Ian was obviously uncomfortable as we sat, re-examining the case. "I don't know, maybe we could have done something different. Maybe if I had been thinking differently I would have seen the early changes on the CT." This congregation was our attempt to make sense of a patient's sudden death, our own unofficial morbidity and mortality conference. Unease hung in the air as we discussed what we might have done differently.

Mr. D had come to us for a gastrointestinal bleed. He was a man with many chronic illnesses, several of which could explain his current problem. We initially stabilized him, stopped the bleed, and replaced the blood he had lost. In the coming days, however, he had considerable abdominal pain, which the team associated with his chronic intestinal ischemia. He required more and more pain medications, above and beyond his home dose. Every time we would attempt to wean him down, he would be in agony. Soon after, diarrhea began, which was attributed to a history of colitis. Three days before his death, a CT abdomen suggested intestinal obstruction. We concluded this was likely related to his narcotic use. At this point, none of our testing suggested an alternative diagnosis.

Clinically, he continued to deteriorate. The day before his death, a CT of Mr. D's abdomen showed diffuse pneumatosis intestinalis, a harbinger of dying bowel. He was immediately prepped for an exploratory laparotomy, but entry to his abdomen revealed dead intestine that was beyond repair. His abdomen was closed, he was put on comfort care, and, the following day, he died. And here we sat, feeling defeated, rehashing his entire hospital course.

Mr. D died under our care. This is perhaps the worst realization one can have in medicine. As medical students, we spend long nights reading, preparing for tests, and practicing clinical exam skills, all in an attempt to heal patients, and yet somehow we fell short. How had we missed a fatal diagnosis?

The Institutes of Medicine recently released a report about diagnostic error in medicine, which is a significant cause of harm in the U.S.[1] This topic is very personal for many physicians, who see cognitive errors as individual failures. Medicine is an inherently imprecise science. As the diversity of medical treatments grows, physicians are tasked with increasing classifications for syndromes and diseases. They are asked to make more accurate diagnoses, in less time, at less cost, and with less overall continuity. Misdiagnosis is not a failure of an individual, but rather a failure of a system to recognize an increasingly prevalent problem.

I believe that Mr. D was a victim of cognitive bias, specifically that of confirmation bias and premature closure. The former is an act in which individuals latch on to confirmatory data, disregarding data that might refute the original hypothesis. The latter an occurrence in which providers make a diagnosis before all the data has been evaluated. Over the course of his stay, our team frequently grazed the diagnosis of bowel infarction. We discussed how abnormal it was for diarrhea to occur while on a significant amount of narcotics. We ruminated on why his pain

seemed so disproportionate to his exam. And yet we ultimately came back to the diagnoses he was already given, explaining away his symptoms as simple manifestations of complex comorbidities.

In his book, "How Doctor's Think," Jerome Groopman highlights the necessity for questioning our own judgments. He believes a simple question could improve diagnostic accuracy: "What else could this be?"[2] I wonder what might have happened if we asked that question, which is fundamentally different than the questions we had in mind. In patients with many comorbidities, it is easy to write symptoms off to diseases they have already been diagnosed with. While doctors must strive for parsimony, I wonder if reflection on the question above might draw out alternative views of a patient's symptoms.

It is unclear to me if Mr. D's outcome would have been different had we made our diagnosis earlier. He was, by all measures, a poor surgical candidate. But this realization, a potential consolation, does little to remove the self-doubt incurred by missing a diagnosis. Such events in medicine can shake the very roots of what you think you know and make you question your decisions on patients moving forward.

Much of patient safety education revolves around system errors. In medical school we were taught to apply root cause analysis to situations like wrong medication events or patient falls. But in many ways the medical profession has been reticent to face the demons in our closet. To admit our fallibility in diagnosis threatens the structure that medical education is built on. Yet this may be the very thing we need to move into a new era of patient safety.

Pat Croskerry, a prominent researcher in diagnostic bias, suggests that the first step to avoiding bias is to recognize its existence.[3] By asking questions like, "what else could this be?" we are forced to recognize that often our initial conclusions may fall short. It is a question that prompts us to think beyond our gestalt. Further, the science of process improvement used for systems can easily be applied to cognitive actions. As we sat and recounted the events, we were, in a sense, performing a root cause analysis. Being more open with our cognitive errors allows us to dissect the process we took and avoid similar missteps in the future.

We all walked a little less confidently following Mr. D's demise. We spoke with less certainty. His death was a lesson that we took to heart; our brief postmortem was a catharsis. Honest reflection is how I believe we should approach diagnostic errors in the future. We can only overcome the problems we bring to light. Ultimately, no matter how uncomfortable it makes us, our patients deserve that, so that maybe the next Mr. D has a different story.

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