



Imagine a world
without cancer.



DHRUV'S STORY

Blood in his urine seemed minor. What came next was a five-year battle — and a medical first that could change how childhood cancer is treated.

March 14, 2017, started as an ordinary snow day. Five-year-old Dhruv and his 7-year-old sister hunkered down inside with their mother, Ruby, who prefers simply “Mom,” reading books and watching the snow fall outside.

Ruby describes Dhruv as a happy and energetic child who rarely got sick. However, that day Dhruv alerted his mom to blood in his urine.

“Mom, I have a colorful pee pee,” he called.

Even at 5 years old, he recognized that it didn’t look right. Ruby assumed it was something simple, perhaps a kidney infection. Dhruv was not complaining of pain, and he didn’t have a fever. Aside from the blood, there was no warning for the unimaginable journey that was about to begin for Dhruv, taking him from a life-threatening illness to full recovery.

Emergency

Dhruv seemed completely healthy, so when Mom took him to the emergency department at the local community hospital, she was not prepared for the alarming news she was about to receive.

The emergency physician spoke the words no parent ever wants to hear. Dhruv had a large tumor in his right kidney.

"I was stunned," Ruby recalls. "My mind went blank. I couldn't even see the doctor's face."

Within minutes, Dhruv and his mom were in an ambulance on their way to Johns Hopkins Children's Center.

Johns Hopkins Children's Center

Mom did everything she could to protect her son from fear. She turned the ambulance into an adventure, joking that it would be a fun ride. Still, Dhruv was unusually observant, and he sensed something was wrong.

At Johns Hopkins Children's Center, the testing began again. Around 7 a.m. the next morning, pediatric oncologist Christine Pratilas, M.D., now vice chair for pediatric oncology at the Johns Hopkins Kimmel Cancer Center and director of pediatric oncology at Johns Hopkins Children's Center, came to see Dhruv.

It felt like an answer to prayer. The memory, Ruby says, is sealed in her brain.

"God is sending someone. She was hope," thought Ruby.

Pratilas carefully explained that Dhruv likely had Wilms tumor, a rare childhood kidney cancer, and that he needed surgery right away to remove the tumor and his kidney. Pediatric surgical oncologist Daniel Rhee, M.D., performed the operation.

As the medical team prepared Dhruv and his family for surgery, his parents' minds were racing as they searched for answers.

"How could this be?" Ruby wondered. There was no history of cancer in her family, and Dhruv didn't even seem sick.

Like many parents, she blamed herself. Could she have done something to prevent this from happening? The medical team assured her that nothing she had done caused Dhruv's cancer.

The team also helped Dhruv understand what was about to happen. Child life specialist Lexie DeLone used a mannequin to show him the tubes he would wake up with and explained that the doctors were going to remove a "funny bug" from his tummy. They let him choose the strawberry scent for the anesthesia mask, and Mom walked with him to the operating room and gave him a kiss.

Then came the waiting. Hour after hour, family members prayed while surgical updates trickled in. Nearly 12 hours later, Rhee walked into the waiting room and gave them the news they were desperately waiting to hear: The surgery was successful. The tumor was gone.

A Long Journey

However, the family would soon learn that surgery was just the beginning of a long journey.

Over the next six months, Dhruv underwent chemotherapy. His hair fell out. (His dad cut his own hair in solidarity with Dhruv.) Food lost its appeal, and the hospital became a second home.

Throughout it all, Dhruv's parents were strengthened by their faith and the support of their family.

"Without family support, we could not have done this. There were people praying for Dhruv all over the world," says Ruby, who played recorded prayers continuously beside her son's bed and found comfort in knowing whatever came next, the family would face it together.

Then, just as treatment ended, the family received a devastating blow. Scans revealed that the cancer had spread to Dhruv's lung.

Surgeons successfully removed the first lung nodule. Despite more intensive chemotherapy and the addition of radiation therapy, the aggressive cancer continued to grow and spread. By January 2019, there were more than 15 small tumors growing in his lungs.

To Dhruv's family, the situation seemed hopeless, but neither they nor Pratilas were willing to give up. Pratilas scoured the medical literature and called oncologists around the country to discuss Dhruv's case and explore potential treatments. Her diligence paid off.

BRAF Mutation

A new glimmer of hope came in the form of a gene mutation in his cancer. The genetic alteration that caused his cancer to be so aggressive was now a target for treatment.

Dhruv's tumor carried a rare mutation in a gene called BRAF V600E. Pratilas was very familiar with the FDA-approved drugs that targeted this mutation and were effective in adult cancers, initially in melanoma and later in other cancer types. They were not approved for Wilms tumor, however, and the team of doctors didn't know if it would be effective in Dhruv's case.

Pratilas discussed another option with the family — high doses of chemotherapy followed by a stem cell transplant — the standard of care for Wilms tumor that had recurred twice. The family agonized for weeks over which treatment to pursue. On one hand, the chemotherapy and stem cell rescue combination was the standard treatment, but it came with toxic side effects and lengthy hospital stays. On the other hand, BRAF-targeted therapy was a pill that could be taken at home, but it had never been tried in a patient with Wilms tumor.

They decided on the oral targeted therapy, and Dhruv began the treatment in January 2019. Month after month, the tumors continued to shrink, and within four months, the cancer was completely gone. He continued with treatment until 2024.

Today, Dhruv is a sophomore in high school, where his mother says he is excelling, and remains cancer-free.

Dhruv's case is believed to be the first reported long-term remission in a child with multiple relapsed metastatic Wilms tumor treated with BRAF precision-targeted therapy.

"Dhruv's case highlights the important role of molecular profiling and looking for the specific genetic mutation driving a cancer in revealing treatment options when conventional therapies have been exhausted," says Pratilas. "We are optimistic about the promise of BRAF-targeted therapy for other patients with relapsed Wilms tumor, and this case highlights the concept that very often, the genetic driver (or oncogene) is the relevant information, rather than the cancer type. It's also worth noting that Dhruv was treated with this combination treatment in 2019, which is more than three full years before the FDA issued a histology-agnostic approval for the combination of dabrafenib and trametinib, meaning that patients are eligible to receive the medications as long as the tumor expresses BRAF V600E, no matter the tumor type."

The Promise of Research

For Pratilas and her colleagues, Dhruv's journey demonstrates how identifying the genetic changes driving a child's cancer can uncover new treatment options when standard therapies are no longer enough. For Mom, however, the breakthrough is much simpler. It gave her son the chance to grow up.

"I struggle to put this journey into words," says Ruby. "I still remember the fear, the uncertainty and the countless prayers, but I also remember Dr. Pratilas and the extraordinary team that did not give up on Dhruv and stood beside our family every step of the way. Until my last breath, I will not be able to thank them enough."

Today, she sees in her son so much more than a cancer survivor. She sees a bright future, one that was almost taken away.

"I am so grateful for Johns Hopkins," says Ruby. "Medical research gave me my son back."