foibles. Despite the good intentions of all the dedicated personnel of the BMH surgical department, a human disaster was in the making in Stanhope's hybrid operating room #8.

As sunlight filled the drop-off area for the Stanhope Pavilion at 5:30 am, cars and taxis began to line up at the entrance beneath the porte-

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cohere, their doors opening and passengers emerging with overnight bags. There was little conversation as these soon-to-be inpatients and their accompanying family members entered the hospital and took the elevator up to “Day-Surgery Admitting” on the fourth floor. There had been a time in years past when people were admitted the day before their scheduled elective surgery, but that perk had mostly fallen by the wayside, thanks to health insurance company dictates. The extra night in the hospital was deemed too expensive.

The initial surge of patients represented the first cases of the day. Other patients scheduled as “to follow” cases were instructed to arrive two hours before the time their surgery was estimated to begin. Although the length of operations could be approximated to a reasonable degree, it was never certain. If there was to be an error on timing, it was always to the hospital’s benefit, not the patients’. Sometimes this caused the patients to have to wait for extended periods in holding areas. This could be a problem for some, as all patients were instructed to take nothing but a small amount of water by mouth starting at midnight the night before.

On this particular day, one of the “to follow” cases was an open right inguinal hernia repair on a strapping, healthy, intelligent, and gregarious forty-four-year-old man named Bruce Vincent. Since the operation had been estimated to begin at 10:15 am, he had been told to arrive at Surgical Admitting at 8:15. Unlike other patients scheduled that day, he wasn’t concerned about his upcoming procedure. His comparative nonchalance wasn’t just because of the relative simplicity of his procedure but had more to do with Bruce’s familiarity with the BMH. For Bruce, the hospital was not a mysterious, scary netherworld, because he’d been coming there most every day for twenty-six years. He had been hired by the BMH right out of Charlestown High School, where he had been a popular local sports celebrity, to join the hospital’s security department. It had been a legacy gesture: Bruce’s mother had been an LPN at the hospital for her entire career and his older sister was one of the hospital’s RNs.

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But being an employee and thereby accustomed to the hospital environment was not the only reason for his comparative sang-froid that morning. What truly made him calm was that he had, over the twenty-six years of employment, befriended almost everyone, including doctors, nurses, administrators, and support staff. In the process, he had learned a lot about medicine, particularly hospital-based medicine, to the point that it was a common joke among the staff that he was a graduate of the nonexistent BMH medical school. Bruce could discuss surgical technique with orthopedic surgeons, malpractice concerns with administrators, and staffing problems with RNs, and he did all of this on a regular basis.

When Bruce had been told he was to have spinal anesthesia for his upcoming hernia repair that was going to take maybe an hour at most, he knew exactly what spinal anesthesia was and why it was safer than general anesthesia. For him there was no mystery involved. And on top of that, he was extremely confident of his surgeon, the legendary Dr. William Mason. Bruce was well aware that the mercurial Dr. Mason, who was known behind his back as “Wild Bill,” was one of the most famous surgeons at the hospital. Dr. Mason himself saw to it, making sure that it was common knowledge that patients came from around the world on a weekly basis to take advantage of his skilled hands and incredible statistics. Dr. Mason was a full Harvard professor of surgery, chief of the Department of Gastrointestinal Surgery, and one of the associate program directors of the hospital’s famed surgical residency program. His subspecialty was the very demanding surgery of the pancreas, an organ tucked away in the very back of the abdomen that was notoriously hard to operate on because of its peculiar consistency, digestive function, and location.

When Bruce told people that Dr. Mason was going to do his hernia repair, everyone was shocked. It was common knowledge that Dr. Mason hadn’t done a hernia repair since he had been a surgical resident more than thirty years ago. The professor prided himself on doing only the

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most complex and difficult cases involving the pancreas. Some had been mystified enough to ask Bruce how he had managed the impossible, getting Mason to do what he certainly considered a piddling operation fit for a surgical neophyte and well below his dignity. Bruce had been happy to explain.

Over the years, Bruce had enjoyed persistent advancement in the security department, thanks to his unabashed commitment to the hospital combined with his outgoing personality. He loved his work, and because of his attitude and the fact that he seemed to know everyone by name, everyone loved Bruce Vincent in return. They also liked that he was a family man who had married another outgoing and popular BMH employee from the food-service department. Together they had had four children, one of whom was an infant. Since the Vincent kids' pictures continuously graced the cafeteria bulletin board, it seemed to the entire medical center community that they were the quintessential hospital family.

Although Bruce's popularity had been high from day one, it soared when he had been elevated to take over the hospital's problematic parking division. Due to his efforts, the seemingly intractable difficulties had melted away, especially after he convinced the hospital board to build a third multistory garage specifically for doctors and nurses as part of the Stanhope project. On top of that, Bruce was never one to hide out in his "parking czar" cubicle. Instead, he was always available in the trenches, anticipating problems from the crack of dawn to late afternoon with a smile and personalized comment. By his example, all the other parking employees were similarly dedicated and personable. And it was in this capacity as a hands-on supervisor that Bruce had managed to befriend the otherwise rather aloof Dr. William Mason.

The whole hospital knew when Dr. Mason got his red Ferrari four years ago. There were some jokes behind his back about a mid-life crisis, because along with the flashy sports car he had become overtly flirtatious with several of the OR department's younger and attractive women,

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mostly nurses, but also one of the female surgical residents. Bruce heard the buzz about Dr. Mason's behavior and off-color comments but dismissed them as envy. And as far as the Ferrari was concerned, instead of thinking of it as inappropriate and out of place among the tamer and more conservative Volvos, Lexuses, BMWs, and Mercedes, Bruce lavished it with praise and even offered daily to personally park the car in a special protected place to avoid door dings. So when Bruce learned from his Charlestown GP that he had to have his hernia repaired, a problem he had had for some time but which was now giving him mild intermittent problems, particularly with his digestive system, he simply asked Dr. Mason if he would do it. Bruce popped the question on the spur of the moment one morning when he took the Ferrari's keys. To everyone's surprise—even Bruce's, as he later confided—Dr. Mason agreed on the spot, promising to squeeze Bruce into his jam-packed schedule of celebrities, business maven, European aristocrats, and Arab sheiks whenever Bruce wanted.

Despite being scheduled for surgery that very morning, Bruce had still appeared at his parking office at five as if it was a normal day. And just as he had done for years, he greeted the staff as they arrived. He even parked Dr. Mason's Ferrari. Dr. Mason was a bit taken aback to see him and said as much, wondering if his own memory was failing him.

"I'm a to-follow case, so I don't have to be at Surgical Admitting until 8:15" was Bruce's simple explanation.

