

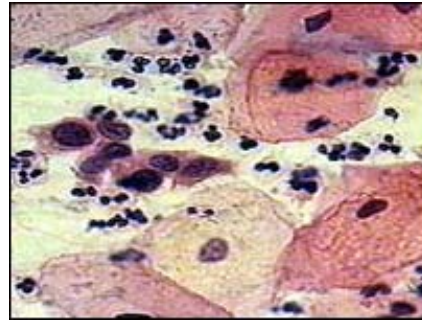
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Beams cut need for cancer surgery

Scientists are perfecting a 'virtual scalpel' which uses ultrasound beams to kill cancer cells without the need for surgery.



Cancer cells can be selectively targeted

Unlike radiotherapy and drugs, the technique also leaves healthy tissue next to a tumour undamaged.

Preliminary trials in the UK and China show it is effective - and has fewer side effects than traditional treatment.

Details were presented at the American Association for the Advancement of Science annual meeting in Seattle.

Scientists hope that the promising initial results will be confirmed in follow-up trials, and that the technique could become a frontline treatment for many cancers.

“ Sound energy can be focused and used to raise temperatures to the point at which the cells will die. ”

Dr Gail ter Haar

However, they have stressed that much more work needs to be done before this can happen.

Tests show it is well tolerated by patients, and can be repeated many times until a tumour has been completely eradicated.

Dr Gail ter Haar, of the Institute of Cancer Research in Sutton, Surrey, said almost 100 patients in Britain had been treated with ultrasound for liver cancer, with positive results.

More than 3,000 patients in China have also received the therapy, for cancers of the liver, breast, kidney, bone, soft tissues, pancreas and uterus.

Cooking cells

She told the conference: "Clear evidence of tissue destruction has been seen, with no side effects having been observed.

"In the same way as a magnifying glass can be used in bright sunlight to set fire to dry tinder, sound energy can be focused and used to raise temperatures to the point at which the cells

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will die."

However, she said the use of high intensity focused ultrasound (HIFU) had been combined with other therapies which made it difficult to draw firm conclusions about its worth.

HIFU works by exposing cancer cells to tightly focused short pulse of energy. This effectively cooks them at temperatures between 85°C and 100°C, while leaving the healthy tissue untouched.

The energy is many times higher than that used in diagnostic imaging, and is roughly equivalent in intensity and power to a bat's squeak.

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