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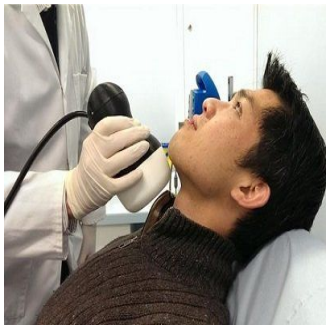
Hybrid Camera to Improve Tumour Diagnosis



A 'hybrid technology' mini camera that combines optical and gamma imaging to improve diagnosis and lymph and tumour removal efficiency, is being developed by researchers from the Universities of Leicester and Nottingham.

The new mobile camera will advance nuclear imaging by allowing imaging procedures at a patient's bedside, in operating theatres and intensive care units. As a result, surgeons will be able to localise and map tumours and sentinel nodes to patient anatomy with greater accuracy during surgery.

The project to develop the revolutionary camera is led by Dr. John Lees from the University of Leicester's Department of Physics and Astronomy and is funded by the Science and Technology Facilities Council's (STFC) Challenge Led Applied Systems Programme (CLASP).

"Our system will improve surgical cancer treatments, reducing mortality and morbidity by enabling surgeons to increase lymph or tumour removal efficiency while minimising damage to normal tissue," explains Dr. Lees.

In breast cancer, for example, sentinel node biopsy is routinely used for cancer staging. This procedure is usually performed using a non-imaging gamma probe, which detects a radioactive tracer injected during surgery. Although this technique is now benefitting many patients, since in these procedures a non-imaging probe is used, the nodes may be missed, which can lead to misdiagnosis, according to researchers.

Also, gamma cameras are traditionally large instruments that are normally housed in specialised rooms within nuclear medicine departments. As such, patients need to attend the department to undergo imaging procedures.

The new hybrid camera will mitigate these issues and can be used for small organ imaging, diagnosis, surgical investigation and visualisation of drug delivery.

"This is an exciting project which is taking novel hybrid imaging technology into new clinical areas," says Professor Alan Perkins from the University of Nottingham's School of Medicine. "This should expand the remit of nuclear medicine for the benefit of patients. Our preliminary clinical studies look very promising indeed."

The research team is investigating a range of other clinical applications for the technology including thyroid, lymphatic drainage and 'lacrimal drainage'.

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