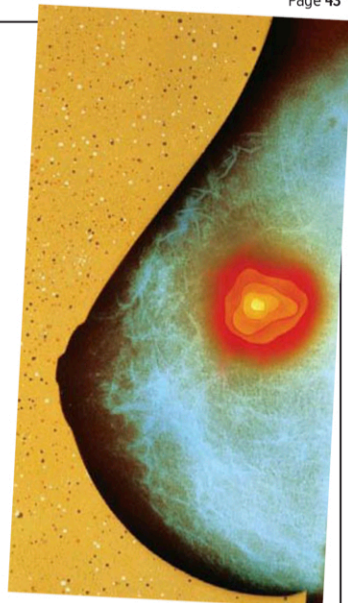


Good Health

The one-stop breast cancer op that spares women weeks of radiotherapy



Picture: SCIENCE PHOTO LIBRARY

WOMEN with breast cancer could soon be spared weeks of radiotherapy, after a major study found that giving it during the surgery to remove the tumour is just as effective. Rita Rose, 64, a retired civil servant from Highgate, North London, underwent the one-stop treatment, as she tells **DIANA PILKINGTON.**

THE PATIENT

HAVING lost my partner, Ray, to bowel cancer seven years ago, I knew what to expect when facing the prospect of a cancer diagnosis.

I'd had no obvious symptoms of breast cancer — no noticeable lumps or puckering on the nipple — but after a routine mammogram in September 2009, I was called back for further scans and a biopsy. When I went to get my results from Edgware Community Hospital, the nurse asked if there was anyone with me. I knew at that moment that it was cancer. I was stunned, but tried to remain positive, despite what happened to Ray.

The tumour was in my left breast. They appeared to have found it early, but I was told I'd need surgery.

I was referred to the Whittington Hospital in London, and a week later had an appointment with Professor Jayant Vaidya, a breast-cancer specialist.

Professor Vaidya told me about a trial of a treatment called targeted intraoperative radiotherapy, or Targit. — It would involve a lumpectomy — surgery to remove the small tumour in my breast — but during the operation they would also place a probe inside the breast to emit radiotherapy for half an hour at the tumour site. This way I'd avoid six weeks of daily radiotherapy, which is the conventional method.

I agreed to take part in the trial, even though there was no guarantee I'd actually get the treatment as half the trial patients were given conventional radiotherapy after the lumpectomy to compare results.

Thankfully I was selected to have Targit. The fact that it was being trialled didn't worry me — I'd be topped up with conventional radiotherapy if lab analysis of the tumour showed I needed it, and the trial had run for several years.

I arrived for my operation in November 2009. I was anxious, of course. But when I woke from the anaesthetic three hours later I felt fine. There was just a small dressing on my breast. And amazingly — no pain or side-effects.

THREE days later, I returned to see Professor Vaidya. The analysis of the tumour confirmed I had grade one (early-stage) invasive ductal carcinoma — cancer in the milk ducts — and I was told that my treatment meant it was unlikely to return in the same breast.

I was also prescribed the drug tamoxifen, to block oestrogen (which can fuel breast cancer) and reduce the chance of cancer in the other breast or elsewhere.

Sadly, in January 2012, I was asked to go back to hospital after another mammogram found cancer in my right breast. I was

shocked, though I was mainly cross the tamoxifen hadn't worked.

But I knew exactly what treatment I wanted. At my next regular check-up with Professor Vaidya, scheduled for the following week, I asked him to let me have Targit again. Thankfully the doctors agreed to give it to me outside the trial: I was euphoric.

I had the treatment in February, and was back home the same day. Instead of tamoxifen, I was prescribed Anastrozole, which reduces the oestrogen in the body. I've had no side-effects so far.

I have yearly mammograms, and check-ups every few months with Professor Vaidya — so far these show that I'm free of cancer, and I've been able to get back to doing the things I enjoy, such as gardening, reading, Sudoku, and babysitting for my neighbours' children, with no problems. Targit seems a wonderful invention.

THE SURGEON

JAYANT VAIDYA is professor of surgery and oncology at University College London and a consultant at the Whittington Hospital.

BREAST cancer is the most common cancer in the UK, affecting around 48,000 women a year. If

caught early, conventional treatment involves a lumpectomy followed by six weeks of daily radiotherapy beamed at the breast from the outside.

This is safe and effective, reducing the chance of the cancer recurring by about two-thirds, but can be inconvenient because patients have to visit hospital five days a week, for several weeks.

It can also cause side-effects — discoloration of the skin, tenderness and changes to the shape of the breast. And there's a risk of harming surrounding healthy tissue and organs such as the heart and lungs.

In the late Nineties, Professor Michael Baum, Professor Jeffrey Tobias and I developed a new technique at University College London, aiming radiation directly at the site of the tumour during the surgery itself.

It's a lower dose of radiation than with conventional radiotherapy, but more concentrated on the area that needs it.

With the Targit treatment there are also fewer side-effects because the volume of radiation is smaller; there are also significantly fewer deaths from other causes, such as heart disease, because such targeted radiation doesn't reach other organs. And by doing it in

one sitting, it saves time and money. In 2000 we began a 12-year randomised trial, involving 3,451 patients and 33 centres across 11 countries, to test whether Targit was as effective as conventional radiotherapy.

And the latest results, published last month in *The Lancet*, show that the two methods have a comparable rate — around 1.2 per cent — of cancer recurring anywhere in the same breast.

The largest amount of evidence for this technique is for treating breast cancer, but it is also being used for rectal cancers, brain tumours, spinal tumours and some skin cancers.

We carry out the treatment with the patient under general anaesthetic. First, I perform a lumpectomy, removing a margin of healthy tissue as well as the tumour. Because of the size of our equipment, the tumour should be no bigger than 3.5cm (it would not be suitable in cases where a patient needs a mastectomy), and it should be cancer with a generally good prognosis.

I also remove some lymph nodes (small glands that remove unwanted bacteria from the body) from under the arm so I can check to see if the cancer has spread.

Then I insert a special probe called an intrabream — it's conical with a ball on one end. I temporarily stitch this ball to the area of tissue around the tumour, where risk of cancer recurrence is highest, so it stays in the right place.

The probe is connected to a radiotherapy machine, which fires

particles called electrons into a piece of gold in the centre of the ball. When the particles hit the gold, it causes X-rays to be emitted (called the Bremsstrahlung effect), targeting only the area of tissue around the ball.

We leave it for 15 to 35 minutes — how long depends on the tumour size. Afterwards, we cut the stitch, remove the machine and close the wound.

ONCE we've examined the tissue in the lab, we can give conventional external beam radiotherapy if the cancer is found to be more aggressive than expected. This happened in about 15 to 20 per cent of trial patients, but wasn't necessary in Rita's case.

The operation carries standard risks of bleeding and infection, but these are no different from normal surgery.

With Targit, patients also had a slightly higher chance of fluid collecting in the breast (2.1 per cent compared with 0.8 per cent for external radiotherapy).

This is because Targit slows down the wound healing process in the radiated site.

Targit has become the standard treatment now in many hospitals in the U.S., Germany, Denmark and Italy. We expect the National Institute for Health and Care Excellence (NICE) to include it next year in their recommendations for treating breast cancer, which will mean all breast cancer centres here will use it.

But it's clear from the trial that it's safe and cost-effective, so we hope more hospitals in the UK will make it available to selected patients soon.

■ **FOR more information see targit.org.uk. The treatment costs around £10,000-12,000 privately.**