

Lower extremities

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Abstract

How might global health evidence waste away? The thing that generates evidence in this case, the metabolism, offers some possible answers to this question. But it does so, sometimes, only when things devolve. This essay takes up the case of amputation in the case of diabetes. The ethnography of atrophy highlights how knowing and embodiment wither, all while the thing that is supposed to absorb the world – the metabolism – offers less and less return on such a promise.

Keywords

diabetes, amputation, substance, epistemology, atrophy

How might global health evidence waste away? The thing that generates evidence in my case, the metabolism, offers some possible answers to this question. But it does so, sometimes, only when things devolve. The metabolism can be an apparatus of atrophy in the truest derivation of the word: without (*a-*) nourishment (*trophē*). Ethnography of atrophy highlights how knowing and embodiment wither, all while the thing that is supposed to absorb the world – the metabolism – offers less and less return on such a promise.¹

1 Adapted from *Metabolic Living: Food, Fat, and the Absorption of Illness in India* (Duke University Press, 2016).

My neighbor in Mumbai, Almas, was an aspiring young fashion director. Her seventy-year-old father, named Muffazal, worked as a taxi driver for a family. He experienced several brushes with death due to diabetes, a series of close calls he elaborated one evening as he sat in the car parked in a back alley. My research assistant, Mary, raised one of the more recent episodes. Months before, Almas had called Mary, saying, ‘My dad’s passed out on the bed – I think he’s dead’. Ever the calm one, Mary responded: ‘I don’t think you can die from diabetes like that. I’m coming over’. They found someone to drive Muffazal to Trinity Hospital, two blocks away. In the car on the ride over, they gave him water with honey. As Mary put it, ‘We did the glucose drip before the doctors did’. In the alley, some months after ‘the glucose drip *hungama* [hullabaloo]’, as it became known, Muffazal remained mostly silent as Mary narrated his medical history, describing how he passed through beds, cars, and emergency rooms. He interrupted by extending his hand through the window, with a packet of sugar in his palm. He shook the packet, like ringing a bell. ‘If I’m feeling dizzy [*chakar*], I make tea and put this in it’, he explained, shaking the sugar packet again. It was the very substance that made balance precarious for many diabetics; in the clinic, there was so much talk of sugar (Hindi: *cini*; Marathi: *saakar*, colloq. *shaakar*). Usually this was in terms of a substance whose absorption one needed to block. In this instance, *shaakar* was restorative.

I asked Muffazal if he took tablets for his diabetes.

‘Sometimes’. He didn’t recall the drug’s name.

Do you feel anything else, I asked?

‘My legs feel weak [*kamzor*]. It goes into my feet’.

This *shaakar* was a little substance with a powerfully large reach. But as was true for many other people I encountered, Muffazal might hold on to food or drugs in his hand, but there was no ignoring the feeling – or, slowly and increasingly, the lack thereof – in the feet. Feet kicked food to the sidelines, sometimes.

Many of the neighborhood’s residents wound up at Trinity Hospital’s foot clinic. During outpatient hours, each person who wanted to pass from outside to inside received a number that determined their place in line and appointment time. The line snaked to the road. The lines were signs of the times: a community and city bearing the load of metabolic disease. How much of this load could India absorb? The lines sketched out a therapeutic landscape of what I call ‘metabolic living’: an actively ongoing process people endure to survive the porosity that all life entails (Solomon 2016). In *Metabolic Living: Food, Fat, and the Absorption of Illness in India*, I consider how people articulate and critique this porosity, through scenes that

connect food, the body, urban life, and chronic illness. I share some of those scenes here, and, centering on the diabetic's foot, I ask: What does the loss of feeling demand of a critical global health? At some point, signals between foot and body change in the context of diabetes. This change calls into question the circuit-like nature of metabolism, and its ideological scale-up in global health programs as something unquestionably hydraulic. 'Calories in, calories out'; 'eat this, not that' – these ways of knowing metabolism start to wither when feet do.

At Trinity Hospital, the foot clinic, led by Dr. Samant, is where patients see a specialist to care for complications with diabetic neuropathy, a condition that arises when feeling is lost in the lower extremities. Neuropathy puts people at high risk for infections from undetected wounds. Left untreated, those wounds could lead to amputation of toes, a foot, even a leg. One could lose flesh and blood walking on the streets or going about daily routines, accidentally hitting a carnal snag. Thinking along with anthropologist Julie Livingston's (2012) concept of 'therapeutic pipelines', I began to see the hallway leading to the foot clinic as a line itself, where bodies and diagnostic categories blurred but still had a vector. If diet and drugs failed, and dialysis too, people headed towards amputation. Here, things that could no longer be absorbed – feelings, pain, and blood – formed one of the therapeutic plateaus of the metabolism. The plateau's edges can sneak up on you, suddenly, or perhaps you think the edge is right there, but then it extends out of sight. These are conditions in which absorption intensifies and diminishes. It can happen as an itch, a pang. Or, it can happen with no feeling at all.

