

Mrs. Kelly's Monster

by Jon Franklin

In the cold hours of a winter morning Dr. Thomas Barbee Ducker, chief brain surgeon at the University of Maryland Hospital, rises before dawn. His wife serves him waffles but no coffee. Coffee makes his hands shake.

In downtown Baltimore, on the 12th floor of University Hospital, Edna Kelly's husband tells her goodbye. For 57 years Mrs. Kelly shared her skull with the monster: No more. Today she is frightened but determined.

It is 6:30 a.m.

"I'm not afraid to die," she said as this day approached. "I've lost part of my eyesight. I've gone through all the hemorrhages. A couple of years ago I lost my sense of smell, my taste. I started having seizures. I smell a strange odor and then I start strangling. It started affecting my legs, and I'm partially paralyzed.

"Three years ago a doctor told me all I had to look forward to was blindness, paralysis and a remote chance of death. Now I have aneurysms; this monster is causing that. I'm scared to death . . . but there isn't a day that goes by that I'm not in pain, and I'm tired of it. I can't bear the pain. I wouldn't want to live like this much longer." As Dr. Ducker leaves for work, Mrs. Ducker hands him a paper bag containing a peanut butter sandwich, a banana and two fig newtons.

Downtown, in Mrs. Kelly's brain, a sedative takes effect.

Mrs. Kelly was born with a tangled knot of abnormal blood vessels in the back of her brain. The malformation began small, but in time the vessels ballooned inside the confines of the skull, crowding the healthy brain tissue.

Finally, in 1942, the malformation announced its presence when one of the abnormal arteries, stretched beyond capacity, burst. Mrs. Kelly grabbed her head and collapsed. After that the agony never stopped.

Mrs. Kelly, at the time of her first intracranial bleed, was carrying her second child. Despite the pain, she raised her children and cared for her husband. The malformation continued to grow.

She began calling it "the monster."

Now, at 7:15 a.m. in operating room eleven, a technician checks the brain surgery microscope and the circulating nurse lays out bandages and instruments. Mrs. Kelly lies still on a stainless steel table.

A small sensor has been threaded through her veins and now hangs in the antechamber of her heart. The anesthesiologist connects the sensor to a 7-foot-high bank of electronic instruments. Oscilloscope waveforms begin to build and break. Dials swing. Lights flash. With each heartbeat a loudspeaker produces an audible popping sound. The steady pop, pop, popping isn't loud, but it dominates the operating room.

Dr. Ducker enters the O.R. and pauses before the X-ray films that hang on a lighted panel. He carried those brain images to Europe, Canada and Florida in search of advice, and he knows them by heart. Still, he studies them again, eyes focused on the two fragile aneurysms that swell above the major arteries. Either may burst on contact.

The one directly behind Mrs. Kelly's eyes is the most likely to burst, but also the easiest to reach. That's first. The surgeon-in-training who will assist Dr. Ducker places Mrs. Kelly's head in a clamp and shaves her hair. Dr. Ducker checks to make certain the three steel pins of the vice have pierced the skin and press directly against Mrs. Kelly's skull. "We can't have a millimeter slip," he says.

Mrs. Kelly, except for a six-inch crescent of scalp, is draped with green sheets. A rubber-gloved palm goes out and Doris Schwabland, the scrub nurse, lays a scalpel in it. Hemostats snap over the arteries of the scalp. Blood spatters onto Dr. Ducker's sterile paper booties.

It is 8:25 a.m. The heartbeat goes pop, pop, pop, 70 beats a minute, steady.

Today Dr. Ducker intends to remove the two aneurysms, which comprise the most immediate threat to Mrs. Kelly's life. Later, he will move directly on the monster.

It's a risky operation, designed to take him to the hazardous frontiers of neurosurgery. Several experts told him he shouldn't do it at all, that he should let Mrs. Kelly die. But the consensus was that he had no choice. The choice was Mrs. Kelly's.

"There's one chance out of three that we'll end up with a hell of a mess or a dead patient," Dr. Ducker says. "I reviewed it in my own heart and with other people, and I thought about the patient. You weigh what happens if you do it against what happens if you don't do it. I convinced myself it should be done."

Mrs. Kelly said yes. Now Dr. Ducker pulls back Mrs. Kelly's scalp to reveal the dull ivory of living bone. The chatter of the half-inch drill fills the room, drowning the rhythmic pop, pop, pop of the heart monitor. It is 9 o'clock when Dr. Ducker hands the two-by-four-inch triangle of skull to the scrub nurse.

The tough, rubbery covering of the brain is cut free, revealing the soft gray convolutions of the forebrain.

"There it is," says the circulating nurse in a hushed voice. "That's what keeps you working."

