

An Amygdala In A Metal Brain

“Where did we last go for a meal, Pa?”

“I ... I can't really remember.”

“Don't worry, take your time and think a little harder, Pa.”

“Was it ... was it my favourite *nasi briyani* stall down Haji Lane?”

I looked at Pa the way a mother looks at her child who can barely recite the alphabet when other children are already reading storybooks confidently; a disappointment tinged with guilt over unjustified expectations.

“It's not getting any better, Sis. Haji Lane was gone two years ago after the entire area got revamped into a singular shopping arcade.”

“You don't have to remind me. Pa didn't have *it* two years ago either,” I snapped brusquely, and immediately shoved a bite of rice into my mouth to stop more toxic words from trickling down my lips.

“We are still having dinner, yet Pa does not even know that we are still in the midst of it, let alone where we are eating,” Brother complained his grievances aloud, callous to my rising anger and Pa's sudden lack of appetite.

And the drip-drop of tears on two plates.

Mine and Pa's.

“Shut up and eat your food.”

“Okay, okay. Don't need to get so touchy.”

Pa's anguish from Brother's needless revelation made me shove my plate away, the anger having bloated both my chest and stomach. I took out my BioPad to check on Pa's next medication round and health appointment. The glaring display projected blue light on my countenance, which made my use of a device at the dinner table painfully obvious. This would have made Pa grunted in displeasure, and utter something along the lines of values disappearing with each generation.

Yet, today was different.

It has made Pa a slightly different person.

A person that did not know where we had, or were having, dinner.

A person that did not know that we were having dinner at that moment in time

A person that did not know that he himself was having dinner.

So, he did not care, or more accurately, did not know that I was infringing a dinnertime taboo.

As Pa tried to move the rice grains on his plate around to form some cryptic picture, I was still scrolling through the BioPad. The nifty device was connected to various biofeedback sensors on and inside Pa's body, which returned information such as heart rate, breathing rate and brain activity. All his vitals seemed normal, just that the brain activity had been drooping these past few months. It was no sudden stock market crash, but the weakening was present; more like a company slowly running itself into insolvency. I scrolled through the records to when Pa's brain activity was still high.

When he could still solve the daily sudoku challenge on the last page of the ePapers.

When he could still remember where we last had dinner.

“Pa, who am I to you?” awashed in emotions like a drowning sailor, I turned to Pa and asked him suddenly.

“My one and only *sayang*, of course,” Pa said with that familiar grin, that comforting warmth which coursed through my body, like drinking a steaming cup of *teh halia* on a rainy day.

At least, he still remembers his *sayang*.

“A cursory scan has estimated approximately 427.5 grams of food unconsumed on your dinner table. May I request that you finish your meal? Do you know that Singapore wasted approximately 1 billion tonnes of food waste last year? That is equivalent to almost 2 packs of mixed vegetables rice for every person! Do you also know that rural communities in other parts of the world...” A nearby sanitary android rambled on and on in its metallic, uncaring voice, singular audio clips for each word or phrase stitched together by a text-to-speech engine purely motivated by the most recent awareness campaigns.

So much for the heartfelt moment Pa and I shared just a second ago, when both our hearts met and touched each other in an infinite yet starless, universe, satisfied in the knowledge that despite the vast emptiness outside, the other heart will be there, forever and always.

And our hearts remained that way even till the next day, when we went for the appointment at the National Neuroscience Institute.

Once at the Doctor’s office, the glass panes folded into the crevice of the door frame, and the Doctor urged us to take a seat. The first thing I noticed was a hologram placed in a corner of a shelf behind the doctor. It was a floating human brain that rotated at a hypnotic space, yet something disturbing occurred soon after. Splotches began to appear inside of the brain, which were shown through a cross-section animation. The splotches grew in size, while the brain started to reduce in strands and clumps, until it looked like the inside of a sandwich loaf.

A sticky, slimy sandwich loaf with wrinkles on the outside.

Except that the next animation cut back to the exterior of the brain, and the wrinkles and origami folds started to unravel and decompress, which smoothed the brain, giving it an unnatural sheen. Then, the sheen was disrupted as holes started appearing on the surface, and the brain started to shrink visibly.

The sandwich loaf had become a small, sad sponge.

The animation ended with the title, "A Peek at Alzheimer's" in neon-pink and the logo of manufacturer, which was a book projected as a hologram as the logo.

A hologram on a hologram.

As my eyes were fixated on the grotesque performance, the Doctor broke my gaze by finally speaking, "It seems that you are enraptured by the hologram behind me."

"Apologies, Sir."

"I am afraid what you just saw is the very same process going right now in your father's brain, except at a much slower speed."

Suddenly, the hologram behind the doctor did not look very attractive anymore. It was almost as if I cracked open Pa's skull and that would be the very thing I find inside; a time-lapse of brain degradation that ended wryly with the neon-pink words "A Peek at Alzheimer's" and a hologram of a book hologram.