Yet Bruce's dedication to his job wasn't without consequence on this particular morning. After handling a problem generated by an employee who had failed to show up or call, Bruce was late getting to Surgical Admitting on Stanhope 4.

"Bruce, you are almost forty minutes late," Martha Stanley said anxiously. She was head of Day-Surgery Admitting. She didn't usually do intakes herself, but she had been waiting for Bruce to show up. "You were supposed to be here at 8:15. We've already heard from the OR, wondering where the hell you were."

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“Sorry, Miss Stanley,” Bruce said sheepishly. “I got held up by a staff problem in the garage.”

“Maybe you shouldn’t have worked this morning,” Martha said with a disapproving shake of her head. She had been surprised to see him in his usual uniform when she pulled into the garage early that day, as she was aware he was scheduled for an inguinal repair. She opened the folder and riffled through its contents, checking that the history and physical were there, along with the most recent blood work and an ECG. She turned her attention to the computer screen to be sure all the same material was there. “In case you don’t know, Dr. Mason is a bear about waiting, and he has two other big VIP pancreatic cancer cases this morning.”

Bruce flashed a remorseful, almost painful expression. “Sorry! I’m sure he hates to wait. Maybe we can speed this admitting process up a bit. My operation is no big deal. It’s just a hernia repair.”

“Every case is important and has to be done by the book,” Martha mumbled as she made an entry into the EMR, the electronic medical record, “but we do have to get you up there sooner rather than later. You haven’t eaten anything, have you?”

“I’m having spinal anesthesia,” Bruce said. “Dr. Mason’s fellow, Dr. Kolganov, told me I was to have spinal when he did the history and physical.”

“It doesn’t matter what kind of anesthesia you’re scheduled to have. Have you eaten anything? You were told not to eat after midnight. That is the same for everyone.”

“No, I’m fine. Let’s get the show on the road.” Bruce glanced at his watch as his heart skipped a beat. A sudden fear swept over him that Dr. Mason might change his mind and refuse to operate on him. That was the last thing Bruce wanted.

“Okay,” Martha said with a touch of reluctance. “You have a negative history and physical by Dr. Mason’s fellow, so maybe we can leapfrog the junior surgical resident going over it and adding his two cents. There has

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been a kind of rush here over the last half hour, so I know he's got his hands full, meaning it would be quite a while for him to get to you. Which side is to be operated on?"

"Right side," Bruce said.

"Do you have any allergies?"

"No. None."

"Have you ever had anesthesia?"

"No. I've never been a hospital patient."

"Excellent." Then Martha called out to one of the attendants tasked to take patients into the changing area where they would get out of their clothes and put on hospital gowns. She handed Bruce's folder to him. "Good luck," she added to Bruce. "And next time be on time!"

Bruce gave her a thumbs-up and a guilty smile, and followed the attendant.

After getting out of his clothes and struggling into the hospital gown, Bruce lay down on a gurney and pulled a sheet up under his armpits. Another nurse appeared, dressed in surgical garb, one of the few nurses he didn't know. She introduced herself as Helen Moran and asked the same questions Martha had asked. Then she marked Bruce's right hip with an indelible marker after confirming with him the side to be operated on. "My orders are to move you along at top speed," she said. "I'll let anesthesia know you are on your way over. They have been looking for you."

Bruce nodded. He felt progressively embarrassed at having been late to Admitting and appreciative of the extra attention he was getting because of it. He figured it was due to a large degree that Dr. Mason was his surgeon. An orderly appeared just after Helen left, unlocked the gurney, and then maneuvered it out into the hallway. His name was Calvin Williams. Bruce didn't know him, but he knew Bruce. "You are a VIP," Calvin said as he wheeled the gurney along the tortuous route toward the operating suite. "I was told you were one of Dr. Mason's patients and I was to get you up to the surgical holding area on the double."

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“Hardly a VIP,” Bruce responded, but he was pleased. As he had assumed, having Dr. Mason as his surgeon was a major plus. He just hoped his being late wouldn’t screw things up.

Calvin deposited Bruce in the pre-anesthesia holding area in a cubicle defined by curtains. As soon as he left two nurses appeared: Connie Marchand and Gloria Perkins. Bruce knew both of them, because both commuted to and from the medical center by car. After a bit of banter, mostly about Bruce’s children, Gloria left. Connie went over the paperwork, checked the inked X on Bruce’s right hip, and went through the same questions Martha and Helen had asked. Satisfied that all was in order, Connie gave Bruce’s arm an endearing squeeze and told him that she would let anesthesia know that he was there. “I imagine one of the anesthesiologists will be by right away,” Connie said. “We’ve gotten a few calls about your whereabouts. Dr. Mason doesn’t like to wait.”

“So I hear,” Bruce said. “My bad! Sorry! I was a bit late to Surgical Admitting. Will everything be okay?”

“It should be all right,” Connie assured him.

A few minutes later the curtain was pulled aside and a youthful woman with arctic-blue eyes and tanned skin came to Bruce’s side. She was dressed in blue scrubs, including a hood that completely covered her hair. In a direct and pleasant fashion, she introduced herself as Dr. Ava London, one of the staff anesthesiologists, and then added: “I will be helping Dr. Mason take care of you this morning, Mr. Vincent, while he fixes your hernia. I must say it is a pleasure to meet you. I’ve heard that you are quite a popular guy and that the darling photos I’ve seen on the cafeteria bulletin board are your children.”

“I oversee hospital parking,” Bruce explained, already liking this attractive and personable anesthesiologist. “I am surprised I haven’t met you. Are you new to the staff?”

“Relatively new,” Ava said. “But it is coming up on five years.”

“That is not new,” Bruce said, a tad chagrined, as he prided himself

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on his knowledge of the medical center's staff. "I guess you don't use the garage."

"No need. I'm able to walk to the hospital," Ava said as she looked through the paperwork on the clipboard at the foot of Bruce's gurney. "I live nearby, on Beacon Hill." She immediately noticed there was no corroborating note by a junior surgical resident. She asked Bruce why.

"Martha Stanley felt there was no need, because Dr. Mason's fellow had done the history and physical just a few days ago. Truthfully, it was my fault. I was late getting to Surgical Admitting. They wanted to get me over here ASAP."

Ava nodded. A fellow, having already completed his surgical residency, was certainly more qualified than a junior surgical resident. She glanced through the history and physical. It was totally negative for any medical problems except the run-of-the-mill inguinal hernia. Satisfied that all was in order, she put the clipboard back onto the gurney and reestablished eye contact with Bruce. "So it seems you are in good health."

"I think so. Can we speed this up? I don't want Dr. Mason upset I was a bit late checking in."

"It is important to do this right. I need to ask you a few questions. I see there is no history of medical problems, particularly no problems with your heart and lungs."

"None."

"And you have never had anesthesia?"

"Never."

