

Prologue

JULIE BRITT WAS TERRIFIED. The terror filled her world, overriding even the pain that had wracked her abdomen since before dawn on this clear summer morning. A normal person suffering the same level of torment would have welcomed the anesthetic Julie was about to face. But Julie was not a normal person; not where anesthesia was concerned. Julie Britt had malignant hyperthermia, an uncommon condition characterized by high fever, board-like rigidity and death. Quiescent until triggered by the anesthetic state, MH turned its victim into a living pot roast—and once the cycle had begun, there was seldom any stopping it.

Julie knew all of the facts, all of the jargon. Her older sister Trish had died of the same disorder at the age of seven, and Julie had an ugly, puckered scar on her right calf from the muscle biopsy that confirmed her own susceptibility. That was why she'd lain quietly suffering long after a normal person would have begged to have something done. Pain was only pain; it might go away. But MH was total meltdown. MH was death.

"Please," Julie said to the nurse who wheeled her stretcher toward the waiting OR. "I don't need surgery. It's just a cramp..."

"You'll be fine, Julie," the nurse said. "Your anesthetist knows about your condition, and that means he can anesthetize you safely. There's nothing to worry about."

What the nurse was saying was true. MH was at its deadliest when its presence was unknown, as in the case of Julie's sister. The pernicious chain of events that ended in death was triggered by a finite number of anesthetic agents, all of which could be avoided while still providing adequate anesthesia. The chances of Julie coming to harm as a result of her condition were almost negligible. She'd been assured of this repeatedly, had even verified it herself, in a dozen different medical journals.

But right now, all she could think about was that her sister had died to death on an operating table. From a ruptured appendix. Just like Julie's.

The stretcher rounded a corner and a set of automatic doors hissed open. The wheels bumped onto a raised rubber mat and Julie let out a startled shriek, the impact triggering a fresh bolt of pain.

Then a different nurse and a doctor in greens took over her stretcher, guiding it toward a second set of doors. The doors whisked open, the wheels bounced again and Julie's thin control finally snapped. Crying out, she began to moan and babble incoherently, tears streaming from her bloodshot eyes, her slender body thrashing on the stretcher.

"Try to be calm," Dr. Hardie, the anesthesiologist, said. "We'll have you fixed up in no time." But his words fell on deaf ears.

Rob Hardie knew all there was to know about his young patient's affliction. He'd safely anesthetized at least a dozen MH patients in his nine years of practice, *known* MH patients, like this one. But he'd never been through a full-blown MH crisis, and for that he thanked whatever gods there might be.

They rolled the stretcher into OR 5, the general surgical suite, and parked it next to the operating table. While a nurse attached monitors and leads, Rob injected a generous dose of sedative into Julie's IV. In a matter of seconds she began to relax, regaining a measure of control. Taking advantage of the lull, the staff transferred her onto the table.

When he had eye contact, Rob spoke to Julie with gentle authority. "My name is Doctor Hardie," he told her, "and I'll be looking after your anesthetic."

"No," Julie said. "No anesthetic, please. I don't want to die..."

"If you trust me," Rob said, "you will not die. But your appendix is ruptured, Julie, and it's got to come out." He squeezed her clammy hand. "Do you understand?"

She gave him a perplexed little nod, the sedation working its magic.

"I know you're afraid to go to sleep," Rob said. "That's why I'm going to freeze you."

"Freeze me?"

Rob nodded calmly. "It's called a spinal anesthetic. It's the safest way to proceed."

"I won't have to go to sleep?"

"That's right."

"Will I feel it?"

"Not a thing, I promise."

"Okay. But please hurry. It hurts really bad."

"I'll go just as fast as I can."

* * *

While the doctor prepared the spinal tray, a nurse turned Julie onto her side and painted her lower back with an antiseptic solution. It was cold and reeked of alcohol and Julie

flinched when it touched her skin. Then they covered her with blue paper drapes and curled her into a ball, telling her to make her back round.

“Okay, Julie,” the doctor said. “I want you to relax.” She could feel his gloved fingers, probing her lower back. “You’ll feel a pinprick now. Try not to move...”

There was a bright dart of pain, like a bee sting, but Julie lay perfectly still. She would tolerate anything to avoid a general anesthetic. Every instinct told her that if she let them put her to sleep, she would never wake up.

