

New non-surgical autopsy technique set to revolutionize post-mortem practice

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A new non-surgical post-mortem technique that has the potential to revolutionise the way autopsies are conducted around the world has been pioneered by forensic pathologists and radiologists at the University of Leicester in collaboration with the University Hospitals of Leicester NHS Trust.

The technique developed by a team in the East Midlands Forensic Pathology Unit, at the University of Leicester, has been published today (1 March) in *International Journal of Legal Medicine*. This paper presents the development of the methodology and protocol for this technique from independent research commissioned by the National Institute for Health Research (NIHR).

The study has taken another step towards a minimally invasive autopsy for natural and unnatural deaths, for either single cases or mass fatalities. It could also potentially allay qualms from certain faith groups that object to autopsies.

Professor Guy Ruttly, Chief Forensic Pathologist to the East Midlands Forensic Pathology Unit, which is part of the Department of Cancer Studies and Molecular Medicine, University of Leicester, said the pilot study had demonstrated the potential of the technique to change the future of post-mortem procedures.

He said: "Autopsies are not popular with the general public and are viewed with great distaste. There are a number of faith groups who voice

objections to the autopsy. The development of a minimally invasive autopsy technique would reduce the overall number of invasive autopsies performed in the UK but would still provide a service to the Coroner and determine the cause of a person's death. Currently, without the use of angiography, cardiac related death cannot be reliably diagnosed using a post mortem CT (Computed Tomography) scan so we needed to develop a system that could do this."

"In collaboration with the radiology team, lead by Professor Bruno Morgan, we have successfully developed a quick and simple technique of 'minimally invasive targeted coronary angiography' where we inject contrast into the body of a deceased person through a small incision in the neck and then perform a full body CT scan. Using this method we are able to determine the cause of death in up to 80% of cases (in the series analysed to date).

"Basically, the technique is used to highlight and examine the vessels of the heart in people who have died. The technique is inexpensive, easy to use and applicable to natural and unnatural death, both single and mass fatalities."

Professor Rutty explained the technique was novel because it uses catheterisation, contrast and imaging techniques that have not been reported previously. "Developing a new catheterisation system and using two different types of contrast to highlight the coronary vessels (air and standard coronary radio-opaque contrast media) sets us apart from other research groups," he said.

Professor Rutty added: "We were the first Unit in the world to our knowledge to propose targeted angiography as the way forward, and are now the first to describe the development, methodology and protocols involved for cadaver cardiac CT angiography. Other groups have done whole body angiography which is time consuming and expensive and is

unlikely to be implemented in the UK for everyday autopsies.

"We are incredibly excited about the potential of this new research. This technique could see the beginning of a permanent change in autopsy practice in the UK, with fewer autopsies being performed. This technique could be used in other centres across the world."

The research paper presents the results from an initial pilot of 24 cases. The University team will now complete a further 200 cases this year to further evaluate the technique and build a bigger evidence base.

Provided by University of Leicester

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