"And you haven't eaten since midnight."

"Dr. Mason's fellow said I was going to have spinal anesthesia."

"That is correct. Dr. Mason's secretary specifically let us know that the doctor requested spinal anesthesia. Are you okay with that? You know what it is?"

"I do. Actually, I know most of the anesthesiologists and nurse anesthetists, who have told me all sorts of things about anesthesia."

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“An informed patient! That’s helpful for sure. But you realize we have to have consent to use general anesthesia in case there is any problem with the spinal.”

“What kind of a problem are you talking about?”

“The chances of a problem are very small, but we have to be prepared. For instance, if the surgery takes longer than expected and the spinal begins to wear off, we must be prepared to give you general anesthesia. For that reason, we need consent just to cover all the bases. That’s why we are interested in whether you have any problems with your lungs.”

“No problems with my lungs.”

“How about reflux disease?”

“I’m fine! Really, I am. Are you sure we are not holding Dr. Mason up?”

“There is no problem about holding up Dr. Mason, believe me. Now, let’s talk about the spinal. Do you know that we have to put a needle in your back to enable us to give you the anesthetic agent?”

“Yes. I know all about it. Dr. Mason’s fellow gave me the complete run-down and assured me that I won’t feel anything.”

“That is correct. You won’t feel any pain during the operation. I will make absolutely sure of it. But tell me: Do you have any back problems that I should know about?”

“Nope. Back’s fine.”

“Good. What will happen is that when we get you in the room, you will be asked to sit on the side of the operating table with your face and head resting in a support. You will feel a pinch when I put some local anesthetic into the skin of your lower back before putting in the spinal needle. Once the medicine has been introduced into your spine, we will help you lie back down on the table. Now, a question for you: During the operation, do you want to be awake and possibly watch if Dr. Mason is okay with it, or would you prefer to be asleep? Either way, you definitely will feel no pain, and I will be with you for the whole procedure.”

“I want to be asleep! I don’t want to watch anything.” As comfortable

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as Bruce was with being in the hospital, there was no way he wanted to watch someone cut into him.

“Okay, fine. Then you will be asleep. Now I ask again, have you eaten anything since midnight?”

“No.”

“And you have no known allergies to any medication?”

“No allergies.”

“And you are not taking any drugs, prescribed or otherwise?”

“No drugs.”

“Excellent. Now I will start an IV and get you down to the operating room. I’ve been told Dr. Mason is nearly ready for you. Do you have any questions for me?”

“I can’t think of any,” Bruce said. For the first time, a slight shiver of fear raised a few hackles on the back of his neck. The reality of what he was facing was finally sinking in: He was in the hands of the surgical team and no longer in control of his life.

Dr. London started the intravenous line with such skill and rapidity that Bruce was surprised when it was done. As comfortable as he was with the hospital environment, he fully admitted he never liked venipuncture and always turned his head to the side. “Wow!” he commented. “I hardly felt that. I guess you have started a few IVs.”

“A few,” Ava said. She knew she was good at it, just like she knew she was good at anesthesia in general. She was also sensitive to her patients’ mental state and detected a slight shift in Bruce’s demeanor. “How do you feel? Are you anxious?”

“A bit nervous,” Bruce admitted. His voice, which had been strong and self-assured, now wavered slightly.

“I can give you something to calm you down if you would like,” Ava said, hearing the hint of anxiety.

“I would like,” Bruce said without hesitation.

With a syringe and a medication vial she had in her pocket for this

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very reason, she quickly gave Bruce four milligrams of her favorite pre-medication drug, midazolam. Then she disposed of the paraphernalia she'd used to get the IV going, released the brake on Bruce's gurney, and without waiting for an orderly, pushed Bruce out into the main room, heading for the OR suite.

"I can feel that medication already," Bruce admitted as he watched the recessed ceiling lights pass overhead. The fear he'd had moments earlier had miraculously already vanished. He felt the need to talk. "When do I get to see Dr. Mason?"

"Soon. I was told he is waiting on us, which is why I'm taking you myself down to your operating room without waiting for an orderly."

If someone had asked him, Bruce would have said he felt a little tipsy as he entered OR 8 and glanced around at the scene. Almost a year ago he'd had a tour of the new hybrid operating rooms when they had been completed, so he wasn't surprised by the exotic cream-colored booms hanging from the ceiling or the banks of video monitors or the window looking out at the central desk. As the gurney was guided alongside the operating table he saw the scrub nurse was already gowned and masked and busy arranging instruments. He didn't recognize her with so little of her face visible, but he did recognize the tall circulating nurse, Dawn Williams, who he knew drove a white Ford Fusion. She recognized Bruce in return.

"Welcome, Mr. Vincent," Dawn said cheerfully as she came around the end of the gurney to help Ava transfer Bruce onto the operating table. "We are going to take especially good care of you just like you do with all our cars." She let out a bit of muffled laughter.

"Thank you," Bruce said as he put his legs over the side of the operating table to face the doughnut-shaped support for his head. His eyes scanned the room for Dr. Mason, but the surgeon was not there. "Where is Dr. Mason?"

"He will be here as soon as we let him know you are all ready for him," Dawn said.

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“Is he still in on his first case?” Ava asked as she and Dawn helped position Bruce with his head in the support. It was a general rule that anesthesia was not started until the surgeon was physically present and part of what was called the “pre-op huddle,” when the surgeon, the anesthesiologist or anesthetist, and the circulating nurse went over the case to make sure everyone was on the same page with all the details. Unfortunately, that was not always the case with Dr. Mason and a few other members of the surgical hierarchy who were known to flaunt some of the rules in favor of maximizing their productivity. The problem was: They got away with it.

“Yes. Dr. Mason is still in OR fourteen,” Dawn said, “but the OR supervisor said Mason wants us to go ahead and get Mr. Vincent ready for him.”

“Okay,” Ava said with resignation. She donned sterile gloves and began the prep of Bruce’s lower back. She wasn’t happy about starting the case before having laid eyes on Mason, and it wasn’t the first time she’d been put in the same uncomfortable situation with him. On five previous occasions, he had insisted she start anesthesia before he was even in sight, much less in the room. Ava liked to do things by the book, believing it was key to patient safety, and starting anesthesia before the surgeon was physically present was a definite violation of her sense of good medical practice.

