1 - C: Case Study 1 - Healing Dream

Ayla was distracted. Her anatomy professor was giving exams every two weeks. The memorization was just too much! She was going through the list of terms on her next exam in her head while making dinner for her roommates. But, no surprise, when she has too much on her mind, she gets clumsy. Instead of cutting the carrot she made a deep gash in her pinkie finger right near the joint. She ran to the bathroom for a bandage and stopped the worst of the bleeding. Dinner was burning so she got back to it but her finger swelled and hurt under the bandage – doubly distracting her.

As she slept that night she had a vivid dream. She had shrunk down and was inside her own body riding on a white blood cell, zooming through the arteries and then capillaries. As the space got more narrow the cell went even faster pushing red blood cells out of the way. Finally it slowed down inside a tangled net of platelets. She realized where she was: her own wound! She could also recognize the area by the two nearby bones – her pinkie joint! She tried to remember its special name… metacarpo… something. She watched in fascination as the white blood cells began to rapidly push out lots of small molecules. Her speedy arrival here must have been because of the cytokines, chemical alarm bells, released when she got hurt.

One of the platelets began spitting out these vesicles. They must have been filled with some tissue repair chemical because a nearby capillary began to replicate cells and grow at its torn edge. Also the long muscle cells nearby began to divide and secrete proteins for rebuilding the connective tissue that had been destroyed. Under the more dense top layer, the dermis, round cells that looked like amber balloons threaded in between the little growing blood vessels. They glowed and shimmered as they released chemicals. These seemed to map out the paths used by the capillaries growth. Ayla never knew fat was so beautiful close up.

She saw rounded dark cells, maybe chondrocytes that help make and maintain the extracellular matrix, wake up and begin to release lots of collagen. She tried to remember what they must be spitting out… So, collagen and elastin were the major fibrous proteins in the extracellular matrix in connective tissue. The collagen coming out of the cells looked like a corkscrew curl of hair – three twirling loops that could move against each other. Must be how they were strong support but could still move a bit. They came out of the cells and had small bits cut off to then twirl around and attach to the deepest parts of the edges of broken skin. She remembered why they were called an anchor – slowly but surely they pulled together the growing dermis and fatty adipose cells.

There were also different long stretched out cells; they looked like a pork roast! There were also spitting out something that looked like a net for catching fish! It crumpled up and then pulled apart

so quickly she had to jump to the side to avoid getting tangled in a newly secreted one. It twisted and twirled in the water around the blood cells and stretched to attach itself to other fish nets. Then it stretched and stuck to one of the proteins sticking out of a new cell. She wouldn't get tangled – it had found a new home. This must be the elastin!

She turned a bit to see more of the area – this was amazing! Because this had cut into the cartilage between bones, she saw the bright white edges gleaming in the distance. These had the round chondrocytes too. But she remembered they made a special type of collagen for the cartilage between bones. It even looked a bit different – like the curl was made of hairs that all looked the same. Ha, she remembered; this was Type II. The new collagen had other proteins covered with sugars around and within it. On the surface of the cartilage that was finished was a slick looking long molecule that made the surface shine. This must be hyaluronic acid chains that help hold moisture and allow structures to slide around.

Out of the corner of her eye, she saw another cell approaching her really fast! She turned and saw the giant orb with wavy edges and a dark center barreling towards her. She tried to swim away but it was much faster. It began to send out little projections of the cell like slimy arms. They were reaching out around her, trying to swallow her! It must be a macrophage trying to rid her body of the invader. But it's me! This is my body simply healing from the cut! I belong here. She woke up to her alarm, 7 AM. Looking down at her finger she ripped off the bandage. It was clear she had been dreaming but it also wasn't a fantasy. The gap from the slice had closed some and the redness had gone down. Those cells had been doing all the different types of work she had dreamed of and the ones her pinky finger needed.

Created 2026-11-15 22:56:30 UTC by Ramanda
Updated 2026-11-16 00:42:52 UTC by Ramanda