

Schrödinger's Heart Attack

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In 1935, physicist Erwin Schrödinger proposed a thought experiment to Albert Einstein about the quantum physics concept of superposition, which hypothesizes that particles can exist in multiple different states at once, until they are observed and/or measured. Schrödinger imagined a scenario with “a box containing a radioactive atom, a vial of poison and a cat. Governed by quantum rules, the radioactive atom can either decay or not at any given moment. There’s no telling when the moment will come, but when it does decay, it breaks the vial, releases the poison and kills the cat”.¹ However, until the exact moment when the box is opened and the state of its contents is observed, the atom is both decayed and undecayed—and the cat is both dead and alive.

December 22nd [MS1]

9:30 PM

I arrived at Steven’s only a few hours ago—the last destination of a rather tiring day. At almost 29 years old, this will be the first Christmas holiday I spend away from my parents, my brother, and my grandparents.

I’ve just sat down on the couch with a mug full of ice cream and a glass of wine. My phone has been on bedtime mode for about 45 minutes, so I unlock it to check the notifications.

There’s a missed call from Mom, followed by a text message.

Hey– give me a call me if you can.

My mind immediately goes to my grandparents, three octogenarians, each with their own health concerns that would require a phone call late at night. I’m more resigned than anxious.

I call her back, but she doesn’t answer, so I dial Dad, thinking they’re right beside each other. They are, but they’re not where I thought they would be.

Mom answers Dad’s phone; she tells me she was on her phone with my brother. “I’m down here at the emergency room with Dad.”

By “down here,” she means the rural county hospital 10 minutes from my parents’ house. I’m not sure how many beds it has, though it is certainly small. For personal reasons that may reflect my own biases, it’s not my first choice of ER, but it’s the closest one they have.

Mom begins to explain: About two hours ago, Dad began to feel a sudden onset pain in the left part of his chest that radiated to his left arm. They’d both been with my grandparents helping to get dinner ready; he had picked up a heavy cooler maybe 5 or 10 minutes before the pain began.

According to Mom, by the time they got to the emergency room, Dad was sweating and feverish.

1 Howeggo, J. (n.d.). Schrödinger’s cat. *New Scientist*. www.newscientist.com/definition/schrodingers-cat/

Wait, you drove him? Did you not call 911?

When I ask Mom what his stated pain level had been, Dad raises his voice in the background. “It was ten out of ten, Emmy.”

Patient is a 59-year-old male with a past medical history significant for diabetes, hypertension, and hyperlipidemia who presents to the ED with sudden onset of severe chest pain, radiating to his left arm. He is diaphoretic and reports subjective fever. He rates his pain 10 out of 10.

An EKG is done, and labs are drawn. He gets sent for CT angiography.

Mom doesn't see him for an hour, but she tells me that the EKG was normal.

What does normal mean? I wonder.

Does normal mean no ST elevations?

Does it include ST depressions or pathological Q waves?

What about a posterior occlusion?

Could it be atrial fibrillation? (His mom has that.)

Is he at risk for torsades?

Does he have SVT?

Is the EKG clear of a PE?

He is given nitroglycerin and morphine to relieve the pain.

Time is muscle.

Does Greenville have a cath lab? I assume they do.

Time is muscle.

How long does it take to be flown to Duke? (That's where his cardiologist is.)

Time is muscle.

I ask Mom if she's spoken with our family cardiologist, and she confirms that she has. He assured her that had the ER physicians felt that Dad needed it, he would be well on his way to him.

The family cardiologist is Dr. H. He's been treating subsequent generations of our entire extended family for over thirty years. That's what happens when two different sets of grandparents have a personal and family medical history of cardiovascular disease. I trust him, probably more than I trust any physician out there, but this is the first time it's been my dad with a concern. I am surprised that his reassurance doesn't do much for me right now.

In this moment, I am simultaneously the eldest daughter and a first-year medical student, who just so happens to be fresh off the cardiovascular block. I have been both for months now, but it is not until this very moment that I step into the full capacity of these roles.

I am four hours away, and I feel utterly helpless.

I want to read Dad's EKG; I want to hold his hand.

I want to see him with my own eyes; I want to read the radiology report of his CT.

I wish I could listen to my dad's heartbeat. I want the physician to tell me exactly what his troponin levels are now and what they were two hours ago.

I promise I believe you, but please let me see the numbers for myself.

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11:47 PM

Steven encourages me to get some rest, because I am in no state to drive. My phone is on loud, no longer in sleep mode. I am wrung out and exhausted, but my mind keeps going. If it is a heart attack, or unstable angina, or what-have-you, I take some sort of twisted comfort in understanding what's going on. The pathophysiology is a pathway I can easily follow, being a roadmap I can visualize in my mind. I can track what the EKG would say, what his labs would reflect, and what the CT would show.

To me, this helps. I'm not sure if others would agree.

I get texts every hour from Mom.