If truth be told, Ava did not like working with the egotistical Dr. Mason. She was uncomfortable that he felt entitled to bend the rules due to his professed superstar status. Intuitively, she knew that if there was ever a problem on a case, he would not take responsibility and that she would undoubtedly have to bear the burden as the fledgling anesthesiologist. Yet as bad as this concern was, it was not the only reason she wasn’t fond of working with him. As one of the few single female anesthesiologists on staff and certainly the youngest, Mason had come on to her on more than one occasion, just as he had done with some of the female anesthetists and OR nurses. He had even called her at home on several occasions, supposedly about discussing upcoming cases, and suggested

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he “pop” over since he was in the neighborhood, though Ava had always demurred. Although appalled at this behavior, Ava had not communicated her true feelings, as she was afraid to make an enemy of the man. Nor had she said anything to the chief of anesthesia, Dr. Madhu Kumar, who had hired her, since he, too, was in Dr. Mason’s league as a titan in his field, and the two were close. It was Dr. Kumar who did the anesthesia for Dr. Mason’s VIP patients from around the world just as he was doing that day. Yet for Mason’s less highfalutin patients who were below Dr. Kumar’s interest, such as Bruce Vincent, Mason usually asked for Ava.

The first thing Ava did after the prep of Bruce’s lumbar region was to raise a small wheal with local anesthetic at the site where she would place the spinal needle. After checking to make sure the stylet was properly seated, Ava skillfully pushed the spinal needle into Bruce’s back. “You will feel a little pressure,” she said to him. Within seconds she felt the first pop as the needle penetrated the ligamentum flavum, and a moment later the second pop when it went through the dural covering of the spinal canal. When she was certain as to the proper position of the needle, she introduced the spinal anesthetic bupivacaine. As usual for Ava, the procedure went entirely smoothly. A moment later, she and Dawn helped Bruce lie back down on the operating table.

“My legs don’t feel any different,” Bruce said. He was clearly worried that the anesthesia wasn’t going to work on him.

“It takes a few minutes,” Ava explained as she attached Bruce to all the monitoring devices she had at her disposal. When she was finished and everything was entirely normal, including the ECG, breathing rate, and level of anesthesia, she added a proper dose of propofol as a hypnotic. At exactly 9:58 A.M. Bruce Vincent lost consciousness and fell asleep. By reflex, Ava glanced again at the continuous recordings of Bruce’s vital signs. Nothing had changed, and she began to relax. The beginning of a case was always the most anxiety-producing for her.

Over the next forty minutes, Ava found herself getting increasingly

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irritated. Despite repeated inquiries out to the OR desk as to Dr. Mason's ETA and multiple reassurances that his presence was imminent, he still hadn't appeared. As the time dragged on, Ava faulted herself for having started the spinal when she did. Although she was confident the dose she had given could last as much as two hours more, which was plenty of time for a simple hernia repair, she thought it was inconsiderate for the patient to be waiting for the surgeon, who should have been there from the beginning.

"Dawn!" Ava called out finally, her patience at an end. "Go out to the main desk and demand to know exactly what the hell is going on and when Dr. Mason is going to appear! Talk to Janet Spaulding directly. Let her know the patient's spinal has been in place for more than a half hour." Janet Spaulding was the supervisor of the OR and a force to be reckoned with. If anyone could get results, Janet could. She was a fixture in the OR and didn't take grief from anyone.

Ava exchanged an exasperated glance with Betsy Halloway, the scrub nurse, who had been standing motionless the entire time with her gloved hands clasped over her chest. She had the instruments laid out and covered with a sterile towel. She'd been ready for even longer than Ava had.

Ava scanned Bruce's data. Everything was normal, including his body temperature. Ava had Dawn put a warm blanket over him when it had become clear Mason was going to be delayed.

Dawn returned quickly. "Good news," she reported. "Wild Bill will be here momentarily. He is out of OR fourteen. There had been some sort of an unexpected congenital abnormality of the biliary tree in his first patient that required him to spend more time than he'd planned."

"Good Lord," Ava mumbled. She looked over her shoulder and through the window to see if Dr. Mason was at the scrub sink, but no one was there. "So where the hell is he?"

"He went into OR sixteen, where his second team is opening up his second pancreatic patient."

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“Which means he is responsible for three patients under anesthesia,” Ava said derisively.

“But Janet said he will be here in a second. She promised.”

“Where is Dr. Kumar?”

“No idea. Probably going back and forth between the two rooms. He does that sometimes.”

“Give me a break,” Ava said to herself, thinking it was a good thing the general public didn’t know this kind of thing went on in a major teaching hospital. Out of the corner of her eye she saw movement in the scrub room. Turning her head, she saw Dr. Mason putting on a surgical mask while talking and laughing with another younger man who Ava did not recognize. Ava took a deep breath to calm herself.

Five minutes later Dr. Mason breezed into the room. “Hello, everybody,” he said with alacrity. “I want you all to say hello to Dr. Sid Andrews. He is to be my new fellow starting July first, but who generously volunteered to come in today to give me a hand with this hernia repair. It has been a while since I’ve done a hernia, so I thought it couldn’t hurt.” He laughed as if he’d just said something absurd about him needing help.

Dr. Andrews had come in behind Dr. Mason, holding his hands up toward the ceiling in front of his chest as surgeons do after scrubbing. He waved to the group. He was a tall, slender man in his late twenties with a face as tan as Ava’s. In just about every respect except height he was the antithesis of Dr. Mason, who was stocky and broad-necked, with heavy forearms and particularly large hands and thick fingers, appearing more like a construction worker than a renowned surgeon. He was also more than twice Andrew’s age and sported a moderately protuberant belly.

“Sid is an Aussie,” Dr. Mason continued as he allowed Betsy to help him on with his gloves. He glanced over to Ava. “Have you ever been Down Under, honey?”

“I have,” Ava said. She bristled at being called “honey,” as well as the possible double entendre. “Listen! The patient’s spinal has been in for over

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an hour.” She was hardly in the mood for off-color repartee, if that was what Mason was intending, or travel chitchat, if he wasn’t.

“Ah, always business first,” Dr. Mason said in a mildly mocking tone. “Sid, I want you to meet one of our best anesthesiologists here at the BMH and certainly the sexiest, even in her baggy scrubs.” He laughed again while he intertwined his fingers to seat them fully into the gloves.

“Nice to meet you,” Dr. Andrews said to Ava as Betsy helped him don his gloves.

“Can we get this case going?” Ava questioned.

“She’s a pistol, Sid,” Dr. Mason said, as if Ava couldn’t hear. He stepped up to the right side of the operating table and watched while Bruce’s inguinal area was prepped. Sid went to the left side of the table. A few minutes later, amid banter about the glories of the Great Barrier Reef, the two surgeons draped the patient. Ava took the edge of the drapes facing her and secured it over the anesthesia screen with hemostats, all the while ignoring Mason’s repeated attempts to get her to join the conversation.

Once the case began with the skin incision, Ava recovered her composure enough to breathe a sigh of relief. She settled onto her anesthesia stool and checked the time. The spinal had been in place for an hour and twelve minutes. She was pleased the patient had not responded to the cutting, meaning the spinal was still totally adequate. She hoped the case would go quickly and without complication. Unfortunately, that was not to be.

