



Conventional X-ray as an additional tool in the analysis of fatal neck trauma

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We read with great interest the review article by Dominic Gascho et al. [1] about relevant findings on post-mortem total body CT (TBCT)/MRI in cases of strangulation. The authors describe fracture patterns and hemorrhages in strangulation cases, but they admit that large-scale studies for relevant findings on CT and MRI related to strangulation are lacking. We want to draw attention to a third radiological modality for the analysis of fatal neck trauma; conventional X-ray of the excised hyoid-larynx complex [2]. We have applied this method since 2002 and our experience concerns over 400 cases.

When an unnatural cause of death is suspected, the forensic pathologist requests a TBCT prior to autopsy. In cases of suspected violence on the neck, the hyoid-larynx complex is excised, to obtain X-rays and CT of the explant. The X-ray images are made in eight different directions: *AP, left lateral, right lateral, cranio-caudal, left oblique 30 and 60 degrees, right oblique 30 and 60 degrees*. Along with the radiological report, describing for example fractures, luxation's and anatomical variants [3], the explant is returned to the pathologist for further examination including histology, and hemorrhages at possible fracture sites ('vital sign').

The method thus described has some advantages over post-mortem TBCT. Firstly, X-ray equipment is easily deployable and relatively cheap. Image quality of the X-rays is excellent, especially for fracture diagnosis. CT is known for its quality in fracture diagnostics but subtle fractures in the base of the

superior thyroid horn (cartilage that calcifies with aging) can be overlooked due to the transversal scan plane. Additionally, smoothing by 3D reconstruction software can disguise small fractures. However, longitudinal fractures through the ventral thyroid can be best diagnosed on CT slices, as they can be missed on X-ray due to over-projecting air in the trachea.

In conclusion, the conventional X-ray series of the excised hyoid-larynx complex is, in our opinion, a highly valuable add-on in the post-mortem examination in cases of suspected fatal trauma on the neck.

References

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