# The neglected magic bullet

## UK health reporter asks: why the obsession with new cancer drugs?

Surgery still offers by far the best hope of a cure in solid tumours. Yet patients are being let down by too great a focus on drugs at the expense of investment in surgical equipment and training, argues **Simon Crompton**, in an article for the *The Times* that won him a Best Cancer Reporter Award, and is reprinted below.

Simon Crompton

The operating theatre is dimly lit and completely silent apart from the gentle beep of the heart monitor. The patient lies strangely angled with his feet in the air, his head near the ground. Around him are seven nursing and medical staff and three raised video screens, revealing the intimacies of his organs. And above him looms a large spider-like object wrapped in transparent plastic, its arms passing into small holes in his abdomen.

I'm witnessing surgery conducted by the amazing Da Vinci robotic surgeon at Addenbrookes Hospital, Cambridge. Despite its forbidding appearance, it is the most advanced piece of surgical equipment in the UK, offering the man on the table a chance of recovery from prostate cancer that he would never have had five years ago. He is having his prostate gland removed because of a cancerous growth. But there is no need for the patient to be 'opened up'. The three abdominal holes accommodate Da Vinci's camera arm and two operating arms. To the side of them, two more abdominal holes allow nurses to drain fluids, feed in clips to stem bleeding and push organs out of the way.

Controlling the robot at a console four metres from the patient is the cancer surgeon Professor David Neal, his head pressed against stereoscopic eyepieces conveying 3-D pictures of the abdomen's contents from the central camera leg of Da Vinci: the robot's eyes are his eyes throughout the surgery. Professor Neal tells me it's like having your head inside the patient. His hands are swivelling, tweaking and pinching joystick-style controls, controlling the tiny robotic hands at the end of Da Vinci's two other arms. He looks more like a seamstress than a surgeon.

Every movement he makes is scaled down into the far smaller, shakeless, movements made by the 7-mm, multijointed pincers, deep inside the patient's abdomen. You can see everything in high magnification on those screens above, though to the untrained eye it's hard to tell bladder from bowel, a bit of fatty tissue from a major vein.

Professor Neal, a Cancer Research UK professor of surgical oncology, is working his way down from the middle of the abdomen, past the bladder, to its deepest recesses in the pelvis, where the prostate is located. Gravity has pushed the upside-down patient's

THE TIMES


The miraculous machine that cuts out cancer

Discussion point: Articles like this one help promote public debate and political accountability around the best use of limited health resources. Video footage of the operation gave readers the chance to see the operation for themselves http://www.timesonline.co.uk/tol/life_and_style/health/article3728811.ece

bowels out of the way, up under the ribcage.

There's the occasional magnified whoosh of red as Professor Neal nicks a blood vessel and, more surprisingly, little puffs of smoke. The little robotic hands have super-heated edges, which mean they burn through tissue (rather than actually cutting it) and cauterise veins as they go. It's quite overwhelming on the senses. The burning tissue looks like pork crackling and there's a whiff of burnt meat. My vision starts to bleach and my head begins to whirl. I have to sit down for a minute.

Eventually, an hour into the operation, the prostate is revealed, a crimson globe sitting behind a deflated bladder. Now comes the tricky bit. Traditionally, one of the great problems of removing a prostate gland affected by cancer is that the nerves controlling urination and penile erection are tightly and intricately wrapped around it. Removing the prostate the conventional way means cutting nerves, often resulting in impotence or incontinence.

But so dextrous are Da Vinci's cutting hands, and so clearly visible is the noodle-like mesh of nerves attaching to the prostate, that it can be detached intact before the prostate is removed. "Outcomes aren't great when you remove the prostate using conventional open surgery," says Professor Neal. "After four years, half of men will have lost erections, or continence, or their cancer will have returned. But with this type of surgery, 90% of patients are completely dry. The finer dissection that robotic surgery allows means that patients are more comfortable after the operation, there are fewer complications and they get better more quickly."

Professor Neal has conducted 230 radical prostatectomies at Addenbrookes using Da Vinci since it was bought three years ago. Remarkably, half of Professor Neal's prostate operation patients go home the next day. "My star patient was back on his tractor in a week."

This is one of only six Da Vinci machines in the NHS [UK National Health Service], compared with 350 operating in the United States. If such surgery were to become more widely available, the

### THE MAN ON THE OPERATING TABLE WAS...

...Michael Mills, 65, a building contractor from Cambridge.

"The prostate cancer was picked up after a routine health check. The specialists said I might be OK for 15 years and there didn't seem to be any spread outside the prostate, but I didn't want it hanging over me. When I was told that recovery was quicker with robotic surgery, I thought that was a good reason to go for it.

"I went in to hospital on Monday, had the operation on Tuesday, and went home on Wednesday lunchtime. I've had no pain at all and not a single painkiller. It was a little uncomfortable where the holes in my abdomen were. The only problem I've had is controlling my urine, but that seems to be getting better.

"I was back to work in three weeks. To be honest, I feel as if nothing has happened."

implications for men with prostate cancer could be profound. On diagnosis, only 20% of men opt for prostate removal. Because many tumours are slow growing, specialists often recommend watching and waiting, and not risking the permanent sexual and urinary problems that surgery can bring. But this causes uneasiness in many men, who simply want to be rid of the cancer. Da Vinci changes the odds, and makes prostate removal a more feasible 'play it safe' option.

Now Professor Neal is pushing, dabbing and stroking the prostate as he cuts it away, detaching it from the urethra (which passes through it), pushing it away from the big veins coming up from the penis. Finally, it's released. "Just pop it up under the ribs for now," he tells the nurses, and using keyhole probes, they manipulate it into a plastic bag, and push it up out of sight of the camera. (After the operation, they will pull it out, through one of the keyholes.)