The first hint of trouble was a sudden burst from Dr. Mason thirty minutes later. “Shit, shit, shit,” he blurted in obvious exasperation. “I can’t believe this.” Although the two surgeons hadn’t spoken about any technical problems, it was apparent they were struggling with something.

Ava stood up and looked down the length of the operating table. She couldn’t see into the operating field from her vantage point but could appreciate that Dr. Mason was not happy about something.

“Try to free the damn bowel from your side,” Dr. Mason said to Sid.

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Ava watched as Sid leaned forward and put an index finger into the incision site. It was apparent he was working by feel.

“Is there a problem?” Ava asked.

“Obviously, there is a problem,” Dr. Mason snapped, as if it were an inane question.

“I can’t do it,” Sid admitted, pulling his hand back.

“Okay, that’s it,” Dr. Mason said, throwing up his hands in disgust. “You try to do a favor for someone and they punch you in the gut.”

Ava exchanged an eye roll with Betsy, as both knew what Mason was implying: Whatever problem had emerged, it was clearly the patient’s fault.

“We’re going to have to go into the abdomen,” Mason said irritably to Ava. “So we are going to need some decent relaxation.”

Suddenly the PA system came to life. “Dr. Mason, sorry to interrupt. This is Janet out at the main desk. Both chief surgical residents are requesting your presence in their respective rooms on your two pancreatic cases. What would you like me to tell them?”

“Jesus H. Christ!” Mason fumed to no one in particular. Then, glancing up at the speaker mounted high on the wall, he added: “Tell them to keep their damn fingers in the dike and I’ll be in as soon as I can.”

“Roger that,” Janet Spaulding said.

“If you must go into the abdomen, we have to switch to general anesthesia,” Ava said. In a way, she was relieved to switch, as she was becoming progressively worried the spinal might be wearing off. The patient was showing very slight signs that his anesthesia was getting light, with mild changes in his respiration. She gave Bruce another bolus of propofol and then carefully monitored his breathing rate and depth.

“Whatever,” Mason said. “That’s your problem. You’re the anesthetist.”

“Anesthesiologist,” Ava corrected. In her value system, being called an anesthetist was as bad as being referred to as “honey.” Anesthetists were nurses, and anesthesiologists were doctors, with a significant difference in training requirements. “What is the problem? Can you tell me?”

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“The problem is we can’t reduce this little pesky knuckle of bowel caught up in the hernia,” Dr. Mason explained irritably. “So we have to go inside the abdomen. It must be freed up, and that’s the only way to do it. Anyway, you probably should have used general anesthesia from the beginning, with the GI symptoms the patient has had.”

“Your office specifically asked for spinal,” Ava said to set the record straight as she began to get out everything she would need to switch to general inhalation anesthesia. Then, to start the process, she grabbed the black breathing mask that was always within reach and turned on the oxygen supply. Deftly she put the mask on Bruce’s face. She wanted to hyperoxygenate the patient for at least five minutes before giving a muscle relaxant. She thought she would use succinylcholine as the paralyzing agent because of its rapid onset and reversal. Then, after the muscle relaxant had been given, she planned on using either an LMA, laryngeal mask airway, or an endotracheal tube. As she was debating the pluses and minuses of these two methods of managing the patient’s airway, her mind registered the last part of Mason’s comment: the part about the patient’s GI symptoms. She didn’t remember any gastrointestinal symptoms in the chart, nor had the patient mentioned any. To be sure, she held the breathing mask with one hand and with the other opened the patient’s chart to the history and physical. A quick glance confirmed her suspicions. She had remembered correctly. There was nothing about any gastrointestinal symptoms. Had there been, she might have felt general anesthesia would have been a better choice.

“There was no mention of any GI symptoms in the history and physical,” Ava said, interrupting the surgeons’ banter, which had now turned to the Australian Outback.

“It had to have been,” Mason snapped. “It was the reason the surgery was recommended by the man’s GP.”

“I just checked the chart again,” Ava said. “There is no mention of it in the H-and-P that came over from your office.”

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“What about the junior resident’s note?” Mason asked. “Did you look at that, for chrissake?”

“There is no junior resident note,” Ava said.

“Why the hell not?” Mason demanded. “There is always a junior resident’s note.”

“Not this time,” Ava said. “The patient was late to Admitting. Your fellow had done the history and physical just a few days ago. I suppose they thought that was adequate in Admitting. Maybe Admitting was backed up. I don’t know all the details except what the patient said. Your fellow also specifically told the patient he was going to get a spinal.”

“Whatever,” Mason said with a wave of his hand. “Let’s not make this anesthesia transition your life’s work, would you please! Do the switch so we can get this show on the road! As you heard from Ms. Spaulding, I’m needed elsewhere for a couple of real cases.”

“Had you been part of the pre-op huddle, this could have been avoided,” Ava said under her breath.

“Excuse me!” Mason thundered. “Are you lecturing me? Do you forget who I am?”

“I’m just making a comment,” Ava said, trying to back off. “The purpose of the pre-op huddle is precisely to avoid situations like this.”

“Really, now?” Mason questioned mockingly. “Thank you for telling me. I’ve always wondered what the reason was for those little gatherings, even though I was one of the originators of the idea way back when. But tell me! How long do we have to wait before we can get back to work here?”

“Another minute with the one hundred percent oxygen,” Ava said, glad to change the subject. She was already deriding herself for provoking Mason. She wondered what she was thinking. She took a deep breath to clear her mind and switch her total attention to the problem at hand, particularly regarding the airway. With general anesthesia, the airway was the critical component. The LMA or laryngeal mask airway was easier

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and quicker but not as secure or safe. Responding to more of a gut feeling than anything else, she elected to go for the endotracheal tube with its added safety. Later, she would have reason to question why she came to this decision.

Still holding the face mask with one hand, Ava got out the appropriately-sized endotracheal tube, along with the laryngoscope she would use to place it. She tested the suction unit to be sure it was functioning in case it was needed. In the background the low-volume but ultra-high pitch of the oxygen oximeter alarm reassured her that the patient was fully oxygenated. She checked the time. Five minutes had passed. Luckily, Mason had already forgotten the little squabble about the pre-op huddle. He and his assistant were back to talking about scuba diving.

Quickly putting the breathing mask to the side, Ava gave a one-hundred-milligram bolus of succinylcholine intravenously. There was some minor fasciculation of Bruce's facial muscles, but nothing abnormal. Most important, the pulse and blood pressure stayed the same. After tilting the patient's head back, Ava inserted her right thumb into Bruce's mouth to lift his lower jaw as she slid the blade of the laryngoscope held in her left hand under and behind his tongue. Letting go with her right hand, she reached for the endotracheal tube.

