



Pathology Biology Section – 2010

G38 Forensic Imaging: Yes, We Scan! New Challenges for a Radiographer

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After attending this presentation, attendees will be able to understand the role of radiographers in forensic imaging regarding CT (computed tomography) angiography and will know the different responsibilities of forensic radiographers such as sample collection for toxicological analyzes (postmortem liquid puncture), sample collection for additional analysis such as histology or bacteriology (postmortem biopsy), and the performance of postmortem angiography including the use of a perfusion machine.

This presentation will impact the forensic science community by displaying the first experiences and future possibilities of this new opportunity. It will also introduce the radiographer and his skills to the medicolegal public.

It is a logical fact, that the implication of a radiographer into a team of forensic radiologist and pathologists can increase the radiological quality of examinations. With the application of postmortem angiography in forensic cases, the importance of such a specialist is again increasing, because this examination is complex and needs experience in handling a CT-scan. Additionally, it brings other needs with it, such as the necessity to perform sample collection for toxicological analysis, before injecting a contrast agent into the corpse. These responsibilities can be fulfilled by the radiographer. His technical knowledge facilitates also the control of the perfusion machine, which is necessary for postmortem angiography.

Sample collection for toxicological analyzes: During the process of postmortem angiography, a contrast agent is injected into the corpse and the blood is rinsed out of the vascular system. Such treatment could eventually alter the findings in toxicological analysis. To avoid this problem, samples of liquids used for these analyzes are collected before angiography. To get samples of vitreous humour, bile, urine, cardiac blood and peripheral blood, punctures are done manually by the radiographer.

Postmortem biopsy: For some additional analyzes such as histology (especially search for fatty embolism) or bacteriology, samples can be collected already before performing angiography in order to avoid contamination of the tissue of interest. For this purpose, postmortem biopsies can be performed by the radiographer.

Performance of postmortem angiography: After sample collection, the radiographer performs the postmortem angiography. He prepares the perfusion machine and the body. The body-preparation includes the correct positioning on the CT-table as well as preparation of the femoral vessels and inserting cannulas into them. After connecting the perfusion machine with those cannulas, the postmortem angiography is performed. Hereby, CT-acquisition and the perfusion machine have to be well synchronized.

For a radiographer, the switch from living patients to dead bodies might be difficult in the beginning. With skills in technology (imaging acquisition, reconstruction of 2D and 3D images, etc.) and anatomical knowledge, (vascular anatomy, positioning of the body, etc.) the radiographer is predisposed to become a member of a forensic team.

The radiographer represents a profession that is necessary to guaranty good quality of radiological examinations and allows a rapid investigation, which is important to implement biopsies and angiography in the daily routine of forensic medicine. This collaboration is well accepted in the forensic team. The interdisciplinary exchange of forensic pathologists, radiologist and radiographers leads to fruitful discussions and successful collaborations between those specialists. Regarding the increase of radiological exams in forensic departments, this new radiographer allows to save much time in the daily routine.

Radiographer, Forensic Imaging, Postmortem Angiography