I Promise, LeRoy.

I caught up with my residents as they hurriedly pushed the gurney with a combative young man into the OR. As I was the surgeon on call, all they told me over the phone, shortly after 4 a.m., was that an 18-year-old man had slipped off a third-floor window ledge while trying to break into an apartment some 30 minutes earlier. He was in profound shock, running a low blood pressure from a presumed life-threatening internal hemorrhage. They'd meet me in the OR. Within minutes I was speeding down the Mass Pike to Boston City Hospital, fueled by an adrenaline rush.

As with such blunt abdominal cases where major internal bleeding is suspected, few invasive or radiological tests had been done. The one quick, on-the-spot test my residents did in the ER—the semi-quantitative newsprint test—was positive. In this test, a needle attached to IV tubing and 500ml of saline is stuck into the lower abdominal midline. The entire volume is rapidly run into the abdominal cavity, and then the bag is lowered so that the saline siphons back into the plastic bag. If the return-fluid is sufficiently turbid with blood so that newsprint cannot be read through it, research shows that the results highly correlate with bleeding from a major internal organ such as the liver. The key is to get the patient to the OR as quickly as possible, open up the abdomen, and take care of the injury to stop the hemorrhage before the patient bleeds to death.

LeRoy lay naked on the gurney, and I saw with envy that he had a fine ebony physique; in contrast, my body older showed the signs of physical neglect. He was very muscular, with a thick neck from lifting weights, and well-developed shoulders and arms. He had the classic six-

pack abdomen. He had obviously spent much time body building. I wished I had such a body; instead, I'd spent my time building my mind. Several large-bore IVs had been stuck into his arms and were wide open, as fluids poured into his veins trying to keep pace with his bleeding, supporting his low blood pressure. The Foley catheter in his bladder drained cloudy yellow urine, of blood, and suggestive an injury to his kidneys. His youthful body shimmered in the OR light. His belly was distended.

He was inadequately sedated, thrashing and restless, fighting his endotracheal tube which was providing 100% oxygen to his lungs. He tugged at his restrained arms. Our eyes met—a wild and frightened stare. Reading his mind, I too wondered if he'd make it. Abruptly, his head and arms slumped as the anesthetist gave him a slug of a sedative. As we cautiously moved him onto the OR table, I saw that he had a grossly disfigured, twisted, left thigh bone from a fractured femur. He was bleeding into his thigh, which was tense and double its usual size, shining with a bluish hue from accumulated blood.

Without scrubbing, I gowned and gloved. The circulating nurse poured a bottle of antiseptic Betadine over his abdomen, which ran down the sides of his belly and dripped onto the floor. She secured the "seat belt" over his good right leg and cradled his fractured leg in pillows. The orthopedic resident was on his way to see the fracture and the hastily obtained ER x-ray of his twisted leg, while the anesthetist was fretting about his continued low blood pressure, egging me on and calling out for more units of blood. Together with my resident, we rapidly draped his torso, the wet Betadine soaked through the waterproof drapes and the front of my gown, into my underpants stinging my balls, and dripping into my shoes. We worked feverishly against time.

Shortly before 5 a.m., I hesitated for a very brief moment, scalpel in hand, reluctant to place a scar through his beautiful abdominal wall. Then I made a single, swift, full thickness

midline incision through his hairless skin—one bold slash with the knife into his abdominal cavity from xyphoid to pubis. Stem to stern, straight through his belly button.

I expected to find lots of free blood, a fractured liver or spleen, or ruptured vessels—usual injuries associated with a fall from a significant height.

I found . . . nothing!

Nada.

Nothing.

There was no free blood in his abdomen, and his organs were all intact. LeRoy's shock was from the profuse bleeding into the muscles of his thigh, tracking up the retroperitoneal space at the back of his pelvis and up into his lower back, pushing the roots of his guts forward, where some blood seeped through from the back into the abdominal cavity. It was barely sufficient to have given a positive newsprint test. Could the intern in the ER have over-interpreted the degree of blood in the return?

The orthopedic attending, a colleague, trooped into the OR trailed by his entourage of residents and medical students.

"Well?"

"Nothing!"

"*Really*?"

"NO . . .thing."