12:03 AM *Dad is still hooked up to an EKG monitor and it hasn't gone off.*

12:48 AM *The ER is really busy – someone keeps coding.*

1:17 AM *His CT came back normal, as did all rounds of his blood work.*

1:36 AM *They have ruled out a heart attack.*

2:19 AM *They are sending us home.*

3:00 AM

They get home at 3 AM. I lay awake on the other side of the state, the streetlight bright in the window and the wind blowing hard on the side of the building. Both Mom and Dad text me separately to let me know they're going to bed. I wonder if I should get on the road.

I sleep in spurts.

7:00 AM

Steven gets up to get ready for work.

8:30 AM

I take my dog out to relieve himself. My aunt texts me to check in; I ask her what I should do. I'm so far away.

9:45 AM

I give my parents a little while longer to rest before I text them. Dad responds almost immediately, in the snarky way he does when he's trying to tease over text. He says he accidentally let the coffee start dripping without the pot to catch it. It brings me comfort.

Mom texts back a little later and then calls me shortly after. I tell her that I'm very close to getting on the road, and she adamantly refuses. I start to cry again.

They ruled out ACS. They ruled out aneurysm. They did not see evidence of occlusion or emboli. Any number of things could have caused his symptoms.

Yes, *but*.

What was it?

December 24th

In medicine, we are taught to triage, and to then treat what we see. Clinically, my dad was being worked up for acute coronary syndrome. He is a 59-year-old man with a long list of risk factors. He was diaphoretic and febrile. The EKG did not report a STEMI or NSTEMI, but the chest pain warranted both nitroglycerin and morphine. The CT angiogram did not show evidence of occlusion, and his troponin levels were not elevated.

For what felt like days but was really a mere few hours, Dad was simultaneously having and yet not having a heart attack. The vial of poison was knocked over and yet left alone. The damn cat was dead and yet still alive.

As I am writing this, it is Christmas Eve, and I am tired. The temperature outside is colder than it should be, and yet there is no snow on the ground. My dog is on the couch beside me, and Steven is on his computer. I have been annoying my dad incessantly for the past 24 hours, texting every half hour, and he has let me. The power went out at my parent's house yesterday, so he had the grill out this morning cooking sausage. Tomorrow, my parents will go to my brother's house to have breakfast with him and my sister-in-law. They will then take my grandparents to church, and

later in the afternoon, they will drive to my aunt's house for Christmas dinner. As of right now, the plan is for me to see them on December 28th for my other grandmother's birthday.

I am still four hours away, on the other side of the state.

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October 16th [MS2]

8:37 AM

Dad asks if I want to join him and Mom at his appointment with Dr. H on Thursday. It's an early one, but I have a relatively flexible schedule this week, so I text him I that I'll meet him there.

But I don't want to hear "I told you so" when he tells me I'm not doing something right.

Dad can be quite snarky over text when he wants to be.

October 19th

7:50 AM

Dad ended up having a nasty esophageal spasm, but I still tease that I use him as a case study: His A1c has improved so much that he's no longer on metformin, and his cholesterol medicine has been adjusted as well.

I meet him and Mom at the office and accompany him back to the exam room. Mom remains in the waiting room, on-call with work.

"Are you having any chest pain or shortness of breath?" the medical assistant asks. Dad shakes his head. "Alright, let's get your blood pressure read."

It clocks in at 117/74. He gives a teasing smile, "I let Mom drive this morning because I knew the traffic would affect my blood pressure." He isn't wrong.

Dr. H comes in a little bit later; he sits and chats with Dad and I for a bit before conducting his exam—it's been a while, and there's a lot to catch up on. He's pleased with Dad's labs and readings and is particularly proud of him for no longer needing metformin. Before he goes, he wishes me well. "You have my phone number. Let me know if you ever need anything," he says to the both of us.

I find that I am reassured by him once again.

As I sit, I am halfway through the fall of MS2, and the heart is still my favorite organ. I try not to think about that damn cat, or Christmas holidays, or being too far from my parents. Chapel Hill is less than two hours away, and that's about as far as I'd like to be. Funny how, ten years ago, I would have had no problem living on the other side of the world.

So many things have changed since that dreadful December night. Calls from my parents always come through on loud, no matter what time of day it is or where I am. That little country hospital shut its doors this year, and the primary care offices affiliated with it slowly followed; my hometown is even more of a healthcare desert now than it ever has been. I spent too many hours in UNC hospitals, waiting on news of another loved one's heart—a much younger man without any preexisting medical conditions, who was just unlucky and likely contracted a virus. And yet, still, I took some sort of strange comfort in understanding just some of what was going on.

I straddle the line of medical student and family member. I sit in that corner chair, and I stand behind the attending. I ask the history questions and sweat until the labs come back. I walk the halls of the hospital like I know where I'm going and hope to never see my family admitted, but if I had to choose, I would rather they be here with me than anywhere else. I am simultaneously both and fill both roles to their capacity—a weight I have chosen to carry. I wonder when I will feel at my own capacity.

a b o u t • a u t h o r

SMITH

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