

How these four-armed machines could improve survival rates and cut risks

By **Martyn Halle**

Above the operating table, four robotic arms – which would not look out of place in a car factory – whirr slowly into life. On the ends of each arm (covered in plastic, for hygiene reasons) are surgical instruments, inserted into the patient's abdomen through small keyhole incisions.

Ten feet away, as the surgeon gently manipulates a control panel, his intricate hand movements are copied by the £1.6million machine. And when the patient wakes from the general anaesthetic, after about an hour, all that will be left are a few inch-long wounds that will fade to almost nothing.

Welcome to the future of bowel-cancer surgery being pioneered at Leeds Teaching Hospitals NHS Trust. While robotic surgery has been used for some time to remove prostate and gynaecological tumours, and in heart and even brain surgery, this is the first time such procedures have been attempted on colorectal cancers.

Now experts at Leeds plan to examine rates of survival and recurrence of the disease by comparing outcomes after robotic and conventional keyhole surgery in 400 patients.

The £1.2million study is one of the first of its kind to be co-ordinated by the Clinical Trials Research Unit, based at Leeds University, in association with hospitals in Singapore, South Korea, Europe and America.

About 38,000 people a year are diagnosed with bowel cancer and the majority have surgery, which provides a cure in 90 per cent of cases if caught early. In later stages, around half of patients are still well five years after surgery.

The procedure is commonly carried out via keyhole, but consultant surgeon David Jayne believes that robotic surgery has a number of advantages.

'Keyhole surgery of any kind is challenging, and particularly for bowel cancer, which involves removing a tumour from deep within the body,' he says. 'There are fewer risks, less post-operative pain and quicker recovery time, and less scarring. But sometimes we have to convert to open surgery midway through the operation and make a large cut in the patient's stomach to get to the cancer, if we find it is too hard to reach with the keyhole instruments. This can lengthen operating time considerably, which raises risks.'

Traditional keyhole surgery involves making small incisions, while the surgeon manually operates instruments on poles, up to 2ft long. Cameras are also inserted, and images transmitted to a screen.

Operating in this way requires dexterity, and some surgeons liken it to 'trying to tie shoelaces with knitting needles, through a letter box'.

Mr Jayne claims the robot gives him greater accuracy than if he were operating the instruments himself. This could further reduce complications such as cutting through nerves that lead to impotence in

male patients. 'Normally with keyhole surgery we use a single camera, but this provides a very flat image with no depth of field,' says Mr Jayne. 'If you have two structures in

front of one another, you can't tell by looking at the monitor how far they are from each other. This leads to all sorts of difficulties in accuracy.

'The pelvis is a confined space, sur-

rounded by bone, and it is not unknown to injure some of the nerves – such as those that supply the genitals and bladder – while trying to get at the cancer.

'The new robot has two cameras, offset slightly. These two different images are reconstructed by the computer to create a pseudo three-dimensional image. Looking down special binoculars, it feels almost as though you are in the body. It saves a lot of clumsiness.

'It remains to be seen whether there are advantages over traditional methods. But rates of conversion to open surgery, which are usually about 15 per cent, seem to be far lower.'

Robots have been credited with reducing mortality in areas such as bladder cancer, where death rates following surgery have been reduced by 15 per cent in recent years.

Professor Gordon McVie, former

director general of the Cancer Research Campaign, welcomes the uptake of this technology.

He says: 'Surgery and radiotherapy are curing ten times as many people as drug therapy. The NHS spends £700 million a year on cancer drugs, yet surgery for cancer is given a fraction of that. It is regarded as unsophisticated. Yet with robots we are seeing a glimpse of the future. Cancers can be removed far more cleanly, with less trauma.'

One of the first British patients to undergo robotic surgery for bowel cancer is Chris Garbett, 59, who was diagnosed three years ago.

The university lecturer, who lives in Leeds with his wife Felicity, 56, and daughter Freya, 18, says: 'I had been suffering from diarrhoea and bleeding for months. Felicity is a former research nurse in bowel cancer and recognised something was not right. She nagged me to get it checked out.'

Mr Garbett was more than willing to be a guinea pig for the new methods. 'Anybody who knows me knows I'm a bit of a techie,' he says.

'I found it quite comforting that the latest technology was going to be used in the operation and I knew they wouldn't use it on me if it wasn't safe – although I can imagine that it could be disconcerting for some people.'

Mr Garbett was in hospital for about a week after surgery and later had a course of chemotherapy. He was able to begin work again after six months.

'After my surgery I had a brief course of chemotherapy as a precaution but since then my regular check-ups with Mr Jayne have shown me to be in the clear.'

'I'm pleased that I am a pioneer. I certainly feel well for it.'



IN GOOD HANDS: The machine's limbs at work on a patient

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Curing bowel cancer ... the £1.6m robot!



REMOTE CONTROL: David Jayne sits at his console to perform the surgery

5 of the best sun skin boosters

It is important to expose the skin to small amounts of sunlight for the body to produce adequate levels of Vitamin D. But too much UV light can speed up skin ageing and trigger prickly heat and sunburn. Here are five supplements that may, in conjunction with a broad-spectrum UVA/UVB sunscreen, help boost the skin's defences during the summer months.



1 Heliocare, 60 caps – £25
A blend of flavonoid-rich fern extract, green tea and betacarotene, a source of Vitamin A, to reduce redness, prickly heat and DNA damage.
www.faceandbody.co.uk

2 Fushi Total Sun Complex, 90 caps – £25.48
Vitamins A, C, D and E



are combined with zinc, lycopene and anti-inflammatory bioflavonoids derived from citrus fruits to boost the strength of sunscreen by up to 25 per cent.
www.fushi.co.uk

3 Nutrex BioAstin Supreme, 60 caps – £19.95
Astaxanthin, a compound derived from algae and



shellfish, is a potent antioxidant that increases the skin's tolerance to UV light, reducing burning.
www.bodykind.com

4 Murad Pomphenol Sunguard Supplement, 30 caps – £43
Concentrated pomegranate extract provides antioxidants to boost the power of your sunscreen



and repair the skin after sun exposure.
www.murad.co.uk

5 Lyc-O-Mato, 30 caps – £11.22
Contains concentrated levels of lycopene from tomatoes and Vitamins E and A to help the body recover from environmental damage.
www.vitahealthcare.co.uk