It is 9:20. Eventually Dr. Ducker steps back, holding his gloved hands high to avoid contamination. While others move the microscope into place over the glistening brain the neurosurgeon communes once more with the x-ray films. The heart beats strong, 70 beats a minute, 70 beats a minute. "We're going to have a hard time today," the surgeon says to the X-rays.

Dr. Ducker presses his face against the microscope. His hands go out for an electrified, tweezer-like instrument. The assistant moves in close, taking his position above the secondary eyepieces.

Dr. Ducker's view is shared by a video camera. Across the room a color television crackles, displaying a highly-magnified landscape of the brain. The polished tips of the tweezers move into view.

It is Dr. Ducker's intent to place tiny, spring-loaded alligator clips across the base of each aneurysm. But first he must navigate a tortured path from his incision, above Mrs. Kelly's right eye, to the deeply-buried Circle of Willis.

The journey will be immense. Under magnification, the landscape of the mind expands to the size of a room. Dr. Ducker's tiny, blunt-tipped instrument travels in millimeter leaps.

His strategy is to push between the forebrain, where conscious thought occurs, and the thumb-like projection of the brain, called the temporal lobe, that extends beneath the temples.

Carefully, Dr. Ducker pulls these two structures apart to form a deep channel. The journey begins at the bottom of this crevasse. The time is 9:36 a.m.

The grey convolutions of the brain, wet with secretions, sparkle beneath the powerful operating theater spotlights. The microscopic landscape heaves and subsides in time to the pop, pop, pop of the heart monitor.

Gently, gently, the blunt probe teases apart the minute structures of gray matter, spreading a tiny tunnel, millimeter by gentle millimeter, into the glistening gray. "We're having trouble just getting in," Dr. Ducker tells the operating room team.

As the neurosurgeon works, he refers to Mrs. Kelly's monster as "the A.V.M.," or arterio-venous malformation. Normally, he says, arteries force high-pressure blood into

muscle or organ tissue. After the living cells suck out the oxygen and nourishment the blood drains into low-pressure veins, which carry it back to the heart and lungs.

But in the back of Mrs. Kelly's brain one set of arteries pumps directly into veins, bypassing the tissue. The unnatural junction was not designed for such a rapid flow of blood and in 57 years it slowly swelled to the size of a fist. Periodically it leaked drops of blood and torrents of agony. Now the structures of the brain are welded together by scar tissue and, to make his tunnel, Dr. Ducker must tease them apart again. But the brain is delicate.

The screen of the television monitor fills with red.

Dr. Ducker responds quickly, snatching the broken end of the tiny artery with the tweezers. There is an electrical bzzzzt as he burns the bleeder closed. Progress stops while the blood is suctioned out.

"It's nothing to worry about," he says. "It's not much, but when you're looking at one square centimeter, two ounces is a damned lake."

Carefully, gently, Dr. Ducker continues to make his way into the brain. Far down the tiny tunnel the white trunk of the optic nerve can be seen. It is 9:54.

Slowly, using the optic nerve as a guidepost, Dr. Ducker probes deeper and deeper into the gray. The heart monitor continues to pop, pop, pop, 70 beats a minute, 70 beats a minute.

The neurosurgeon guides the tweezers directly to the pulsing carotid artery, one of the three main blood channels into the brain. The carotid twists and dances to the electronic pop, pop, popping. Gently, ever gently, nudging aside the scarred brain tissue, Dr. Ducker moves along the carotid toward the Circle of Willis, near the floor of the skull. This loop of vessels is the staging area from which blood is distributed throughout the brain. Three major arteries feed it from below, one in the rear and the two carotids in the front.

The first aneurysm lies ahead, still buried in grey matter, where the carotid meets the Circle. The second aneurysm is deeper yet in the brain, where the hindmost artery rises along the spine and joins the circle.

Eyes pressed against the microscope, Dr. Ducker makes his tedious way along the carotid.

"She's so scarred I can't identify anything," he complains through the mask.

It is 10:01 a.m. The heart monitor pop, pop, pops with reassuring regularity.

The probing tweezers are gentle, firm, deliberate, probing, probing, probing, slower than the hands of the clock. Repeatedly, vessels bleed and Dr. Ducker cauterizes them. The blood loss is mounting, and now the anesthesiologist hangs a transfusion bag above Mrs. Kelly's shrouded form.

Ten minutes pass. Twenty. Blood flows, the tweezers buzz, the suction hose hisses. The tunnel is small, almost filled by the shank of the instrument.

The aneurysm finally appears at the end of the tunnel, throbbing, visibly thin, a lumpy, overstretched bag, the color of rich cream, swelling out from the once-strong arterial wall, a tire about to blow out, a balloon ready to burst, a time-bomb the size of a pea.

The aneurysm isn't the monster itself, only the work of the monster, which, growing malevolently, has disrupted the pressures and weakened arterial walls throughout the brain. But the monster itself, the x-rays say, lies far away.

