

New techniques in medicine

Stroke surgery to clear brain blockages

Remarkable results are being achieved by a groundbreaking technique that gets inside stroke patients' brains to remove blockages. Report by **Judy Hobson**

THANKS TO a revolutionary technique, doctors can now get into a patient's brain during a stroke and remove the blockage responsible for cutting off the blood supply to the cranial tissue.

Amazingly, an hour or two later patients who were mumbling and had difficulty moving are able to talk and move again. Two days later, many are back home and carrying on normally, instead of being left disabled and in need of care.

As well as being the fourth biggest killer in the UK, stroke is a leading cause of disability.

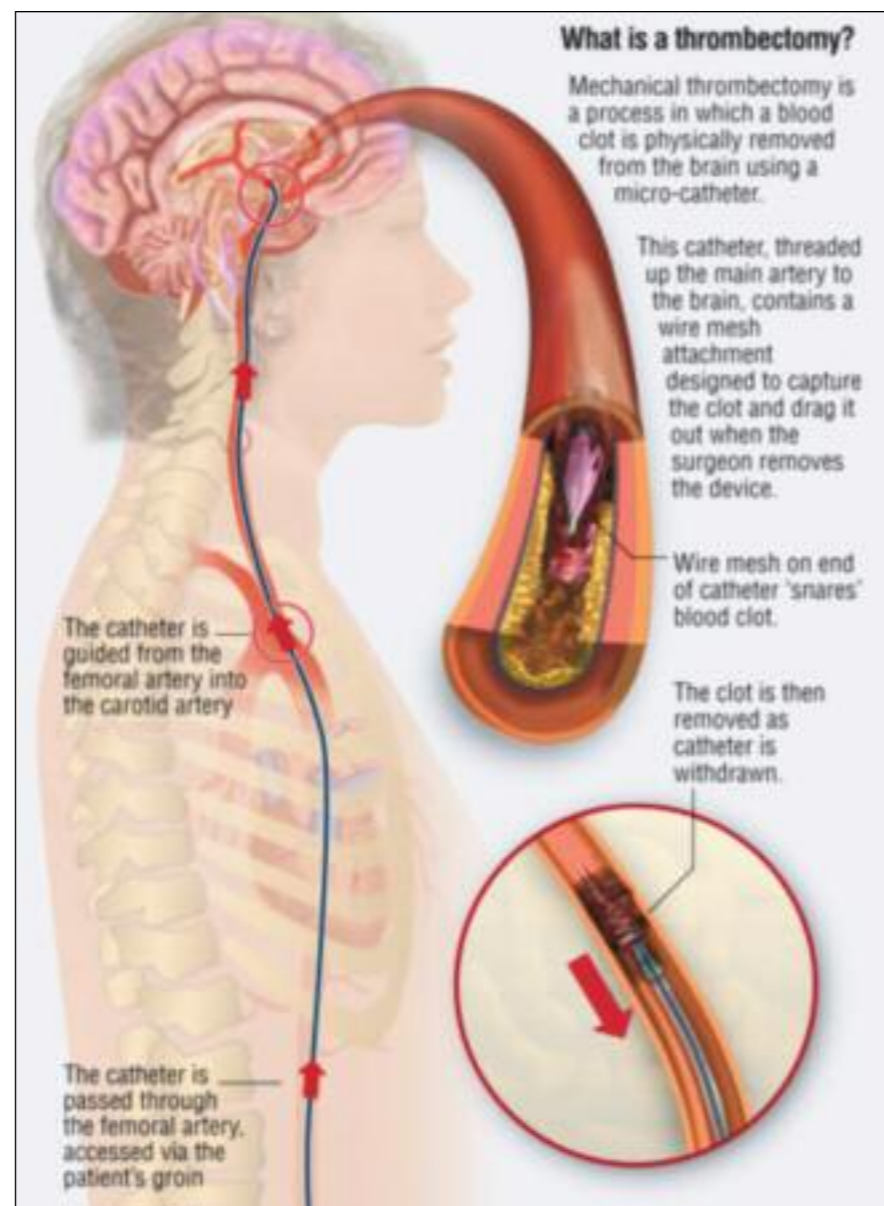
It is vital, however, that the procedure, known as mechanical thrombectomy, is done within six hours of the initial symptoms of the stroke, because every minute the brain is starved of oxygen the more of it gets damaged.

CT or MRI scans help locate the position of the blood clot that is causing the blockage. Then a specialist, called an interventional neuroradiologist, inserts a catheter containing a mesh into the patient's groin or arm and carefully threads it up to the point where the blood vessel is blocked. The mesh ensnares the clot, which gets pulled out, restoring the blood flow to the brain.

The procedure, which costs £8000, represents a step-change in the management of severe ischaemic strokes. In five randomised trials, it was shown to be more effective than giving patients clot-busting drugs alone.

A team at the Royal Stoke University Hospital, led by consultant neuroradiologist Dr Sajeew Nayak, was the first to carry out thrombectomies in the UK and it has been doing them since 2009. Of the 600 now done annually in the UK, 100 are done at Stoke. The team's youngest patient to date has been 18 and its oldest 95.