I could only shake my head. Suspecting that I may have overlooked an injury, I systematically re-examined his entire abdomen: every single organ, his liver, spleen, stomach, pancreas, the small and large bowel, his major vessels, his kidneys and bladder, every organ

between his diaphragm and his pelvic floor—at a more deliberate and measured pace, taking my time to be absolutely sure and positively certain that I was not overlooking a subtle injury.

Again, I found no internal injuries. “Nothing!”

Without question, the source of his bleeding was the broken femoral shaft bone, a very vascular structure. Suddenly I felt deflated and drained. The adrenaline rush drained out of me.

But I was glad for LeRoy.

What had been a close call was over.

He was now going to live.

He was now going to make it.

LeRoy was going to recover.

He was now going able to go home.

At the same time, I felt remorseful that I had scarred his beautiful body with the standard trauma-type slash incision with the intention of saving his life.

After closing his belly, I scrubbed out while the orthopedic surgeon moved in to fix his fractured leg and stop the bleeding bone. Protocol dictated that LeRoy became their patient and he was transferred to the care of the orthopedic service as I and my exhausted team of residents bowed out.

By noon LeRoy, with a fixed left leg was been moved into the ICU, where he lay in the first bed by the door.

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During the next few weeks, I saw him at least twice a day as I passed his bed on my way through the ICU to see my patients during my early morning and late evening rounds.

One day, after 30 days his bed was empty.

"Where is LeRoy?"

"Dead," was the reply.

"LeRoy died?"

"Yes. This morning."

I was stunned. How could an 18-year-old physically fit human specimen just die from a broken leg? I went into the bowels of Boston City Hospital where medical records were kept to review his hospital records. These showed he had no signs of other injuries. Yet what they recorded was shockingly revealing.

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On admission, LeRoy had weighed 180 pounds. He lost almost 34 pounds during his 30-day hospital stay. Although the physician's order was written for an oral diet, his record showed that he had eaten very little. No calorie counts had been ordered to record whether he ate or how much he consumed. In essence he had been maintained on an intravenous drip of 5% glucose in saline. One liter provides fifty grams of glucose, or barely 2 teaspoons of sugar—the equivalent of 170 calories. Every day he had received three liters, getting in total approximately six teaspoons of sugar—510 calories, or about two candy bars a day for 30 days.

To survive his massive leg injury plus the insult of the shock from the bleeding plus the stress of two major operations he would need at least 3000 calories per day to recover. Not just as glucose, but also as protein, fat, vitamins, trace elements, and minerals to permit healing of his injured tissues. In the absence of intense medical nutrition support, his muscles broke down to provide his daily nutrient needs. When he ran out of his critical muscle mass, he'd weakened his breathing muscles—the diaphragm and the intercostal muscles. Unable to get oxygen to sustain life, his lungs gave up and heart stopped beating.

As I read LeRoy's medical and nurses notes, I saw his eyes staring at me, pleading to save him.

I had failed.

LeRoy died in a Boston hospital from a trauma induced hospital-related malnutrition! The date was August 1976. I decided this would never happen again on my watch. I picked up the phone and called the head of MIT's Human Nutrition Department. I was signed up to their graduate nutrition program.

So, at the age of 35, after three years of grammar school, five years of medical school, and seven years of surgical training, that included two research years, I sat once more with 22-year-old super-smart kids in a classroom. I was draped over my desk exhausted from operating on emergencies during the previous night, going to classes at MIT in the morning, doing my elective operations at Boston City Hospital to earn a living in the afternoon, and often operating on emergencies at night. Many times, I felt bedraggled and sleep-deprived. Did I really want to do this? I felt like a misfit as various teachers—experts and geniuses—droned on and on and on about various topics of nutrition and biochemistry. My pager, akin to a live grenade, was dangling from my belt threatening to go off at any moment. I hoped and prayed that it wouldn't, so I could remain as inconspicuous as possible. Thus, I lived the double life of a Professor of Surgery in Boston, on one side of the Charles River, and a humble, exhausted insecure graduate student on its other side in Cambridge. Over a three-year period, I acquired the useful nutrition knowledge which I needed and which I ultimately applied to my trauma and cancer patients—happy that I was honoring the promise I made to LeRoy.

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A version of this story appeared in the *Columbia Medical Review in 2014*, and will appear in the author's forthcoming book *Great Joy, Great Sorrow—Passion & Compassion* Volume 4 of the quartet *A Surgeon's Tale*.