Halo of prostate cancer cells holds key to diagnosing disease

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Men thought to have prostate cancer could receive a more accurate diagnosis thanks to a simple genetic test, research has shown.

The procedure will help identify cancer that is missed in routine check-ups, and will save patients undergoing repeated invasive investigations that carry a risk of infection.

Scientists from the Universities of Edinburgh and St Andrews, who led the research, say the improved test works by recognising the "halo" of cells that form around a prostate tumour.

These cells, which can appear healthy under a microscope, contain silenced genes that turn off the cell's natural protection against tumour growth.

The study was carried out by Dr Grant Stewart, a Clinical Lecturer in Urology at the University of Edinburgh with David Harrison, who is now Professor of Pathology at the University of St Andrews.

The researchers say that by identifying genetic changes in these halo cells, they can tell that a patient is more likely to have a tumour, even if their tissue sample shows no cancerous cells.

Dr Stewart commented, "Prostate cancer is the most common cancer for men in the UK – although it can be challenging to diagnose as these tumours are not easily seen on scans. Our work shows that there is a

more precise way of detecting these cancers. This new test helps us to see the ripple effect of a tumour so that even if the cells we examine aren't cancerous, we can tell there might be a tumour nearby."

More than one in ten men tested for prostate cancer receives an inconclusive result and has to have a second biopsy – which can be painful and carries a risk of serious infection.

This is often because the first tissue sample taken is clear, while their blood test reveals high levels of the PSA protein – prostate-specific antigen – which is associated with prostate cancer.

The team examined prostate tissue from some 500 men who had undergone a prostate check-up and received inconclusive results.

The new test correctly identified hidden tumours in seven out of 10 cases – without the need for a second biopsy.

The test was also 90 per cent effective in showing which patients did not have prostate cancer. It provided peace of mind to those without the disease, and prevented two-thirds of men from undergoing a second, unnecessary biopsy.

The test – developed in partnership with diagnostics firm MDxHealth – is now available in the US. The team hopes to work with the NHS to introduce it into routine prostate checks in the UK.

Professor Harrison, who is also Director of Laboratory Medicine for NHS Lothian, commented, "Accurate and timely diagnosis is the most important part of the patient journey in cancer. Anything that can reliably reduce that period of uncertainty before effective treatment begins is to be welcomed."