“Very good,” the doctor said. “You’ll feel a little pressure now. This shouldn’t hurt.”

And it didn’t. Pressure but no real discomfort. With the pain still running rampant in her tummy, she barely noticed.

“You’re doing very well, Julie. Just another few seconds...”

Then a delicious warmth was creeping up Julie’s legs from her feet, and in the space of an eyeblink her pain was gone; it grew suddenly dull...and then vanished. Julie took the first deep breath she’d taken in hours.

The doctor leaned over her. “That’s all there is to it,” he said. He snapped off his gloves and tossed them onto the tray. “What kind of music do you like?”

“Music?” Julie said. Now that the pain was gone, whatever drug he’d given her was making her giddy, reminding her of the one time she’d tried pot.

“Sure.” He pointed at the top shelf of the anesthetic machine. “I’ve got a caseful of easy listening right here.”

“Got any Tragically Hip?”

“As a matter of fact...no. Would you settle for Elton John?”

Julie smiled. “Let’s rock.”

* * *

By the time the incision was made Rob had his patient exactly where he wanted her, drifting peacefully in a twilight slumber. All the monitors were in place. An automatic blood pressure cuff produced a regular printout of Julie's BP. An oscilloscope displayed the steady rhythm of her heartbeat. An oxygen saturation probe—a pigment-sensitive device that fit like a clothes-pin over one finger—indicated the adequacy of her respirations. The last monitor, a rectal temperature probe, was inserted once the spinal took effect. Rob needed to know Julie's core temperature at all times.

He took a quick look at his patient—resting peacefully, color good, vitals rock solid—then pulled up a chair to the rollaway table where he did his charting. When he took out his pen and began to write, he realized his hands were shaking.

He put down the pen, closed his eyes and took a deep breath. An ache had taken up residence low in his gut, a consequence of stress that had plagued him since his first string of exams in university. He hoped he could hold off long enough to get her off the table.

He glanced at his watch: 3:12 PM. At least it was still early. If things did get crazy in here there'd be plenty of qualified bodies around to lend a hand. There were twenty-three board certified anesthesiologists on staff at the Ottawa East Medical Center and Rob took comfort in their ready proximity.

There was a sudden bloated pressure in his belly. *Damn.* There'd be no sitting this one out. He hailed the circulating nurse to the head of the table.

“Listen, Ellie,” he said, standing. “I’ve got to leave the room for a couple of minutes. Nature call. Would you mind seeing if anyone can babysit for me?”

Ellie said, “Sure,” and left the room. As the door swung shut behind her, Rob glanced over the drapes into the surgical field. The surgeon, Bill Ward, looked up at him briefly, then went back to work.

“This kid must have put up with some real hell,” Ward said. “It’s a mess in here. She’s going to be one sick young lady for a while.”

Rob started to comment, then sat down again, fast. This was no joke.

For Christ’s sake, Ellie, get the lead out.

* * *

Rob told the anesthesiologist who came in to relieve him that his patient was a stable MH susceptible, mumbled a brisk thanks, then left the room.

Screened from view by the drapes, the anesthesiologist shut off Julie’s IV. He then removed a loaded syringe from his lab coat pocket and injected a gram of succinylcholine into the bag of IV solution. He did this quickly and without hesitation. No one saw him do it.

Succinylcholine is a potent, short-acting muscle relaxant—and one of the most powerful MH triggering agents known to medicine. Clear and colorless, it is quickly metabolized in the bloodstream and thus undetectable at autopsy.

The anesthesiologist glanced casually over the drapes. Then he pocketed the syringe, sat in Rob’s chair and waited.

* * *

Rob returned about five minutes later. He thanked his replacement, who left the room, then resumed his position at the head of the table.

Another few minutes passed before he realized his patient's IV wasn't running. *That's weird*, he thought, and opened it wide. He must've cranked too hard on it after inserting the spinal and shut it off by mistake. No harm done.

He was about to resume his charting when he glanced at Julie's face—and shock seized his heart. The kid was gasping like a netted fish, her body twitching convulsively.

Rob thought, *Oh, God*. "Bill," he said, "get out of there as fast as you can."

