

Neural Implant-induced Neurodegeneration - A Case Study of a young adult Shistavenan male

Dr. Lilina Mirin
Vornskr Battalion
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Abstract—This case report describes Masakado, a 26-year-old Shistavenan with extensive experimental cybernetic modification. In his early twenties, neural implants designed to ensure Masakado's unwavering loyalty to the Collective cause began to malfunction. The conflict between synthetic and natural mechanisms within Masakado's brain has led to a neurodegenerative condition, in which is brain his essentially dying cell by cell. This condition also causes absence seizures, more common at times of high stress levels. In this report I will detail the steps I have taken to date to slow the degenerative symptoms and hypothesise that the true causal pathway is beyond the scope of conventional medicine.

I. INTRODUCTION

In this report I, Dr. Lilina Mirin of the Vornskr Battalion, will describe the curious, unique neurological degenerative condition of a patient of mine, a Shistavenan cyborg named Masakado. In short, Masakado's brain is suffering from the effects of a malfunctioning neural implant. The result is significant, progressive cell death in the brain, which will become fatal if left unchecked, as well as severe headaches and recurrent seizures.

I have been taking direct personal care of Masakado since I was employed by General Zentru'la in 37 ABY (two years from date of this report). The General had hired Masakado as an infiltrator, who accepted based on the agreement that the General would hire a full-time doctor capable of helping him with his condition. As I have only cared for Masakado for two years, any health concerns predating age 24 are self-reported.

II. PATIENT BACKGROUND

A. Personal History

Masakado was Subject Zero of a Collective experiment to create the ultimate cyborg soldier, as Subject Zero of the Hive Mind Marines project. He was taken at an early age and his body was severely mutilated. He remembers little of the experimentation other than the voice of the project's lead implanting the message in his head that he was a living weapon.

As the name suggests, the Hive Mind Marines were intended to be able to communicate using one mind, enabling perfect teamwork. However, Masakado was the first attempt, and the technology was not fully perfected. He was reassigned to be trained as a spy and assassin following failure of the hive mind. It is the experimental implant that has left Masakado with long term neurological damage.

Most of Masakado's body has been replaced with cybernetics and very little of his original Shistavenan body remains. The face (except the lower jaw) and the major vital organs are organic, but all four limbs and most body mechanics of the torso are replaced by top-of-the range cybernetic technology. This is mostly functional and provides Masakado with no physical impairments. In fact, Masakado's athletic performance puts him at the very pinnacle of his species.

At some point, the implants designed to control Masakado's mind to maintain his complete loyalty malfunctioned. Masakado began to develop severe headaches. These became more frequent and stronger. After identifying that the neurological degeneration will eventually kill him, Masakado abandoned the Collective, working freelance as an assassin while searching for somebody that could help him. He then began to develop occasional 'seizures', during which the connection between his mind and prosthetics malfunctions.

B. Demographic and Clinical Features

Masakado was born in 13 ABY, making him 26 at the time of this report. He is 1.8m tall and weighs 80kg, however most of this weight is attributable to his cybernetic body. I estimate that only approximately 15% of his total mass (12kg) is biological, aggregating the weight of the skull, spinal column, brain, heart, lungs and liver.

Masakado's blood is of the S+ type, the most prevalent in Shistavenans. However, his heart pumps blood only to the brain, lungs and liver, as the rest of his body is cybernetic. An artificial black fluid is important to the functionality of his cybernetic components, and Masakado often bleeds oil instead of blood when wounded in combat, although this seems to have the same effect as a normal wound.

Masakado's physical capabilities far exceed what is normal for a Shistavenan. His body is exceptionally fast and powerful as it was designed with combat in mind - Masakado was intended to be used as a weapon against Jedi units.

Masakado eats incredibly little, likely attributable to the fact that most of his body is mechanical and not powered by food.

III. NEURAL IMPLANT-INDUCED NEURODEGENERATION

A. Aetiology and Symptoms

the focus of this report is Masakado's neurodegeneration triggered by malfunctioning neural implants. As his case is somewhat unique, I do not believe there exists a recognised term for the condition he suffers from. Masakado's first symptoms were extreme headaches and a divergence from his conditioned behaviour: i.e. he began to harbour ill-will towards the Collective and rejection of the idea that he was simply a weapon.

Masakado visited a Coruscant hospital in secret, in which it was identified that his brain was slowly dying, cell by cell, and that he wasn't sure how much longer he had to live. Numerous neurologists reported the same thing to Masakado, and he overrode the conditioning from the neural implant, abandoning the Collective completely.

This marked the beginning of his recurrent seizures. The neural implant was never designed to be used on anything except a mind conditioned as a living weapon, and the conflict between his living brain and the malfunctioning implant are what appear to trigger the seizures. I also believe that the rate of cell death accelerated at this time, but has been slowed by an increase in Bacta gel consumption. However, this has led to a dependence on the substance, and Masakado struggles to get through a day without consuming a pouch of Bacta.

I have personally witnessed his seizures three times: once when he learned the experiments are continuing on new subjects and he felt a sudden rush of anger, once suddenly while scouting, and once when his body was attacked by an electromagnetic pulse. In all three instances Masakado convulsed violently with no control of his limbs, while screaming in agony.

B. Diagnostic Tests

To investigate possible links with known conditions associated with recurrent seizures that might suggest possible treatments, I recorded electrical signals from Masakado's brain (EEG). Cell death appears to be uniform across the brain, as there are no dark spots on the EEG, however the electrical activity on his brain appears to be weaker than the average male of his species as a result of significant cell death.

I attempted to induce a seizure in a safe, controlled setting in a med-bay using standard cortical stimulation techniques, so that I could observe Masakado's brain during a seizure. However, my efforts were unsuccessful. Like other patients with recurrent seizures, Masakado's seizures occur either randomly or at times of high emotion, however unlike other patients, his seizures cannot be triggered by artificial electrical stimulation.

A DNA test suggests no significant sign of underlying genetic disease. His blood test was also normal, other than elevated CRP levels consistent with psychological trauma.

IV. SUMMARY

Masakado's relatively normal vital signs given his extensive cybernetic augmentation makes his case a puzzling one from the perspective of neurology. His memory and mental awareness remaining sharp are inconsistent with most well-known neurodegenerative conditions. However, being unable to induce a seizure with external electronic stimulation are inconsistent with seizure-associated conditions. Neurologically, he appears to suffer from symptoms from a wide range of neurological conditions, but also presents clinical features that rule out all of them.

In my capacity as a Jedi healer, not as a doctor, I suspect it is the long-term harboring of deep loathing, hatred, and a thirst for blood that prevents his mind from truly repairing itself. I believe that his condition affects not just the mind, but the spirit. I have commenced meditation sessions with Masakado in an attempt to help him control his emotions, although progress is slow as it is difficult for him to let go of his hatred. I suspect that coming to terms with his past is the only way for him to truly begin the healing process.