The hologram had transformed from an educational tool to something very real and frightening in a split second.

The Doctor then proceeded to taunt us with all the medical evidence that my Pa's brain was sloughing off, as if his heartbreaking changes were not enough proof.

“You can see the amyloid plaques as illuminated by the high-definition cross-sectional tritium spectroencephalogram, or hdcs-TSEG for short, in his hippocampi region in Figures 10a and 10b. Then, from the minute grey matter samples we have taken, the tau protein-attuned ELIZA tests have shown the presence of hyperphosphorylated tau proteins, and here we have...” the Doctor indulged us; he must have thought himself a gracious teacher giving the public a timely education.

“I am sorry, but I have to stop you right there. We all get it, my Pa has it.”

Suddenly, there was a cold snap in the room.

“I guess you are here to hear the treatment options then. I will take my leave then, because as advanced our diagnostics are in identifying cases of Alzheimer’s, which you clearly have no interest in, our therapeutics are nowhere there yet.”

His words smarted like a smear of *chili padi* on my cheeks, my blood boiling from embarrassment and anger.

As the Doctor shuffled the tabs upon tabs of medical evidence on the suspended quantum-dot display into a virtual folder, he continued,” However, there are clinical trials for a very radical and novel treatment of Alzheimer’s. They claim that it might cure the disease and even reverse its damage.”

The apparently good news flushed the *chili padi* smartness off my cheeks, and some semblance of a smile took hold on my lips.

“But the risk is very high. I mean, they are going to inject some liquid metal thing in your father’s brain, to put it plainly. It’s a new treatment, and the side-effects of it will only be understood when they observe these clinical trials.”

The smile disappeared as quickly as it came.

“It is your choice honestly. The medication, such as donepezil and rivastigmine only slows down the onset, their mechanisms are...”, the Doctor paused for a while and shot me a dirty look.

“But I guess you aren’t interested in it, like the diagnostics. So, are you interested in the clinical trials?”

“The liquid-metal-in-the-brain is worth a shot, right?” the sudden interjection by my unusually silent brother made his existence known to me for the first time that day.

I turned to look at Pa. He was slobbering all over the desk while flicking at one of the biofeedback pads on his right arm. He then turned to me and said in a child-like voice, “I need to go pee.”

I could not bear to see Pa like this, hence I silently nodded to the Doctor.

“Great. Here’s the namecard to the pharmaceuticals company in charge of these trials, I will ping them of your interest and they should contact you shortly.”

The Doctor then shut his quantum-dot display, collapsed it into a rod for portability and briskly shuffled out of the door.

I turned to look at Pa, his wincing frown showed that he could barely hold it in.

“Come, Pa. Let me bring you out.”

A week later, another appointment was due. This time, it was at the company Doctor had introduced to us previously, and the moment we stepped out of the hyperloop, a sucrose-sweet hope enrobed my heart.

The building looked like a Rubik’s Cube made of silver and glass, which glittered excessively in the tropical sunlight. From afar, it would have stood out as a magnesium white glare that would etch a permanent dent on anyone’s cornea. As

we were about to enter the building, the panes of silver and glass suddenly transformed to give a different permutation of clear crystal and reflective metal.

Glass had turned to silver, and silver to glass.

It left me in awe, even as we entered the office with the Public Relations Officer.

“So, you are here to sign your father up for the NeuroRegain trials?”

I nodded.

“Alright, just sign here, here and here,” the Officer enlarged the liability form and legal consent form on the quantum-dot display and pointed impatiently at the fields we needed to fill.

“As you read through those walls of text, I will just run you through on the procedure,” the Officer stood up and paced around us while casting a watchful eye on Pa, like a hawk circling its prey.

“So, NeuroRegain is a novel regenerative medicine that our company has released, which essentially incorporates nanomachines into the brain to function as neurons. It is akin to a ferrofluid, but of course not composed of iron filings, but a proprietary mix of other metals and proteins. How it functions is very similar to a neuron, it can conduct electricity, so it can pass signals,” the Officer then gave Pa a light prod on the shoulder and said, “Zap!”

“It can change shape freely and form extensions, so it exhibits plasticity like a normal neuron. Thus, they can make new connections with themselves or with existing neurons, so your father can learn new things and make new memories. Lastly, with a healthy diet, the nutrients can be used by the nanomachines to duplicate copies of themselves, making more neurons in the process!”

“This is amazing!” I was unable to hold back my elation.

Pa could watch plays with me.

Pa could play badminton with us before a meal of *thosai*.

Pa could remember what he had for dinner.

That he was having dinner.

“Your signing of the form means that your father is fully committed to the trial now, thus he is subject to our observation and should strictly follow our instructions, as per the terms stated here,” the Officer gave the kilometer-long document a casual scroll from top to bottom in seconds.

“You may leave your father in our care now.”

I held Pa’s veiny hands in mine and kissed his forehead as a few nursing androids approached from nowhere and started dressing Pa into a surgical gown.