The probe nudges the aneurysm, hesitantly, gently.

"Sometimes you touch one," a nurse says, "and blooey, the wolf's at the door."

Patiently, Dr. Ducker separates the aneurysm from the surrounding brain tissue. The tension is electric. No surgeon would dare go after the monster itself until this swelling killer is defused.

Now.

A nurse hands Dr. Ducker a long, delicate pair of pliers. A little stainless steel clip, its jaws open wide, is positioned on the pliers' end. Presently the magnified clip moves into the field of view, light glinting from its polished surface.

It is 10:40.

For eleven minutes Dr. Ducker repeatedly attempts to work the clip over the neck of the balloon, but the device is too small. He calls for one with longer jaws. Soon that clip moves into the microscopic tunnel. With infinite slowness, Dr. Ducker maneuvers it over the neck of the aneurysm.

Then, in an instant, the jaws close and the balloon collapses.

"That's clipped," Dr. Ducker calls out. Smile wrinkles appear above his mask. The heart monitor goes pop, pop, pop, steady. It is 10:58.

Dr. Ducker now begins following the Circle of Willis back into the brain, toward the second, and more difficult, aneurysm that swells at the very rear of the Circle, tight against the most sensitive and primitive structure in

the head, the brainstem. The brainstem controls vital processes, including breathing and heartbeat.

The going becomes steadily more difficult and bloody. Millimeter, millimeter after treacherous millimeter the tweezers burrow a tunnel through Mrs. Kelly's mind. Blood flows, the tweezers buzz, the suction slurps. Push and probe. Cauterize. Suction. Push and probe. More blood. Then the tweezers lie quiet.

"I don't recognize anything," the surgeon says. He pushes further and quickly finds a landmark.

Then, exhausted, Dr. Ducker disengages himself, backs away, sits down on a stool and stares straight ahead for a long moment. The brainstem is close, close.

"This is a frightening place to be," whispers the doctor. In the background the heart monitor goes pop, pop, pop, 70 beats a minute, steady. The smell of ozone and burnt flesh hangs thick in the air. It is 11:05 a.m., the day of the monster.

The operating room door opens and Dr. Michael Salcman, the assistant chief neurosurgeon, enters. He confers with Dr. Ducker, who then returns to the microscope. Dr. Salcman moves to the front of the television monitor.

As he watches Dr. Ducker work, Dr. Salcman compares an aneurysm to a bump on a tire. The weakened wall of the artery balloons outward under the relentless pressure of the heartbeat and, eventually, it bursts. That's death.

So the fragile aneurysms must be removed before Dr. Ducker can tackle the AVM itself. Dr. Salcman crosses his arms and fixes his eyes on the television screen, preparing himself to relieve Dr. Ducker if he tires. One aneurysm down, one to go.

The second, however, is the toughest. It pulses dangerously deep, hard against the bulb of nerves that sits atop the spinal cord.

"Technically, the brainstem," says Dr. Salcman. "I call it the 'pilot light.' That's because if it goes out . . . that's it."

On the television screen the tweezer instrument presses on, following the artery toward the brainstem. Gently, gently, gently, gently it pushes aside the gray coils. For a moment the optic nerve appears in the background, then vanishes.

The going is even slower now. Dr. Ducker is reaching all the way into the center of the brain and his instruments are the length of chopsticks. The danger mounts because, here, many of the vessels feed the pilot light.

The heartbeat goes pop, pop, pop, 70 beats a minute.

The instrument moves across a topography of torture, scars everywhere, remnants of pain past, of agonies Mrs. Kelly would rather die than further endure. Dr. Ducker is lost again. Dr. Salcman joins him at the microscope, peering through the assistant's eyepieces. They debate the options in low tones and technical terms. A decision is made and again the polished tweezers probe along the vessel.

Back on course, Dr. Ducker works his tunnel ever deeper, gentle, gentle, gentle as the touch of sterile cotton. Finally the grey matter parts.

The neurosurgeon freezes.

Dead ahead the field is crossed by many huge, distended, ropelike veins.

The neurosurgeon stares intently at the veins, surprised, chagrined, betrayed by the X-rays.

The monster

The monster, by microscopic standards, lies far away, above and back, in the rear of the head. Dr. Ducker was to face the monster itself on another day, not now. Not here.

But clearly these tangled veins, absent on the x-ray films but very real in Mrs. Kelly's brain, are tentacles of the monster.

Gingerly, the tweezers attempt to push around them.

Pop, pop, pop . . . pop pop pop.

"It's slowing!" warns the anesthesiologist, alarmed.

The tweezers pull away like fingers touching fire.

. . . . pop . . . pop . . . pop, pop, pop.

