





ODYSSEY

After making his way from Idi Amin's Uganda to Pitt and UPMC, Dr. Amin Kassam now seeks a better route for brain surgery

By Jennifer Gill Kissel

Photos by Jim Judkis

Amin Kassam lost his mother in a fire when he was still too young to remember her. Later as a 5-year-old, his family was forced to flee their native Uganda to escape the repressive regime of Idi Amin. But the real tragedy that would alter the course of his life occurred when Kassam was 11.

"My mom woke up that morning and said she had a headache," Kassam says, referring to his stepmother, the woman who had told him bedtime stories and raised Kassam and his two little brothers as her own. Suffering from a benign colloid cyst deep in her brain, she fell into a coma and would spend the next 13 years in a vegetative state.

Kassam made a promise to God that day 30 years ago. "I decided I was going to be a neurosurgeon," he recalls. "The only justification, in my mind, was that things would have to change for other people, and I was going to change the way neurosurgery was practiced."

Looking back, the childhood promise now seems idealistic, delusional, and grandiose, Kassam admits. But he did keep his promise, and today Kassam chairs the department of Neurological Surgery and is director of the Minimally Invasive endoNeurosurgery Center at the University of Pittsburgh School of Medicine.

Kassam's multidisciplinary surgical team has pioneered minimally invasive brain surgery techniques, including an Expanded Endonasal Approach that involves tumor removal through the nose. Aside from a headache, patients suffer no pain or disfiguring scars and usually are home within a day or two.

His mother would be proud. Two of the instruments Kassam and his team developed and patented, the endoport and exoport, "exist because of her," he says.

The odyssey that brought Kassam to Pitt and UPMC began under the reign of a dictator who desired to rid the world of Asians. Idi Amin's "bedtime reading was 'Mein Kampf'," Kassam says. "We were told we might want to find alternative living arrangements," and the despot "was a very persuasive fellow."

The family was given 30 days to leave the country. With the deadline

As he watched his stepmother fall into a coma, 11-year-old Amin Kassam promised God he'd become a surgeon and "change the way neurosurgery was practiced."



nearing, no relatives (they too had been exiled), no money, and no country willing to accept them, the family was desperate. A Muslim spiritual leader made arrangements to airlift the family. "We had no idea where we were going, what country we would land in," Kassam says. "We lost everything."

Bewildered and frightened, the young Kassam and his parents landed on a Canadian airfield in a blizzard. "We were wearing shorts and sandals, we had no money, and couldn't speak the language."

The Canadian government granted the family refugee status. Kassam's father, a mechanic in Uganda, took a bus to a high school to learn English and eventually become credentialed in Canada as a mechanic. The family moved to Toronto, but the 1970s were "an unusually conflicted period of racial tension," Kassam says. "It was a very difficult time to grow up in a big city. Between the ages of 6 and 12, I was convinced that my middle name was Paki (a racial slur)."

But Kassam says his father "built a wonderful life for us," until he too fell ill after his mother became comatose. The young Kassam had to leave school periodically to care for his family and work in his father's garage. Lying on the hard concrete floor with the smell of grease and gasoline permeating his skin, his young hands calloused from gripping a wrench, Kassam developed the fine motor skills required to become a neurosurgeon. His father made him learn to use his left hand to work on cars.

It's Wednesday morning and Kassam has six surgeries scheduled, an unusually heavy day. (He averages four or five, four days a week, and

does a clinic on Tuesdays.) In a small, brightly lit operating room, a video screen plays his work in progress and gray monitors display various angles of the tumor in question. Kassam works surely, his fingers deftly wielding the instruments, almost like chopsticks. He stands spread-eagled, his black Crocs providing traction on the tile floor.

For hours, Kassam darts between operating rooms, bursts through doors, consults with his surgical teams, checks on patients, gives suggestions, and deadpans jokes that would make a novice blanch but only make his seasoned staff roll their eyes.

Kassam has a curious way of likening brain surgery to gastronomy. "God took Jell-O and wrapped it in Saran Wrap," he says, pointing at a thin membrane enveloping the exposed brain. "All I have to do is take out the Jell-O." In another room, he compares the patient's tumor to couscous and the brain to rice. "I just have to suck out the couscous and leave the rice."

At each operating table, Kassam has an intern at his side, always teaching. Like his father, Kassam stresses the importance of ambidexterity. "I make the interns shave and eat with their less dominant hand," he says, "and they have to learn to sew inside a cut-off test tube."

The idea of removing a brain tumor through a person's nose is both unbelievable and altogether logical. Conventional brain surgery, "even at the best hands in the world, conceptually made no sense to me," says Kassam, who received his undergraduate and medical degrees from the University of Toronto and finished his residency and fellowship at the University of Ottawa.

Kassam says he "was appalled at the outcomes" of open or skull base surgeries that were developed decades ago and became

commonplace in the 1980s. The person's skull is cut open and often the face is peeled down. "Imagine trying to get to the center of a circle by going through the outside and ripping off everything on the way in," he says, "and that's just the price of getting there." The surgeries were not always successful and were frequently debilitating and disfiguring.