Although Ava had used a laryngoscope and placed endotracheal tubes thousands of times, the process always put her on edge, giving her a rush and reminding her why she loved the process of anesthesia even though the vast majority of the time it was routine. The feeling reminded her of the one time she had been talked into skydiving. Her mind was sharp, her senses honed to a razor's edge, and she could feel her own elevated pulse in her temples. Although the patient was more than adequately oxygenated after the 100% percent oxygen, he was now not able to breathe due to his paralysis from the muscle relaxant, so time was of the essence. She had about six to eight minutes to commence breathing for him before the extra oxygen would be used up and he would begin to asphyxiate.

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Deftly, Ava advanced the laryngoscope blade into the depression above Bruce's epiglottis and gently but firmly lifted the laryngoscope up toward the ceiling to pull his mandible and tongue forward. A moment later she was rewarded with a clear view of the man's vocal cords and the opening of his trachea. Without taking her eyes off the target, she had brought the endotracheal tube into view with her right hand with the intention of inserting its tip into the trachea when the view disappeared. To Ava's horror, the man's mouth had suddenly filled with fluid and a mixture of undigested food.

"My God!" Ava blurted as her heart leaped in her chest. The man had regurgitated an apparent full stomach, which wasn't supposed to happen, since he had been told not to eat or drink anything after midnight except possibly a bit of water. Obviously, he had ignored the warning and had consequently created an anesthetic emergency of the highest order. Although Ava had never experienced this complication of such a large amount of vomitus with a live patient, she had practiced innumerable times handling such a situation with a simulator and knew exactly what to do. First, she turned the man's face to the side to allow all that could to run out of his mouth while at the same time tilting the whole table to get his head lower than the rest of his body. Then she grabbed the suction device and rapidly sucked out the remainder of the vomitus from Bruce's pharynx. What worried her the most was how much had gone down the man's trachea.

"What the hell?" Mason questioned with alarm when the table unexpectedly tilted. He stepped around the ether screen, glaring at Ava. Dawn, the circulating nurse, leaped off her stool in the corner and came around to the other side.

Ava ignored both. She was too busy. Retrieving the laryngoscope and the endotracheal tube, she repeated the process she had done earlier and this time inserted the endotracheal tube. Once it was in and sealed, she used a narrow, flexible tip on the suction device and threaded it down the

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endotracheal tube and sucked out as much vomitus as possible, progressively advancing the suction tip deeper into the man's chest. It was at that point that the cardiac alarm went off. A glance at the ECG showed the heart had gone into fibrillation, meaning the heart was no longer pumping. An instant later the blood-pressure alarm went off, meaning the blood pressure was falling to zero. Then the pitch of the oximeter alarm began to decrease as the oxygen saturation fell.

"Call a code," Ava shouted to Dawn.

Betsy immediately spread a sterile towel over the open incision while Mason and Andrews yanked the drapes off the anesthesia screen and folded them down, exposing the man's thorax. While Andrew pushed Bruce's gown up around his neck, exposing his chest down to his belly button, Mason slapped him on the sternum with an open palm hard enough to jar the man's body. Everyone watched the ECG, hoping to see a normal rhythm, but there was no change. Ava continued to suck out vomitus from the man's trachea as far down as his bronchi. Mason hit Bruce's chest again, this time using the side of a closed fist. Still no change. Andrews leaned over the patient and began closed-chest cardiac massage.

The OR door burst open and in rushed several senior anesthesiology residents with a defibrillation machine. Ava yelled that the patient was in fibrillation. Dr. Mason and Dr. Andrews stepped away from the table as the two new arrivals went ahead and immediately shocked the patient. To everyone's relief, a normal sinus rhythm reinstated itself immediately. The pitch of the oxygenation alarm began to rise, indicating an increase in blood oxygen. At the same time the blood-pressure alarm went silent, although the blood pressure rose to only 90 over 50.

Pleased at their success, Dr. David Wiley and Dr. Harry Chung pushed the defibrillator out of the way and joined Ava at the head of the table. As they watched the ECG to make sure the rhythm was stable, she told them what had happened: "Massive regurgitation and aspiration when I tried to intubate. Obviously, the patient had a full meal this morning despite de-

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nying having had anything by mouth. He flat out lied to me and the admitting nurse. As you can see in the suction bottle, I've sucked out over three hundred cc's of fluid and undigested food, including bits of bacon and other poorly chewed material." She pulled out the suction catheter and connected an ambu bag to the endotracheal tube. The ambu was attached to 100 percent oxygen. Immediately she began attempting to re-spire the patient by compressing and releasing the bag.

"Jesus," Dr. Mason complained. "This was supposed to be a simple hernia."

"Has it been about eight minutes since you gave the muscle relaxant?" Harry asked, looking at the anesthesia record and ignoring Dr. Mason.

"About that," Ava said. "I'm hoping we'll be okay in that regard. I gave him a full five minutes with pure O₂ before the succinylcholine."

"How does the resistance feel when you breath him?" David asked.

"Not good," Ava admitted. She was thinking about the raised resistance the moment David brought it up. It was subtle but definite. It was a sensitivity born of experience of breathing for thousands of patients under all sorts of circumstances. With the succinylcholine on board, there should have been very little resistance to expanding the lungs. "To be sure, you try, while I listen to his chest."

David took over the ambu bag while Ava used the stethoscope.

"Breath sounds are terrible bilaterally," Ava said.

"I agree there is too much resistance," David said. "The bronchi must be full of vomitus and seriously occluded. I don't think we have much choice. We are going to have to bronch him."

Suddenly the pitch of the oximeter alarm began to fall again, indicating that too little oxygen was getting into the blood with the bronchial blockage, despite David's efforts.

The door to the OR opened and in rushed Dr. Noah Rothausser, a senior surgical resident who was scheduled to be the super chief surgical resident come the first of July less than a week away. He was tying a face

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mask over the top of his head. Practically everyone knew Noah. It was generally felt that he was the best surgical resident the BMH had ever produced. A few jealous colleagues wondered if he was too good, as he had consistently gotten the highest grades recorded on the biannual American Board of Surgery In-Service Exams. He was known to be a tireless worker, extraordinarily knowledgeable for a resident, decisive, and remarkably congenial for a surgeon. As was typical of his commitment, the moment he'd heard about the code while he was in the surgical lounge, he came running to see if he could lend a hand.

The scene that confronted Noah wasn't auspicious. The two surgeons were standing immobilized a step back from the table that was tilted in a head-down position. Their hands were clasped in front of their chests. The patient was supine, naked from his head to his umbilicus, with his hospital gown bunched up under his chin. His color was a disturbing shade of slate blue, and his chest didn't seem to be moving. Three anesthesiologists were grouped around the patient's head, and one of them was yelling for the circulating nurse to get a bronchoscope stat while trying to use an ambu bag.