Ward said, "What's going on?"

Then the BP alarm sounded and the oscilloscope followed suit, and Rob saw that his patient's blood pressure was sixty over forty and her pulse had plunged to thirty-two.

Rob grabbed the anesthetic circuit and started bagging her with oxygen, thinking, *This isn't MH, it's the goddam spinal, it's crept too high somehow. Just stay cool. Intubate her if you have to, give her fluids, atropine—*

"Ellie," Rob said. "Grab that syringe of atropine and inject a milligram. That's one cc. *Hurry.*"

Julie's pulse had dwindled to twenty-one. She was seconds away from flat-lining.

The nurse snatched the labeled syringe off the drug cart and aimed the needle at the injection port. Her hands shook so badly she almost dropped the syringe. Then she got it and plunged the drug home.

Rob's gaze was glued to the bank of monitors. Alarms shrieked in a maddening chorus. Julie's BP was now fifty-three over thirty.

Ward said, "Talk to me, Rob."

"Just finish up in there, Bill—*fast*."

Finally the atropine began doing its thing. Julie's pulse crept up to forty, then spiked to a hundred and twenty-eight.

"The blood's pretty dark down here," Ward said.

Rob fought the panic that tried to slither up his throat. He cranked the oxygen, increased his rate of ventilation...then he noticed Julie's temperature. It was a hundred and one degrees now, three degrees higher than it had been only five minutes ago.

"Jesus Christ," Rob said, his guts turning to mud again. "We've got a crisis here."

* * *

...a crisis here...a crisissssss...

The words buzzed and echoed in Julie's ears. It was a nightmare.

She could see Dr. Hardie through her fluttering eyelids, could read the fear in his eyes.

But you promised...

His hand was on her face, clamping a smelly rubber mask over her nose and mouth; she could feel air squeezing out around its edges, but none of it was going into her lungs. Her chest felt as if an enormous rubber band had been cinched around it.

She was suffocating.

Hot...so hot...

(tracheostomy)

This new word joined the rising cacophony in Julie's ears, she knew what it meant, and she sent a fierce command to her body: *Get up! Get away!*

They're going to cut your throat!

But she couldn't move a muscle.

* * *

Rob said, "Bill, she's stiff as a board. I can't ventilate her and there's no way I'm going to be able to intubate her. You're going to have to tracheostomy her."

Bill nodded. "Ellie, get me a tracheostomy tray, pronto. And call a code blue." He looked at Rob. "I'll leave her belly open. That way we can cool her intra-abdominally."

The code was called over the PA system. Within seconds other staff members began filing into the room, looking to Rob for instruction.

"Harry," Rob said to a senior anesthesiologist. "Start drawing up the Dantrolene." Dantrolene is the first line of defense in an MH crisis. To a nurse he said, "Judy, grab a few liters of cold saline and change that IV." The nurse responded without hesitation, dropping the contaminated bag into the trash, inadvertently discarding the evidence. To another physician Rob said, "Karl, find a nurse and get her started on a central line tray. Bill, how's that tracheostomy coming?"

"Don't worry about me," Ward said. "Just keep trying to ventilate her."

"I hear you," Rob said. His mind was a buzzing whirlwind. He was desperately afraid he was going to lose this girl.

The room around him teetered on the edge of chaos, people jostling for position, shouted commands going unheeded,

instruments clattering to the floor. He thought he might pass out.

Come on, kid. It was a silent prayer. *Come on, come on, come on...*

* * *

Her lungs were on fire, her muscles bunched into excruciating knots—but she was fully conscious, completely aware.

“Scalpel,” the surgeon said.

Please help me...

The knife sunk into the tender flesh of Julie’s neck and her nerve endings exploded. The tip of her tongue was between her teeth and she bit into it, the raw, coppery taste of blood flooding her mouth.

The knife was cutting, and now cold steel clamps grasped the wound edges and wrenched them apart, making them gape. She could feel it, oh God she could *feel* it, the pain, blood pooling in the soft hollow of her throat—and now they were forcing something *in*, it felt like a hard plastic hook, twisting it, jamming it into her cut throat—

Julie fainted dead away.