Kassam arrived at UPMC at age 30 to do a vascular fellowship and within eight weeks was on staff, with a caveat. Kassam wanted to rebuild Presby's nearly defunct skull base surgery program. "They said, 'Sure kid, whatever,'" he recalls. Kassam allied with endoscopic surgeons Carl Snyderman and Ricardo Carrau and hit the ground running in a field with a very steep learning curve. When Carrau went out with a broken collarbone, "Amin hit hyperspace," Carrau says. "When I came back he seemed to have hit a comfort level where everything was automatic."

Although everyone on the team has strengths, Carrau adds, "Amin is the keystone. He is so versatile. Not only does he do skull base but microvascular and now endoscopic. We are just flying the plane, but Amin is shooting the guns."

During a weekend retreat in 1999, Kassam, Carrau and Snyderman mapped a different route to remove brain tumors. They then asked biotech corporations to help them by providing instruments they'd designed. "We told them we wanted to take tumors out through the nose," Kassam says. "They thought we were green with horns on our heads. No one bought it except one company." From then on, Kassam says, "it was a progression. We'd get a better understanding of the anatomy and then force the corporate world to improve the instrumentation."

The first such surgeries were born of necessity, tumors that otherwise could not have been removed without killing the patient. One was a little girl who would die of nosebleeds if her mass wasn't removed. Another was a pregnant woman who was losing her vision and couldn't withstand full anesthesia.

In 2004, the three doctors started a live surgery course in Pittsburgh. "At our first course, there were five people. Four were good friends, and three stayed at my house," Kassam says. "It was the only way I could get people here." Since then, the team, which is now 10 surgeons strong, has done 3,000 neurosurgical procedures, including more than 1,000 endoscopic procedures. Kassam, Snyderman and Carrau lecture internationally and are booked 18 months in advance.

But the journey to their current success wasn't always pleasant, Kassam says. They encountered plenty of doubters and naysayers. Some called him insane. Others used even harsher adjectives.

Through it all, Kassam's wife, Greta, has been his "conscience." A skull base nurse, Greta "saw the patients that I would wreck and ruin with the old approach," Kassam says. "At three in the morning she has to listen to me and make sure I show up at seven the next day. She's the one who took the brunt of the controversy, when I was ridiculed."

But Kassam says he's been blessed with opportunities that have nothing to do with his skills and everything to do with being in the right place with the right people. "I landed in a place with a group of incredible guys," Kassam says. "And UPMC is a nimble, forward thinking institution. It fosters innovation and is willing to stick its neck out."



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At the tender age of 35, Kassam was placed into fairly high profile positions, when he "wasn't even sure what meetings to show up at," he jokes. People like UPMC President Jeffrey Romoff took him under wing and "probably protected me from myself." Kassam has since mentored other young surgeons, including Johnathan Engh, who says, "Neurosurgery is usually dog eat dog. But Amin is committed to helping us grow. He's the most facilitative guy for our careers that we could hope to have."

In 2005, Lori Cimino, a busy working mother of two boys, noticed some vision changes that her ophthalmologist couldn't reconcile. An

MRI revealed a tumor pressing on her optic nerve. Typically, Cimino would have been scheduled for open brain surgery, but as a UPMC employee she'd just read a newsletter about the new endoscopic surgery. There's no good time for brain surgery, but Cimino thought, "If it's gonna be, it's gonna be with him."

Kassam and his staff impressed her with their compassion. "I loved him,"

Cimino says. "He was so spiritual and I felt very comfortable and comforted. I left it in God's hands and in his hands."

Kassam understands patients' need for spiritual

comfort. Meditation remains an important part of his life and he believes God's hand touches everything he does. "Sometimes patients will ask to see a certain person before they go to sleep," he explains, "and we accommodate that. Sometimes they ask us to pray with them, and we will."

Although Kassam specializes in endoscopic surgeries to remove tumors, not all patients are good candidates. "The decision is simple," Kassam explains. "We don't cross the plane of a nerve." But the occasional necessity to open a patient's skull still makes him cringe. Gesturing to an operating room where he just finished extracting a tumor from a 79-year-old woman via open surgery, Kassam says, "What I just did in that room was barbaric."

At 41, Kassam believes he will see the day when even his endoscopic surgery will become archaic. "We've barely scratched the surface. It's a great time to be in the field." He says fellow surgeons like Engh, head of the team's endoport section, "will come up with stuff that will be game changing. I think we'll be able to get to deeper areas of the brain with minimal disturbances to brain function."

And divinity will always be part of the equation. "I made a commitment to God in 1978 that I was going to do neurosurgery and I would do it in a way that would change the world," he says. "That's the only commitment I need to honor."

"It's the ultimate oxymoron," he muses. "You have to have this level of confidence that says, I'm going to take that tumor out, because if you can't say that, you can't show up in the operating room. Yet you also must have the humility to understand that even though you're going to do the best technical operation this person can get, in the end it's in God's hands." 2