Meanwhile, Professor Neal has more intricate work to do. He has to remove lymph tissue in case there are any cancer cells there and, finally, stitch the bladder back to the urethra. It's incredibly fiddly work, but the tiny robotic hands, holding a needle and winding thread into loops and knots, work fast. Robotic surgery minimises blood loss and transfusions are rarely required. The patient lying in front of me has lost less than 100ml of fluids – just a small wine glass full – during the operation.

After an intense two hours, the operation over, Professor Neal takes me for a cup of tea and a biscuit – his lunch before the next Da Vinci operation begins in just over an hour.

## Cancer drugs or surgery? There really is no contest

Why are we so obsessed with new cancer drugs? Surgery is the real and unacknowledged hero in the battle against cancer, according to an increasing number of experts, including the [UK] Health Minister Lord Darzi. They point out that only 10% of cancers are cured by drugs, while surgery cures half.

Currently, the £700 million [€885 million] spent annually by the National Health Service on cancer drugs dwarfs the amount spent on surgery. Yet innovative techniques such as robotic surgery not only improve survival and quality of life for people with cancer but give more bang to the NHS buck than expensive drugs.

"Local therapies such as surgery and radiotherapy cure ten times as many people as chemical means," says Professor Gordon McVie, a senior consultant at the European Institute of Oncology in Milan and former director of the Cancer Research Campaign. "Medical oncologists get all the money spent on them, but the surgeons are the unsung heroes. Surgery is more cost-effective and, if done well, it has a significant effect on improved quality of life."

In the past decade there have been vast improvements in surgery. Increasing expertise in cancer surgeons, the development of keyhole (laparascopic) surgery and, perhaps most spectacularly, the rise of the robot have meant that cancers can be removed far more cleanly, with less trauma, than ever before. There's evidence that this is having an impact not just on how long people are living but, arguably more importantly, on the quality of the rest of their life.

In prostate cancer, for example, the pinpoint accuracy of the Da Vinci robot in removing the prostate gland without damaging surrounding veins, nerves and tissue means that patients are free to get on with their lives within days and are considerably less likely to suffer the disabling side-effects that often accompanied traditional surgery, such as incontinence and impotence. The success of this, and other new keyhole surgery techniques, has contributed to a 335% rise in prostate cancer surgery rates in the past ten years. Recent trials have also indicated the efficacy of Da Vinci at performing radical hysterectomies for gynaecological cancers.

In bladder cancer there has been a drop in mortality rates of about 10% in the past 15 years, partly as a result of more advanced surgical techniques being used to remove lymph nodes that may carry cancer cells.

And the fact that more surgeons are choosing to specialise in operating on particular types of cancer has also had a wide effect on cancer mortality and complication rates. The number of patients dying in hospital after removal of oesophageal cancer halved between 1997 and 2005, largely because the surgery was increasingly performed by specialists rather than generalists, according to the Department of Health.

Yet the money allocated to advancing surgical practice can pale into insignificance compared with new cancer drugs. The NHS spent about ▶

£100 million [€125 million] on the breast cancer drug Herceptin in 2006, but some estimates say that only about 500 patients actually benefited. That kind of money could train hundreds of surgeons to specialise in the latest techniques, or transform research into new surgical techniques each benefiting thousands of people. One Da Vinci machine costs £1 million [€1.25 million] to buy and maintain over five years, helping hundreds of cancer patients in that time.

"The thing that is improving cancer cure rates is specialised surgeons focusing on particular operations, doing them more often and getting better at them," says David Neal, the Cancer Research UK Professor of Surgical Oncology at Addenbrookes Hospital, which houses one of the six Da Vinci robots in the UK. "But until five years ago there weren't the surgeons here trained to do prostate removal properly. Surgery needs an investment of time for training in the latest techniques.

"I get fed up with the current emphasis on cancer drugs. It gets forgotten that surgery is the single most effective treatment for cancer. The NHS has fallen behind on equipment. In the US, 65% of radical prostatectomies are done using a robot. In Europe it's one in three. But here it's just 1% or 2%."

Professor Neal has high-level support. Cancer experts such as Professor McVie and Karol Sikora, a professor of cancer medicine and honorary consultant oncologist at Hammersmith Hospital, in West London, point out that the days of discovering blockbuster drugs helping millions of people are gone, and drug development is becoming increasingly focused on specialist drugs that will help ever-smaller groups of people.

© 2008 INTUITIVE SURGICAL, INC

There are signs that the contribution of surgery to curing cancer may finally be acknowledged. Lord Darzi, the consultant surgeon at St Mary's Hospital, London, who introduced the Da Vinci robot to the UK, is a Health Minister. His input is clear in the Government's new Cancer Plan, with proposals to establish a new programme to train more surgeons in laparascopic surgery. The Department of Health has promised a £250 million [€315 million] investment in 'capital equipment' for cancer over the next three years, but how much of that will be spent on surgery is as yet unclear.

As both a minister and a director of the new Hamlyn Centre for robotic surgery research at Imperial College London, Lord Darzi has to tread a careful line. But he says he agrees that the amount invested in surgery is "minuscule".

He would like to see much more money going into research into the effectiveness of new surgical techniques, then the case for investing in robotic and laparascopic techniques would be unanswerable.

"People don't realise that their only chance of a cure from cancer is through an operation that removes it completely," he says. "There has always been more emphasis on drugs because the pharmaceutical lobby is so strong. We've got to remember that in pharmaceuticals we have yet to find a magic bullet that has the potential to cure most cancers. But in surgery we already have that."

This article was first published in Body&Soul, *The Times* (www.timesonline.co.uk) on 12 April 2008, and is reprinted with permission