"It's coming back" says the anesthesiologist.

The vessels control bloodflow to the brain stem, the pilot light.

Dr. Ducker tries to go around them a different way.

Pop, pop, pop . . . pop pop

And withdraws.

Dr. Salcman stands before the television monitor, arms crossed, frowning.

"She can't take much of that," the anesthesiologist says. "The heart will go into arrhythmia and that'll lead to a . . . call it a heart attack." Dr. Ducker tries a still different route, pulling clear of the area and returning at a new angle. Eventually, at the end of a long, throbbing tunnel of brain tissue, the sought-after aneurysm appears.

Pop, pop, pop . pop . . pop . . . pop

The instruments retract.

"Damn," says the neurosurgeon. "I can only work here for a few minutes without the bottom falling out."

The clock says 12:29.

Already the gray tissue swells visibly from the repeated attempts to burrow past the tentacles.

Again the tweezers move forward in a different approach and the aneurysm reappears. Dr. Ducker tries to reach it by inserting the aneurysm clip through a long, narrow tunnel. But the pliers that hold the clip obscure the view.

Pop, pop . pop . . pop . . . pop

The pliers retract.

"We're on it and we know where we are," complains the neurosurgeon, frustration adding a metallic edge to his voice. "But we're going to have an awful time getting a clip in there. We're so close, but . . ."

A resident who has been assisting Dr. Ducker collapses on a stool. He stares straight ahead, eyes unfocused, glazed.

"Michael, scrub," Dr. Ducker says to Dr. Salcman. "See what you can do. I'm too cramped."

While the circulating nurse massages Dr. Ducker's shoulders, Dr. Salcman attempts to reach the aneurysm with the clip.

Pop, pop, pop . pop . . pop . . .pop

The clip withdraws.

"That should be the aneurysm right there, says Dr. Ducker, taking his place at the microscope again. "Why the hell can't we get to it? We've tried, ten times."

At 12:53, another approach.

Pop, pop, pop . pop . . pop . . . pop

Again.

It is 1:06. And again, and again, and again.

Pop . . . pop . . . pop, pop, pop . . . pop . . . pop-pop-pop . . .

The anesthesiologist's hands move rapidly across a panel of switches. A nurse catches her breath and holds it.

"Damn, damn, damn."

Dr. Ducker backs away from the microscope, his gloved hands held before him. For a full minute, he's silent.

"There's an old dictum in medicine," he finally says. "If You can't help, don't do any harm. Let nature take its course. We may have already hurt her. We've slowed down her heart. Too many times." The words carry defeat, exhaustion, anger.

Dr. Ducker stands again before the x-rays. His eyes focus on the rear aneurysm, the second one, the one that thwarted him. He examines the film for signs, unseen before, of the monster's descending tentacles. He finds no such indications.

Pop, pop, pop, goes the monitor, steady now, 70 beats a minute.

"Mother nature," a resident growls, "is a mother."

The retreat begins. Under Dr. Salcman's command, the team prepares to wire the chunk of skull back into place and close the incision.

It ends quickly, without ceremony. Dr. Ducker's gloves snap sharply as a nurse pulls them off. It is 1:30.

Dr. Ducker walks, alone, down the hall, brown paper bag in his hand. In the lounge he sits on the edge of a hard orange couch and unwraps the peanut butter sandwich. His eyes focus on the opposite wall.

Back in the operating room the anesthesiologist shines a light into each of Mrs. Kelly's eyes. The right pupil, the one under the incision, is dilated and does not respond to the probing beam. It is a grim omen.

If Mrs. Kelly recovers, says Dr. Ducker, he'll go ahead and try to deal with the monster itself, despite the remaining aneurysm. He'll try to block the arteries to it, maybe even take it out. That would be a tough operation, he says without enthusiasm.

"And it's providing that she's in good shape after this."

If she survives. If. If.

"I'm not afraid to die," Mrs. Kelly had said. "I'm scared to death . . . but . . . I can't bear the pain. I wouldn't want to live like this much longer."

Her brain was too scarred. The operation, tolerable in a younger person, was too much. Already, where the monster's tentacles hang before the brainstem, the tissue swells, pinching off the source of oxygen.

Mrs. Kelly is dying.

The clock on the wall, near where Dr. Ducker sits, says 1:40.

"It's hard to tell what to do. We've been thinking about it for six weeks. But, you know, there are certain things . . . that's just as far as you can go. I just don't know . . ."

He lays the sandwich, the banana and the fig newtons on the table before him, neatly, the way the scrub nurse laid out the instruments.

"It was triple jeopardy," he says finally, staring at his peanut butter sandwich the same way he stared at the x-rays. "It was triple jeopardy."

It is 1:43, and it's over.

Dr. Ducker bites, grimly, into the sandwich.

The monster won.