“Pa, who am I to you?” I asked.

“My *sayang*, of course.”

Pa looked blurry in the sea of tears that enveloped my eyes, and as the androids pushed him away, I could only shout, “Your *sayang* will come for you in a few days!”

“*Sayang* loves you!”

My outburst of love, longing and grief rang hollow as it reverberated through the cold, steel walls of the unfeeling office.

At the same office two days later, Pa was waiting at the table for us, while tapping away at a Sudoku on the quantum-dot display. Upon seeing us, Pa smiled and waved excitedly; the numbers continued appearing on the blanks as Pa’s finger took on a life of its own.

“Here you go, all brand new!” the Officer chirped as he dusted Pa’s shoulders and nudged him off the seat and into my embrace.

“The NeuroRegain procedure was done without mishap on your father, and the results are astounding! The nanomachines immediately integrated into the brain tissue with no rejection and as soon as your father woke up, he wanted to do puzzles. By the time you arrived, he finished around forty of these...”

“Sudoku,” Pa answered for the Officer, which embarrassed him greatly.

“Yeah, these weird, number puzzles. Well, great news and all, you can bring your father back home now. Our observations will be done through the BioPad system on your father’s body as well as through a few more diagnostics issued to your father through email. Goodbye!”

“Goodbye!”

My mood was dizzyingly good that day.

But the goodbye turned out to be not meant for the Officer.

But for Pa.

The first week with Pa at home was spent doing the things we used to do together before *it* happened; discussing the morning papers, doing the household chores and preparing to cook dinner. Pa’s liveliness had returned, and his eyes shone not from rheum, but with an incomprehensible wisdom.

However, Pa’s behavior became erratic again, and this time, *it* was not the cause.

One morning, as we were discussing the papers, I noticed the lack of empathy in Pa as he uttered his opinions. Warmth was sapped from him, and in its stead, cold and calculative logic.

Almost as if transistors ran in his head and heart, instead of feelings.

Pa's change became more drastic with each passing day. He no longer tucked into his favourite *ayam masak merah*, instead weighing his rice, vegetables and poached chicken by the gram.

"I need optimal nutrition to maximise my life expectancy," he explained.

Pa would not even talk to me nor brother as often as he did in the past and would spend time in his room reading books.

In order by genre.

Further sorted alphabetically.

This persisted until he only spent his time between eating and reading. When Pa walked out of his room to eat something, his gaze would never fall on any of us, as though only he alone lived in the house.

Pa had changed.

So, I brought him back to the company, and the nursing androids pushed Pa, dressed again in a surgical gown, to another opaque room.

I clicked my heels anxiously while the Officer stared at me with a saccharine smile.

"Just sit tight, the report will be out in minutes."

It felt like hours.

No.

Days.

But it was true, Pa reappeared in half an hour, and the saccharine smile from the Officer became sweeter, sweet as sucralose.

“I am sorry to say, but something terrible, terrible has happened to your father.”

The heel-clicking stopped.

“His skull now contains nothing but metal. Alzheimer’s has destroyed almost every part of his brain, save for a small piece of the amygdala which processes emotions and memories associated with it. The nanomachines happily filled up that vacuum but are unable to replicate the vast connections you father’s brain initially had.”

“So?” I tried holding back the tears.

“Your father has no brain, but a computer.”

“No, it can’t be. Pa is not dead yet!”

“Of course, he isn’t,” the Officer snickered at my response.

” But he is an entirely different person now.”

Was computer-in-the skull Pa the same as brain-in-the-skull Pa?

I turned to him, and through my throat stretched taut from sadness, I choked out, “Pa, who am I to you?”

Pa stared at me inquisitively, before answering.

”A female person with a direct biological relation to me.”

I bawled and hammered at his chest, desperate to open the doors and find a way into his soul somewhere.

“Not *sayang*?”

Pa was silent, and I bawled louder.

Then, I saw something glistened on his cheek.

On that unsmiling countenance, laid a single teardrop.

The amygdala which processes emotions and the memories associated with it.

“I am registering high activity on the amygdala of your father suddenly! It is short-circuiting the nanomachines!” the Officer said as he rushed back to a frantically beeping quantum-dot display.

What I saw in that tear, was all of Pa’s joy and anguish.

“His vitals are dropping fast! Can we get the medical androids in, now?”

All the words he wanted to tell me.

“Come on, we have a dying man, for the love of-“

I hugged Pa close to me, and his arms, like two blind, quivering snakes, enveloped me slowly.

“He’s going to flatline soon!”

His fingernails dug slightly into my flesh, as I buried my face into his shoulders.

“The trials will be done for if he dies, hurry!”

Then, his grip loosened, and his whole body collapsed onto mine like a sack of potatoes.

“He’s gone.”

I put my lips close into Pa’s ears and whispered.

“*Sayang* loves you.”

Perhaps, it was for the best.