PAULINE W. CHEN, MD
Transplant Surgeon and Author

Pushing the envelope in transplantation: Three lives at stake

Anyone involved in transplantation has witnessed the Lazarean awakening of many of our patients. On the verge of dying, these patients receive a transplant then go home to their loved ones, to their communities, and to the rest of their life.

Transplantation has always straddled the border between life and death; it has always pushed the biological envelope.

But it has also always pushed the ethical envelope.

How? In forcing all of us, not just transplant surgeons, to reconsider some of our most fundamental ethical dilemmas:

- What is death?
- Can we extend life?
- Whose life do we extend?
- At what price the extension of life?
- Just because we can extend life, *should* we?

There are always *three* patients to consider—the patient, the donor, and the person on the waiting list who likely died because the organ went to your patient.

And every one of these dilemmas is further complicated by another issue unique to transplantation. At stake in every transplant is not just the patient's life, but *three* lives—the patient, the donor, *and* the person on the waiting list who likely died because the organ went to *your* patient, not her or him.

While we are not focusing today on organ donation or allocation, let us not forget that transplantation is unique in this regard. There are always *three* patients to consider.

What we will focus on today are transplant and post-transplant innovations. To help introduce the discussion, I would like to share a narrative that I believe illuminates ethical dilemmas that go hand-in-hand with transplantation's innovations.

THE STORY OF MAX

Max was the tiny embodiment of a biological keystone cop. In utero he had developed a gaping defect of his abdominal wall. His intestines twisted around themselves, and the obstetricians had to deliver Max emergently. The pediatric surgeons immediately removed the gangrenous remnants of nearly his entire bowel.

At 10 months, Max received a liver and small bowel transplant. The transplanted organs worked initially; with a small feeding tube inserted directly into his gut, Max digested for the first time in his life tablespoons of food, albeit a chalky liquid supplement.

But Max, within 2 months of his transplant, had again become a permanent resident in the pediatric intensive care unit. Achieving the right balance of immunosuppression so Max could keep the transplanted organs and yet maintain sufficient immunity to fight off infection had become an impossible task.

I was in my fellowship at the time of Max's transplant; and Eric, an attending surgeon with a square jaw and dark Dick Tracy looks, led the surgical team's management of Max's case.

As Max became sicker, Eric spent more hours with his tiny patient. I found him by Max's bedside at 3:00 in the morning and then at 7:00 the next night, his hair, clothes, and personal aura in a state that reflected obliviousness to his own care. Just by being with Max so much, Eric knew all the particularities of that baby, all his idiosyncratic reactions, every significant lab result of Max's entire life.

At first I found Eric's dedication inspiring, almost thrilling in a martyred saint kind of way. And Max seemed to call out to any of us who hoped to be divinely touched. During rounds, Max giggled at me, as if he understood that playing with him was infinitely more interesting than arguing over doses of medication with other doctors. Spurred on by Max's cause, I raced to uncover test results before Eric, as if my quicker response would translate into an equal or greater enthusiasm for Max's plight. I nagged the radiology technicians to give me Max's x-rays hot off the presses. I set the alarms on my beeper to see Max in the middle of the night and on mornings long before any member of the surgical team, particularly Eric, arrived.

Dr. Chen is the bestselling author of *Final Exam: A Surgeon's Reflections on Mortality* (Vintage 2008) and a transplant surgeon most recently on faculty at the University of California, Los Angeles.

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Despite my enthusiastic attentions, Max became sicker. We gave Max higher doses of steroids, and his big, shiny black eyes turned into a pair of hyphens on the rolling swells of his face. His tiny body became engorged with fluid from repeated infections, and Max's once buttery skin slowly became the ridiculously inadequate biological grounding for monitors and catheters. The nurses took to using the bed around him to clip wires and anchor dressings, and they hung mechanized pumps on tall IV poles which stood like skeletal beasts of burden crowded around Max's bed.

Through all of Max's crises, Eric never let up. But Max was going to die soon if we could not find the source of his infections. Eric finally decided to take Max to the operating room, worried about a hidden infection around his transplanted intestines. "We've got to take him back to the OR," he said to us. Eric looked at us then asked rhetorically, "I mean, is there any other option?" We all understood what Eric was really asking. Were we doing enough? Was it our *fault?*

That trip to the OR would be the first of almost a dozen. Under searing heat lamps we snipped the sutures that held a plastic abdominal patch in place and uncovered the small cavity filled with congealed organs. We picked away at the block-like mass, terrified of inadvertently cutting a hole in his transplanted intestine and creating another source of infection. Then, finding nothing and too scared to cause any more damage, we whipstitched a piece of plastic back to the edge of Max's abdominal wall. Over time, it became harder and harder to find untouched flesh where we could place a new stitch.

Over a month later Max died of a massive fungal infection. I mentioned his death to Jaimie, a pragmatic and brilliant head nurse who possessed more insight into our patients and hospital politics than most of the physicians.

"Maybe it was a good thing, huh?" Jaimie responded flatly. She walked out of the room and I could hear her asking aloud, "I mean, how much can you do to a person?"

THE EARLY TRANSPLANT ERA, DESPITE BLEAKER OUTCOMES, HAS LESSONS TO TEACH

I grew up, surgically speaking, at a time when transplant science fiction had become standard of care, when patients transplanted a decade or more earlier would routinely drop by clinic to say hello, and when patients on the brink of death could expect a full recovery.

But it was not always this way. And it took courageous individuals navigating the difficult relationship between innovation and ethics to get us here.

What is extraordinary about this panel is that these surgeons not only were at the forefront of transplantation's history but also remain deeply involved in its future. Over the next hour roughly, they will give us an extraordinary look into the intersection of innovation and ethics in the past, present, and future of transplant surgery.

I hope you are eager as I am to hear what they have to share with us.

Correspondence: *pauline@paulinechen.com*