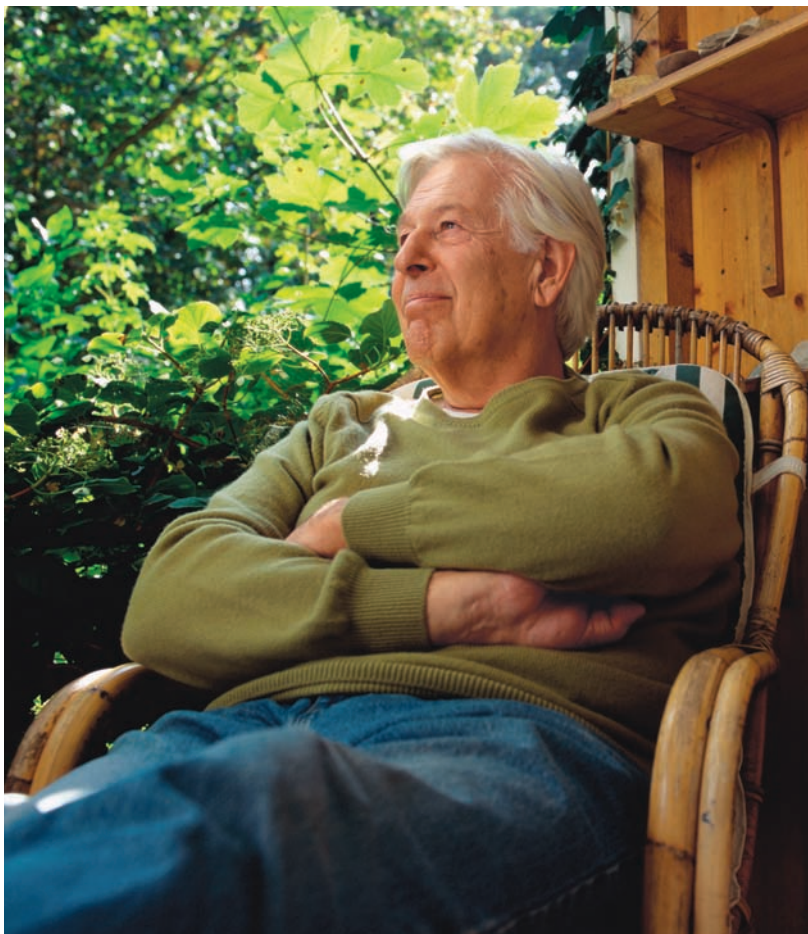


Restoring the Brain

People suffering from blood vessel problems in the brain are benefiting from minimally invasive endovascular procedures that permit doctors to operate from inside the body's own pathways.

The new techniques often are performed instead of open brain surgery, which for years was the only option for patients with cerebrovascular problems.



“Instead of opening the skull to access the problem area, specialists are now able to insert a microcatheter into the patient’s leg and guide it through an artery to the brain where treatment takes place,” says **Dr. Chiedozie Nwagwu**. He’s one of only 300 brain specialists worldwide qualified to perform endovascular procedures, and one of only 75 neurosurgeons in the country trained in both

endovascular techniques and microsurgery—the intricate repair of the brain and spinal cord through traditional incisions.

Dual skills. Nwagwu’s dual set of neurological skills expands the expertise of the UCI Department of Neurological Surgery, a key component of the UCI Stroke Center. UCI Medical Center was among first in the nation to offer minimally invasive treatments for hemorrhagic strokes. These emergencies are frequently caused by aneurysms—a weak spot in a brain artery that forms a bubble and bursts.

Specialists at UCI are treating this devastating condition with a minimally invasive approach called coil embolization. Guided by sophisticated radiological imaging, Nwagwu employs microcatheters to transport soft, thin platinum coils through an artery to the site of the ruptured blood vessel. The coils are then used to seal the weak spot, stopping further bleeding. This method is also used as preventive medicine to fortify unruptured aneurysms, sparing patients from a stroke. “Traditional surgery may be necessary if the aneurysm isn’t the correct shape for coil embolization,” says Nwagwu. “This underscores the importance of patients going to major stroke centers where a full

range of treatments is immediately available.” The UCI Stroke Center was among the first in the nation certified by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO)—and the first in Southern California to gain this distinction.

Endovascular techniques have also changed the treatment of clogged carotid arteries—a condition that can lead to a stroke. The minimally invasive

approach involves threading a balloon-tipped catheter through a blood vessel to the carotid arteries located in the neck. Once there, the device is used to break up plaque deposits. Then a stent—a tiny metal cage—is placed in the artery to keep it open. To further protect the patient from suffering a stroke, any loosened plaque or clots are captured in a tiny mesh umbrella placed above the blockage and removed at the end of the procedure.

Patients with blood vessel problems in the brain are benefiting from minimally invasive procedures.

“This approach doesn’t require anesthesia so it’s recommended for people with weak hearts or diminished lung capacity,” says Nwagwu. Previously, the only option was an endarterectomy, which required an incision in the neck and carotid artery.

A trio of treatments. Arteriovenous malformations (AVM) are another problem that can wreak havoc in the brain. These abnormal tangles of blood vessels may be present at birth. They occur when a brain artery connects directly to a vein without being bridged by capillaries. “Blood pressure in the arteries is significantly higher than in the veins. As a result, the veins may burst, causing a hemorrhagic stroke,” says Nwagwu. There are several techniques to address this condition. One involves passing tiny catheters to the AVM, accessing the cerebral blood vessels that feed the malformation and closing them off with special glues. “The gamma knife, which utilizes highly focused gamma rays, may also be used to destroy AVMs,” says Nwagwu. Open surgery is the third possibility. Depending on the circumstances, a combination of treatments may result in the best outcome.

For referral to a UCI cerebrovascular specialist, call 714-456-6392.

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