"What's going on?" Noah asked urgently as Dawn rushed out the door for the bronchoscopy setup. Noah heard the pitch of the oximeter alarm falling, and then at that very moment he heard the blood-pressure alarm go off. By instinct honed from experience he knew that the situation was critical and the patient's life was hanging in the balance.

"We have one hell of an emergency," Ava blurted, confirming Noah's impression. "The patient aspirated a ton of gastric contents and arrested. His bronchi are seriously blocked. He's not getting enough oxygen and has already arrested once."

Noah's eyes darted from Ava and the other two anesthesiologists to Mason and Andrews and then down at the patient. The patient's color was getting worse by the second. "There's no time for bronchoscopy," Noah snapped. By reflex, his intuitive, can-do surgical personality hi-

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jacked his mind. Although he was a mere resident in the presence of a celebrated attending surgeon on a private case, he took control. The first order of business was to sound another alarm even before another cardiac arrest occurred, which he guessed was imminent. Turning and looking through the window toward the main desk and knowing that he could be heard if he made enough of a commotion, he shouted mayday three times followed by: “We need a cardiac surgeon, a perfusionist, and a thoracotomy set up immediately!” Then, with no hesitation whatsoever, he grabbed scissors directly off the sterile instrument tray with a bare hand and proceeded to cut through Bruce’s gown that was bunched up around his neck. He threw the scissors to the side. “Heparinize the patient while there is still a heartbeat!” Noah shouted to the anesthesiologists. “We have to get him on cardiopulmonary bypass.” Still without sterile gloves, as he didn’t want to take the time to put them on, he proceeded to prep Bruce’s chest with antiseptic, frantically sloshing the dark fluid over a wide area and onto the floor.

Ava and the two other anesthesiologists hesitated for a moment, then fell to work. It was clear to them that Noah was right. The only chance of saving the patient was to get him on the “pump.” More than anything else, he needed oxygen, and he needed it now, since his oxygen saturation was below 40 percent and falling. The bronchoscopy would have to wait.

Moments later Dawn rushed back into the room along with another nurse carrying the thoracotomy setup and Peter Rangeley, a perfusionist, who would run the pump. Luckily, in this modern hybrid operating room, the equipment was readily available on one of the utility booms suspended from the ceiling. It was up to Peter Rangeley to prime the system with a crystalloid solution and be sure all the air was expunged from the arterial lines.

Once Noah had the thoracotomy setup available to him after it had been opened by Betsy, he wasted no time, even though a cardiac surgeon had yet to arrive. Still without gloves, Noah took a scalpel from Betsy and

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made a vertical incision down Bruce's sternum, cutting directly to the bone to save time. With the blood pressure as low as it was, there was little bleeding. Noah then took the pneumatic sternum saw and proceeded to cut through the sternum from top to bottom. Bits of tissue and blood splattered his chest. As he got close to finishing with the noisy saw, the cardiac alarm went off.

"He's in ventricular fibrillation," Ava shouted.

"The cardioplegia solution will take care of the fibrillation," Noah yelled back. "Since he is not breathing, we can't take the time to defibrillate." Then, as Noah put in the sternal retractor and began cranking its blades apart, he shouted up at the PA system: "Have you found us a cardiac surgeon?"

"I'm not sure he is completely heparinized with his heart fibrillating," Ava said.

"Dr. Stevens is on his way," a voice answered over the PA.

"Tell him not to bother scrubbing or it will be too late," Noah yelled back. "I'm in the thorax and looking at the heart." It had taken him less than two minutes to open the chest. The heart was quivering in uncoordinated fibrillation. "Get me some cold saline, Dawn! That might take care of the fibrillation until the pump is ready. How's the pump prep coming, Peter?" Noah reached into the chest with his bare hand and began giving open cardiac massage by alternately squeezing and releasing the slippery organ. He thought it was worth trying to take advantage of what oxygen might still be available in the blood. Brain cells were exquisitely sensitive to a lack of oxygen.

"I'm almost ready," Peter said. He and a colleague had been working furiously to prime and ready the heart lung machine. Both knew time was extremely critical, and they were trying to do in minutes what normally took an hour.

"You heard me about the heparin?" Ava asked.

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“I did, but there’s nothing we can do about it,” Noah shot back. “We’ll hope for the best.”

Dawn reappeared with a liter-size bottle of cold, sterile saline. Noah advised her to go ahead and pour it over the heart while he was massaging. Gingerly, she started.

“More!” Noah urged. “The faster the heart cools, the sooner it will stop fibrillating.”

Dawn poured faster. Pouring cold saline over an exposed heart was a new experience for her, even though she had been an OR nurse for almost twenty years.

“It’s working,” Noah said. He didn’t have to look at the ECG. He could feel the fibrillation abate.

The door burst open and Dr. Adam Stevens, a cardiac surgeon, appeared. He stopped short, momentarily transfixed by the scene of a patient exposed to the waist with his chest flayed open while the circulating nurse was pouring fluid into the wound and a gloveless resident was massaging the heart. Betsy stepped off the stool she was standing on and held out a gown for Stevens, which he thrust his hands into while asking Noah for an explanation. Noah and Ava gave him a quick rundown as Betsy helped Stevens into sterile gloves.

“Okay,” Stevens said. “Let’s get him on the pump. Are you ready, Peter?”

“I think so,” Peter responded.

“Thanks for coming in, Adam,” Mason said. “I’m sorry Anesthesia has created this mess. Unfortunately, I am needed elsewhere; otherwise, I’d stay and help. Dr. Andrews is here and can lend a hand. Good luck!” With a final glare at Ava, he left the room. Only Andrews responded with a wave. Everyone else was too busy, but they had heard him.

“Hold up on the massage,” Stevens said to Noah. “It’s most likely futile, considering the oxygen saturation is so low. By the way: the cold saline

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was a good idea, not only to stop the fibrillation but also to wash out the wound. Now get a gown and some gloves on! I'll put out some sterile drapes."

A moment later, Noah was back at the opposite side of the table, joining Andrews. By then Stevens and Andrews had the two arterial cannulas, which included one for the heart, and one venous cannula in the operative field, and Stevens was beginning to implant them. He started with the arterial ones first. One went into the aorta, after which the aorta was clamped, and the second one went into the heart for the cardioplegia fluid that would keep the heart from beating and lower its need for oxygen. The final venous cannula went into the major vein leading into the heart. A few minutes later, when Bruce was fully on the heart lung machine, the blood oxygenation and blood pressure rose quickly. "I want him cooled to at least thirty-two degrees centigrade," Stevens told Peter. Peter responded that the patient would soon be at the target, as he was already at 35 degrees and the heart at 4.