In the hospital, my field notebooks filled up with staccato entries and exits of persons and disorders. Dr. Samant, the foot surgeon, wanted me fixated on a withering foot, not on narrative aggregation. 'How could you possibly write about this?' he would ask, given that I did not possess a full, surgically oriented, medico-visual vocabulary. My general sense and even technical sense of the metabolism leaned towards nutrition and endocrinology at the time; reckoning it surgically came later. I did not understand the full spectrum between skin ulcers and stumps; all I knew was the location (on the leg or where thick black skin substituted for a toe). I heard the circumstances a patient reported ('I stepped on something sharp'; 'I clipped my nails too close'; 'I don't know'). But I needed to see to understand. There was never much mention of diet. Instead, it was a visual exchange: 'Show me', Dr. Samant would say to the patient or the patient's caregiver. The image filled in for the note, and thus what I relay here in writing is clipped, clinical – not necessarily reflective of all that happened. An entry from my fieldnotes:

A man in his sixties walks in. His scalp is all black, but only some of it is hair. I can't figure out what the rest is: dye? fungus? His foot is mangled, with open, pus-filled wounds. His big toe has already fallen off, and his second toe is in the process of dying. In this room, persons might die in the near-term, but first on death row are their limbs. Dr. Samant tells me, 'It's very simple arithmetic, you see. Below the knee, there's 5 percent of the body's blood. If it doesn't reach the wound, the wound won't heal'. Dr. Samant says they won't amputate this man's leg. It's better to let the body kill off the toes, one by one, through a process called 'demarcation'. The body marks out which parts of itself will die. The nurses put a sterile bandage on. I ask the man how he's feeling. 'It burns', he says. Very simple arithmetic.

After spending time at the hospital, I would walk two blocks to a Catholic church, a key convergence point for my neighborhood work in a seafaring fishing community, a little strip of an urban fishing village inside a city of twenty million people. One afternoon I sat in the church office, waiting for Mary to finish her work before we took off to do in-home interviews about feeding, living, and dying. It was always tough to figure an exact end time to Mary's work. Even as she would pack up to leave, someone would come by the church office window, which was lined with bars and angled towards the Arabian Sea, where the fish supply was ever-diminishing, and – it was said – ever more contaminated.

Mary's cousin, named Genevie, came to the window, and Mary beckoned me over. The news was not good. Aunty Cecilia, a woman who had given me cooking lessons for a year, had died from a heart attack during a period of time I had been back in the United States. Mary said it was diabetes that really killed her. Aunty Cecilia left behind a husband, Joseph, who in his seventies was diabetic as well. Genevie took on cleaning duties in Joseph's house to help him out. Right after Aunty Cecilia died, he cut his foot and the wound became gangrenous. It was because of diabetic neuropathy that the wound became infected: he claimed he couldn't feel that he had stepped on a nail. Genevie described her morning routine of mopping the floor and then hours later seeing bloody footprints all over the tile: 'I thought someone had been killed in the house, there was so much blood!' she said. Joseph denied being injured. Then Genevie checked his feet, saw the gangrene, and immediately hauled him to Trinity Hospital, injuring her shoulder while propping him up as he limped. The doctor at Trinity stitched up Joseph's foot and prescribed a strict diet. Genevie took on cooking duties for Joseph and thus enforced the diet, too: No rice, only chapatis, no sweets. Joseph resented her deeply for this. 'He yells and screams at me', she said. 'Sometimes he stops talking to me, but the next morning he's OK again'. 'It's because he's depressed from losing his wife', Mary assured her. For a while, things seemed to be fine with Joseph's foot, but then, Genevie said, 'somehow he went out and injured it again'. This time, the toes became black. He had to have two toes and a part of his foot amputated soon after.

Lost feet, lost feelings: these were the limits of drugs and dietary changes that came under the purview of the diabetes foot clinic. Dr. Samant, a diabetologist for thirty years, was in charge of the exams in this room. He told me that roughly 15 percent of India's sixty-two million diabetics experience foot problems. When neuropathy progresses in the leg and foot, the person experiences loss of sensation. 'If a person walks to the temple barefoot and there's hot marble', the doctor said, 'he'll get blisters, [but] he'll keep walking on the wound'. This led to infection. Moreover, because of nerve dysfunction, the elasticity of skin changes. Sweat glands don't function as usual, and the skin becomes dry and itchy; patients scratch and further induce injury. Blood vessels are also prone to thickening in diabetics, and so, as vessels in the leg and foot lose their elasticity, Dr. Samant said, 'it's like a water pipe getting rusted, and the flow slows to a trickle'. There can be clots and increased risk of gangrene. All that is needed to prevent these problems in his view is a simple annual foot examination costing 200 rupees, or about US\$5. 'This is a national problem', Dr. Samant said of diabetes, 'but the government hasn't understood it'. Despite the intensification of media coverage around metabolic disease, there was little mention of foot issues. Mumbai had only two sites where doctors could train in care for the diabetic foot. Dr. Samant taught at both. Something was pressing on the circulatory walls of the nation. All it would take would be an unnoticed snag, and it could end up as an amputation.

