



E2 Which Came First, the Chicken or the Egg? A Key to Shed Light on a “Road Murder”

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Learning Overview: The goal of this presentation is to underline the discrepancies between antemortem and postmortem instrumental diagnosis, confirming autoptic examination as the gold standard for forensic diagnosis. This is true even in cases of traumatic death, such as a traffic accident, in which radiology showed its indubitable function.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by demonstrating that a whiplash injury in an elderly patient with age-related vasculopathy can lead to the onset of an ischemic process, causing death. Even as a rare pathophysiological mechanism, this has to be considered when approaching cases as the one settled previously. Moreover, the forensic pathologist has to know the in-depth anatomy in order to adapt the dissection techniques to each specific case, even borrowing them from other surgical specialties. This need for continuous updating and a critical approach to the autopsy cannot help but be assisted by the new pre-autoptic technologies, always remembering that the macro- and microscopic studies remain irreplaceable.

Whiplash is a traumatic event affecting the cervical spine. In most cases, it arises following a sharp movement of the head that exceeds the physiological limits of joint excursion. Many studies document the presence of ischemic accidents following the compression of the vertebro-basal system arteries after whiplash in predisposed patients.

This case dealt with a 79-year-old man driving his own car who was involved in a frontal impact crash after he was hit by another car. He was transported to the emergency department, where the driver arrived comatose (GCS 3). Immediately, the patient underwent a brain Computed Tomography (CT) scan and angio-CT scan, directed, in particular, to study the epi-aortic vessels. The CT scan showed a wide ischemia of cortical and subcortical areas, particularly affecting the parietal and occipital encephalic lobes and cerebellum. The angio-CT scan revealed the complete occlusion of the lumen of both vertebral arteries at the level of the third cervical vertebra. The man died approximately four days after his admittance to the hospital.

The external examination of the body was not remarkable for any signs of trauma. The question was if the ischemia or the car accident came first.

Before performing the autopsy, a CT scan of the skull and neck was conducted. The autopsy was performed six days later, with a particular dissection protocol borrowed from the neurosurgery. The examination was focused on the vertebral artery segments between the third and fourth cervical vertebrae. During the dissection, an open-book cervical vertebral fracture was identified, leading to the complete obstruction of vertebral arteries, bilaterally. The histological examination of these vascular segments revealed the presence of a hemorrhagic infarction surrounding the adventitial layer, compatible with vitality at the time of its genesis.

Whiplash was the cause of death!

Whiplash, Traffic Accident, Vertebral Arteries