Dr Nayak says: "Our results are dramatic. You put in the device, pull out the clot and within a couple of days your patient is walking out of the hospital



instead of ending up seriously disabled. We see patients, who in the past would have been paralysed or unable to speak, make a complete recovery.

"But," he stresses, "the technique's success depends upon how quickly we can get in to the blocked blood vessel and remove the clot. We only have a six-hour window in which to do so, because after that some of the brain's tissue will have

started dying off through lack of oxygen. Studies have shown that when a thrombectomy is performed within that six-hour window, 50 to 70 per cent of patients recover."

He adds: "Thanks to the dramatic results we got when we started performing thrombectomies, our hospital trust was willing to fund the treatment. As a result, we have become a centre of expertise."

The team's early results included a stroke patient in his sixties who was on life support in the intensive care unit. Discussions were going on about turning off the man's life support, but looking at his CT scans, Dr Nayak saw there had not been too much brain damage and he begged to be allowed to remove the blood clot from the patient's brain.

Dr Nayak recalls: "I was told there was no point because the man was hardly breathing. I argued that we had nothing to lose. The following morning he was sitting up in bed, smiling and enjoying his breakfast."

Data from the first 275 thrombectomies carried out by the Stoke team was used last year by the National Institute of Health and Care Excellence (NICE) when it looked at the cost-effectiveness of the treatment.

"Our data showed that 92 per cent of patients were able to return to their own homes, whereas 70 per cent of those who only had pre-existing treatments such as clot-busting drugs needed assistance at home or had to enter a nursing home.

"I get up in the middle of the night to come in and carry out this procedure because of the great satisfaction it gives me. Your patient is admitted in a state where he's either going to die or be left severely disabled, unable to walk or talk. Seeing that patient return to normal functioning as a result of the procedure you've done is the most marvellous feeling."

In April, NHS England announced that it will commission mechanical thrombectomy for patients who suffer from a severe form of stroke in which a blood vessel to the brain gets blocked. It plans to introduce the service at each of the 24 neuroscience centres across the country and estimates that in the first year 1000 patients will benefit.

It is thought that as many as 10,000 stroke patients a year in this country could benefit from thrombectomy. Stroke costs the NHS around £3bn a year with an additional cost to the economy of another £4bn in lost productivity, disability and informal care.

Professor Tony Rudd, national clinical director for stroke at NHS England, says: "Stroke can be devastating for patients and their loved ones, both at the time and

Alan Cheshire: New technique removed blood clot in his brain

"I feel so very fortunate to have had this procedure"

One early spring morning when Alan Cheshire, then aged 69, got into a gleaming new Range Rover outside his home in Nottingham, he never imagined that within hours he would be undergoing revolutionary treatment for a stroke.

Alan regularly delivered prestige cars all over the country for a Leicester-based company, and was setting off for Oxford when he decided to stop and post a letter at a mailbox a mile and a half from his house.

After dropping the letter into the box, however, Alan had no clue where he was.

He says: "There was only one car in front of me so I supposed that was the one I was driving. I then had great difficulty trying to remember how to use the auto fob to unlock the car door."

Eventually he managed to get back into the vehicle and wisely, instead of continuing his journey to Oxford, decided to return home. On his way he knocked a wing mirror off the new vehicle and damaged the tyres by clipping the kerb.

"The amazing thing is, I don't remember doing those things but I did realise something was wrong with me. As soon as I was home, I tried to ring my son Ben, who works for the local ambulance service, but my mobile phone felt like a slice of bread and I simply couldn't get it to work."

Lady luck was definitely on Alan's side that day, because within minutes Ben rang him anyway and realised something was seriously wrong when his father was incoherent. Soon afterwards an ambulance was taking Alan to Nottingham's City Hospital where a CT scan revealed he had a large blood clot blocking a blood vessel in his brain. He was immediately put on intravenous thrombolysis –

medication to thin the blood – and transferred to the city's Queen's Medical Centre, where he was able to have a new procedure for ischaemic stroke.

Using a technique called mechanical thrombectomy, interventional radiologist Dr Norman McConachie was able to remove the clot, and within hours Alan was back at Nottingham City Hospital recovering.

He says: "I feel so very fortunate. First that my son rang when he did and realised what was going on and second to be among the first few hundred in this country to have had this new procedure."

"The following day my speech came back and the day after that it was as though nothing had happened. At the hospital I was invited into a room and asked to make a cup of tea. When they saw I could manage that task, I was allowed to go home."

Looking back, Alan, who also has a grown-up daughter and three grandchildren, believes working very long days delivering cars all over the country may have contributed to his stroke.

He says: "I regularly got up at 5am and often worked 12 to 15 hours a day, and over the years traffic on the roads has built up."

Alan, who is on blood-thinning medication, is still able to drive after his stroke but in December he decided it was time to take a break from work and retired from his car delivery job.

"I was 70 last September and ten of us celebrated my birthday in Spain. We hope to go there again this year. I still love messing about with cars and own an Alfa Romeo. I also play golf."