Dr. Samant's work occurred in the context of Indian and global histories of pain connected to the loss of limbs, particularly those concerned with leprosy (see Staples 2007). Specific historical figurations around the foot circulated in this field of medical science: missionary doctors carving out wooden feet, suggestions by early twentieth-century British physicians about which Indian shoe companies produced the best sandals for people with foot injuries, and colonial and contemporary public health efforts to destigmatize amputees. Related objects also circulated in this milieu: poorly fitted sandals, indoor shoes that signaled how feet crossed barriers between the worlds outside and inside domestic space, and movements of the body during events like the Hajj or the Kumbh Mela. Crowds and feet tend to be reckoned as one and the same, but here, in the foot clinic, they decoupled.

Amputations are costly affairs. A basic prosthetic leg for a below-the-knee amputation cost between 25,000 and 150,000 rupees. The body bore the cost as well. The remaining leg's muscles put in extra work to lift the prosthetic leg ('it's like a patient carrying a dumbbell with every step', Dr. Samant said). The heart had to pump 15 percent more blood, too, as a result of this extra work. Consequently, more than three-quarters of people who have below-the-knee amputations die within five years of the procedure because of the strain on the heart. Thus the guiding principle of his clinical work was that early intervention and good footwear were more lifesaving than amputation and prosthesis. Livingston (2012, 89) describes in vivid detail the kinds of decisions patients face around amputation of cancerous tissue: 'Amputation', she writes, 'is a moment when the tremendously social nature of the

human body as experienced outside the clinic comes up against the individuated body that biomedicine takes as its object. It is a moment when decisions hinge on sacrificing a part of the body in the hope of cure, time, or relief.

Absent those possibilities, Dr. Samant tended to let the body take care of things. This meant allowing for ‘demarcation’, a process in which the body would eventually stop the flow of blood at the line between dead and living tissue. He could then remove an extremity with fewer complications than the amputation of living flesh. In his room, parts of the body really did become things. Dead skin, dead toes, absent feelings – parts of the body disconnected themselves and lost their animation. In Dr. Samant’s clinic, load bearing played out viscerally. One could point a living finger at a dead toe. This line between living and dead, the ‘line’ of the therapeutic pipeline, cut to the quick.

Another day in the foot clinic:

An older woman appeared in a wheelchair, pushed in by her son and daughter-in-law. The old woman wails: ‘Lai lai lai lai lai’. She doesn’t stop; she only changes the pitch of the wail to express deep pain when they put her feet on a stool for Dr. Samant to examine and when they remove the bandages. ‘Lai lai lai!’ The son and his wife try and soothe her, kindly, softly. Her toe is dying. So is her brain. Dr. Samant tells me: ‘This is what happens with diabetes. Dementia. Age is part of it, but age itself isn’t the only cause. The circulation stops in the feet but also in the brain. There’s neuropathy in the brain. For younger patients, we might propose amputation. But she’s already getting round-the-clock care from her family. For her, what can we do? We wait till the toes turn black, and the body will demarcate it and it’ll fall off.’

A man, thirty-six. The toe is yellow. ‘It’s gone’, Dr. Samant says to me and to the nurse. ‘Gangrene’. Dr. Samant turns to the nurse: ‘Admit him. Amputation’. (In other cases like this, he might simply say to all of us or to no one in particular: ‘There is no other alternative’.)

In this space, metabolic science crystallized as a gradient of damage and repair. Passing through this gradient, people encounter how the dangers and resources of the world are rarely absorbed completely. Sometimes, as Dr. Samant might say, there is ‘no other alternative’ but amputation. Atrophy can become the primary mode of knowing and being in this context. Evidence falters. It may emerge only when things fall apart. A presumed fullness of experience, meaning, and recovery of health is a fragile presumption, an expectation of extreme answers for all questions. But evidence also lies at the lower extremities, in muted scenes of decay.

A woman in her sixties. Another case where Dr. Samant calls me over to watch how he scrapes necrotic tissue. I disobey, and take my eyes off the foot to look at her. ‘Does it hurt?’ I ask her. ‘No, *beta* [child]’ she says. ‘I can’t feel anything’.

About the author

Harris Solomon is Assistant Professor in the Department of Cultural Anthropology and the Duke Global Health Institute at Duke University. His research examines connections between bodies and urban environments in India. He is the author of *Metabolic Living: Food, Fat, and the Absorption of Illness in India* (Duke University Press, 2016). His current research is an ethnographic study of road and railway injuries, emergency medicine, and trauma surgery in Mumbai, which aims to understand traffic as an embodied aspect of city life.

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