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Surgeon put electrodes in my back to cure my chronic pain

By [Carol Davis](#)

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Many thousands of Britons suffer from chronic pain as a result of nerve damage. While prescription medicine works for most, others may benefit from treatment with implanted electrodes. Mark Hollingworth, 43, an IT specialist from Essex, had the operation in March. He reveals his story while his doctor explains the procedure.



© Grant Triplow

Recharged: IT specialist Mark Hollingworth

THE PATIENT

On holiday in Egypt three years ago, I woke one morning with an excruciating pain in my right shoulder - it ran down my right arm to my fingertips. I shuffled to the bathroom before collapsing on the floor in agony.

I could only think that I'd damaged my back and arm in the pool the previous afternoon. My fiancée, Wendy, bought the most powerful painkillers she could find, but they didn't help and we were miles away from a doctor. I spent the rest of the holiday in agony barely moving from the sun lounger.

Back home, I visited my GP, who thought I had a prolapsed disc in my neck. I knew what this was because my father had one once - it's where the disc ruptures and spills out material, like jam filling oozing out of a doughnut. This traps the nerve, causing the pain.

Two weeks later, I saw an orthopaedic specialist at Basildon Hospital. The pain was so bad I couldn't sleep. An MRI scan showed a disc in my neck had swollen out of shape and prolapsed.

But I was told surgery was too risky - it could damage nearby nerves and leave me in more pain. Instead, I was referred to a pain specialist.

In the meantime, I took morphinebased painkillers, but they didn't work. When I married Wendy eight months later, I nearly collapsed at the altar from pain and wooziness. I was really upset to be in such a state on my wedding day.

I saw Dr Simon Thomson at Basildon Hospital early in 2007, ten months after I'd first hurt myself. An MRI scan showed the swelling had subsided, but the inflammation from the disc had damaged the surrounding nerves. Operating on the disc wouldn't help - it was now the nerves causing the pain.

he told me about spinal cord stimulation, where doctors implant electrodes in the spine to reduce the pain. These electrodes would prompt the nerve to release chemicals that my brain experienced as pleasant, blocking out the pain.

I was very keen - I could no longer drive or sit in a restaurant and I slept badly. But Dr Thomson said we had to try simpler methods first, such as steroid injections into my spine, as surgery was a last resort.

When these didn't work, he agreed to apply for funding for spinal cord stimulation. I had the operation to implant the electrodes last month, three years after I'd first damaged my neck in the pool.

The plan was to hook the electrodes up to a temporary generator - if they eased the pain, I'd have a permanent one implanted.

Lying face down on the table, I had a local anaesthetic injected into my back. I had to stay awake during the operation to tell Dr Thomson where I felt the pain. It was uncomfortable - I could feel the incision and the lead containing the electrodes being inserted. But when he switched the electrodes on, I felt a soft tingling down my back and arm, a bit like having soft cotton wool gently placed there, which replaced the excruciating pain.

The electrodes were moved around until I got the best relief. Then he fixed a temporary battery to the electrode cable coming out of my side, which would sit in my pocket for the first week.

Back home, I slept properly for the first time in months - it was magic.

A week later, I had a permanent pulse generator with a battery implanted just above my left buttock. Using a remote control, I can switch it on when I need to. At night, I use it three hours before bedtime - this takes the pain away, enabling me to sleep. During the day, I use it 40 per cent of the time.

Every few weeks, I plug a special charger into the mains and carry this in my back pocket for a couple of hours - it recharges the pulse generator through the skin, so I won't need an operation to change the battery. Wendy and I are planning to drive through France to Spain this summer - something I could only have dreamt of this time last year. I can't wait.

THE SPECIALIST

Dr Simon Thomson is a consultant in pain medicine and anaesthesia at Basildon and Thurrock University Hospitals NHS Trust.

Chronic pain caused by the nerves is very distressing because there's often little that can be done to relieve it.

When the pain is in the back, legs or arms, it can be caused by damage to one of the discs cushioning the vertebrae in the spine.

The disc may start to spread or leak, irritating the nearby nerves. Even if the disc heals and is no longer pressing, the leaked contents of the nerve can still cause inflammation - the insulating sheaths of the nerves are damaged, so they go on sending pain messages to the brain.

We know that nerves release chemicals to communicate with other nerves and transmit messages to the brain. In damaged nerves, chemicals can be released abnormally, so the patient may feel the pain is coming from their legs or arms, as Mark did, when it's actually coming from nerves close to the spine.

Doctors can offer painkillers, exercise to strengthen the supportive muscles or steroid injections to reduce the nerve inflammation.

When a damaged disc is still pressing on nerves, surgeons can also operate to remove it and stop the pressure.

But in cases like Mark's, this doesn't work because the pain is coming from the damaged nerve itself. One option is spinal cord

stimulation. This uses electrodes to deliver signals to the damaged nerves.

Whereas healthy nerves naturally produce chemicals to stop pain, damaged nerves can no longer produce these chemicals. Stimulating them kick starts this pain-relieving mechanism again. It also means patients no longer face a lifetime on medication, which is costly and has side-effects.

Spinal cord stimulation has been around since the Seventies, but there have been improvements - electrodes are powered by a rechargeable battery, so patients don't face repeated operations to have it changed.

breakthrough came with its approval by the health watchdog NICE in October 2008, which means it's far easier for doctors to get funding.

The technique could help up to 20,000 patients in the UK with nerve pain in cases where doctors can find the source of the pain and other treatments haven't worked. It cannot help pain due to arthritis, fibromyalgia or damage to the central nervous system due to stroke.

The procedure takes about 90 minutes. First I make a 3cm incision, dividing the fat until I reach the connective tissue overlying the vertebrae. Then I put a hollow needle between the spinal bones, where an epidural would go. Into this hollow needle I insert a wire containing eight electrodes, each smaller than a grain of rice, and feed it up towards the damaged nerve.

I connect the lead to a temporary cable attached to a laptop - this is connected to a stimulator and battery which send an electrical signal to the electrodes. Once we know the electrodes are in the right place - and are masking the pain - I stitch the lead securely to the muscles and close the incision.

We then attach the cable coming out of the patient's side to a pulse generator which the patient keeps in their pocket. They operate it using a remote control when they feel pain.

When they fire the remote, it triggers the pulse generator. Electrical signals are sent to the electrodes, which stimulate the nerve to release pain-relieving chemicals. If it works, they have a 45-minute operation to insert a permanent pulse generator. The size of a thin matchbox, it's implanted above the buttock in body fat.

Patients such as Mark should get good pain relief for up to 25 years before the stimulator needs replacing.

- *The operation costs around £23,000 privately and a similar amount to the NHS.*

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I had a prolapsed disc from an accident at work in 2004. I was sent for physiotherapy before i was diagnosed, (i think that made it worse), and had an emergency discectomy and decompression in december 2005.

Because of the way i was operated on, i developed problems in my neck and shoulders, facet joint problems affecting the nerve root in the neck. Several things were tried but they didn't work. I am now on powerful pain relief and can't function properly. No one has offered me anything like this treatment and i have been discharged from the chronic pain clinic. They are not even monitoring how the drugs are affecting me.

The old post code lottery again?.

- Davyd Ford, Broadstairs, Kent, 29/4/2009 11:41

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