"Let us know when we can bronchoscope him," Ava asked Stevens. By then the two anesthesiologists who'd brought in the cardiac defibrillator had left, convinced Ava had things as much under control as possible. In their place was a pulmonologist, or lung specialist, by the name of Dr. Carl White who had come in to do the bronchoscopy, he hoped to clean out the bronchial tubes.

"Go ahead and bronch him," Stevens said. "The sooner, the better. It's to his advantage to be on the pump as little as possible."

The bronchoscopy went well. It was quickly determined that both bronchi had been almost totally occluded with a bolus of undigested bread, which was easily removed under direct visualization. When the blockage was gone, Ava was able to inflate and deflate the lungs with ease. "We're good," she said. She was pleased. The vital signs were now stable, as was the level of acid in the blood, which she had corrected ear-

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lier. She had also typed and cross-matched a significant amount of blood, which was on hand if needed, but she doubted they would need it, as there had been very little blood loss.

The mood in the OR, which had been tense, relaxed as Stevens and Noah prepared to take Bruce off the heart-lung machine after being on it for only a little more than ten minutes. At that point Ava had the patient on the ventilator with 100 percent oxygen, and everything appeared excellent, including electrolytes, acid-base balance, and vital signs. The first order of business was to warm the heart and discontinue the solution that kept the heart from beating. This was done by allowing blood at normal body temperature to flow through the heart. Next Stevens gradually undid the clamp across the aorta, which increased the blood to the coronary arteries, helping to warm the heart. At this point, Stevens fully expected the heart to begin beating, as it did in most bypass cases. Unfortunately, it didn't happen. Undaunted, Stevens tried a series of shocks to the flaccid heart, but none worked. He then tried an internal pacemaker, but even that was unsuccessful.

"What do you think it is?" Noah questioned. He could sense Stevens's dismay.

"I don't know," Stevens said. "I've never had a heart that wouldn't even respond to a pacemaker after it was warmed up. It is not a good sign, to say the least."

"There was only a few minutes between the heparin being given and the heart going into fibrillation," Noah said. "So he might not have been completely anticoagulated. Could that be the problem?"

"I guess it is possible," Stevens said. Then, to Ava, he added, "Let's check the electrolytes again!" He was feeling a sense of mounting exasperation. He had tried all the tricks he knew, including having Ava give various heart stimulants and even lidocaine intravenously.

Ava drew another blood sample and sent it off.

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“I don’t like this,” Steven said after another ten minutes had passed. “I’ve got a bad feeling here. The heart has got to be in super-bad shape. How long did he fibrillate, Noah, when you were opening him up?”

“I believe just minutes. The cold saline stopped it almost immediately.”

Stevens looked over at Ava. “How about the first episode of fibrillation: How long was that?”

“I’d guess two or three minutes,” Ava said. “That was how long it took for the crash cart to get in here.” She glanced down at the anesthesia record to be sure. “Actually, it was less than two minutes. It wasn’t long, because the cardioversion occurred with the first shock.”

“That’s not a lot of time in both instances,” Steven said. “I’m at a loss. Somehow the heart had to have been significantly damaged not to even respond to a pacemaker. We are running out of options. Also, I’ve got to get going on my own case.”

No one responded to Stevens’s last comment. Everyone knew what he was implying: Maybe it was time to give up. The patient could not be kept on bypass continuously.

The PA system came to life. “I’ve got the electrolyte results,” a female voice said. She then read them off. They were all relatively normal, without change from the first sample.

“Well, it’s not the electrolytes,” Stevens said. “All right. Time for a few more tries.”

Over the next few hours Stevens retried all the tricks he knew. There was never the slightest response. “I have never had a post-bypass heart not respond to a pacemaker like this. We haven’t gotten so much as a blip on the ECG.”

“What about a transplant?” Noah suggested. “He’s a relatively young and healthy guy. We could put him on extracorporeal membrane oxygenation to tide him over.”

“ECMO is not for long-term care,” Stevens said. “The reality is that there are three thousand people waiting for a heart on any given day. The

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average wait for a heart is four months. It varies according to blood type. What's his blood type, Ava?"

"B negative," Ava said.

"There you go," Stevens said. "That alone limits the chances of a decent match. Also, since this heroic effort was started without sterility, the chances are better than even he'd have a post-op infection. We've given it our best shot, but I'm afraid it is time to face the facts. Turn off the pump, Peter! We're done here."

Stevens stepped back from the table and snapped off his gloves and peeled off his surgical gown. "Thank you, everybody. It's been fun." He sighed in response to his own sarcasm, gave a little wave, and left the room.

For a moment, no one moved. The only sounds came from the pulse-oximeter alarm and the ventilator.

"Well, I guess that's it," Peter said. He turned off the heart-lung machine per Dr. Stevens's order and started to clean up.

Ava followed suit, switching off the ventilator and detaching the monitoring.

Noah stayed where he was, looking down at the flaccid heart that had failed everyone, but mostly the patient. Although he didn't question Stevens's decision that it was time to quit, Noah wished there had been something else to try in hopes of a different outcome for the patient's benefit and Noah's, too. Noah's intuition was telling him loud and clear that there was a very good chance this unfortunate case was going to be real trouble once he became the "super chief" surgical resident in less than a week. As super chief, it was going to fall to him to investigate and then present this death at the bimonthly Morbidity and Mortality Conference, where it was sure to become a hotly debated episode. From what Noah had already gleaned from Dr. London, there was clear fault on the part of the patient for failing to divulge having eaten a full breakfast despite orders not to do so, and for Dr. William Mason for failing to communicate

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key information, due at least partly to his running two other concurrent surgical cases at the same time.

From Noah's perspective, what made the situation so worrisome were two unfortunate realities. The first was that "Wild Bill" was known to be a remarkably narcissistic man, fiercely protective of his reputation, and notoriously vindictive. Dr. Mason wasn't going to be happy to have his role in this unfortunate case made public and would be looking for scapegoats, which might include Noah. Second, Dr. Mason was one of the few members of the surgical hierarchy who wasn't impressed with Noah, and Mason was the only one who overtly disliked him. Dr. Mason had said as much, and as an associate director of the surgical residency program had already tried to get Noah fired a year ago, after they'd had a serious run-in.

Noah glanced over at Dr. London. She returned his gaze. What he could see of her usually tanned face was pale; her eyes were wide and staring. To Noah, she looked as shell-shocked as he felt. Unexpected deaths were hard to bear, particularly when it involved a previously healthy individual undergoing simple elective surgery.

"I'm sorry," Noah said, unsure of what he was apologizing for but feeling the need to say something.

"It was a gallant effort," Dr. London said. "Thank you for trying. It is a tragedy that shouldn't have happened."

Noah nodded but didn't respond verbally. He then followed Stevens out of the operating room.