* * *

Rob connected the tracheostomy tube to the anesthetic circuit while Ward was still sewing it into place. He set the ventilator at eighteen breaths a minute, then placed the bell of his stethoscope over Julie’s lung fields, listening for the passage of air. It was there, but pitifully diminished. The muscle rigidity was impeding the inflation of her lungs.

Rob opened Julie’s left eye. The pupil was dilated, unperturbed by the light. He let the lid slide shut.

The surgical drapes were stripped away and now Julie lay naked under the glaring spots. Even her intestines were exposed, turning black inside the wound. Her body temperature had soared to a hundred and six degrees. The oscilloscope showed ventricular tachycardia. Alarms shrilled accusingly.

I'm losing her, Rob thought. God help me, I'm losing her...

* * *

Two new IVs had been started and cold fluids poured in. The scrub nurse bathed Julie's exposed viscera with icy saline. Another performed closed chest massage. A freezing, water-filled blanket had been snugged around her and still her temperature climbed. It was a hundred and eight degrees now, incompatible with life. Heat came off her in waves. There was no pulse.

Every face in the room was blank.

They're giving up, Rob thought, sick to the depths of his soul. The next step was a drastic one, a last ditch maneuver, and everyone was waiting for his signal.

"Rob," Ward urged.

"I know," Rob said, verging on tears. He was reaching the outer marker of control. He took a deep breath and gave the order. "Okay. Open her chest. There's no other way."

"Knife," the surgeon said, and the scrub nurse snapped a scalpel into his palm.

Bill Ward was not a religious man; he had no time for it. But as he pressed the scalpel into the innocent flesh of Julie's chest he recited a silent prayer.

The blood that leaked from the incision was the color of plum juice, almost black. It seeped into the wound without vigor.

Rob looked away.

“Bone cutters,” Ward said.

The nurse handed him a bulky instrument that looked like a felon’s bolt cutter. He used it to snap through the struts of Julie’s ribs to the left of her sternum. Then he exchanged the cutters for a retractor, which he fitted to the margins of the incision. He cranked a lever and the chest cavity yawned open.

Ward took Julie’s exposed heart in his hands and squeezed. It was like squeezing a small dead animal, baked by a desert sun. He took his hands back out.

Rob said, “Why are you stopping?”

“I’m sorry,” Bill said, his soft eyes fixed on Rob’s. “But it’s over.”

The temperature monitor had joined the chorus of alarms. It read a hundred and eight point six degrees now. Julie’s body was hot to the touch.

“No,” Rob said. “She’s just a kid. I promised her...”

The surgeon only shook his head.

Tears flooded Rob’s eyes. His shock was total.

One by one the staff members left the room. Bill Ward was the last to go before Rob. He peeled off his bloody gloves and placed a hand on Rob’s shoulder. Rob flinched under his touch.

“Come on, chum,” Ward said, “let’s get out of here.”

Rob shook his head. He was in a daze. “I can’t leave her like this.” He turned to his drug cart and began arranging the syringes. “It’s a mess in here...”

“Come on,” Bill said. “We have to leave everything as it is. It’s a coroner’s case now. Let it go, Rob. You did all you could.”

Rob’s promise to Julie came whirling back at him: *If you trust me, you will not die.* “Liar,” he said, weeping openly now.

“Liar...”

“Please, Rob. Come on.”

Rob shook his head. “You go ahead. I’ll be right out.”

Bill nodded and turned away. He did not look back. What he was leaving behind was the saddest sight in medicine, one he’d seen too often before.

Alone in the room, Rob touched Julie’s cheek. Her complexion was still flushed, giving the impression of high summer color. If you ignored the blood that had spattered her face from the mutilating bone cutters, you could almost imagine she was sleeping.

“I’m sorry, sweetheart,” Rob whispered, dabbing the blood from her cheeks with a square of gauze. “So sorry...”

He turned the ventilator off and left the room by the back door. He wanted to avoid the central corridor, where he knew they would all be waiting. He wanted to avoid their eyes.

He crossed the hallway to the anesthesia staff office and locked himself inside.

* * *

In the darkened observation booth above suite 5, Julie’s killer looked down on her savaged corpse through the sloping Plexiglas panels, his gaze impassive and unblinking.

It was Friday, June 6, 2007.