

Non-Traumatic Soft Tissue Hemorrhage in the Neck

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Hemorrhages in the soft tissues of the neck are a well-known observation in manual strangulation and other traumatic deaths. However, hemorrhages in the anterior compartment of the neck can be observed in non-traumatic cases, e.g., natural, and accidental causes of death. The existing literature on non-traumatic hemorrhages is limited, and it remains unclear why these hemorrhages form and what influences their formation. The correct interpretation of hemorrhages in manual strangulation and non-traumatic deaths is crucial because the results may lead to a guilty verdict or an overturned conviction.

This study aims to analyze if hemorrhages can form in the soft tissues of the neck without the application of direct force against the neck. It hopes that the results will ease the differentiation of hemorrhages resulting from trauma and those observed in non-traumatic cases. A retrospective analysis of autopsy cases from 2018 to 2020 was performed at the Department of Pathology, Landspítali University Hospital in Iceland.

The hemorrhages were arranged into classes A-G based on in which muscle(s) the hemorrhages were, where they were in the muscle(s), and if they were focal or diffuse.

A: Diffuse hemorrhage in the strap muscles

B: Inferior hemorrhage in the sternohyoid and/or sternothyroid muscles

C: Focal hemorrhage in the laryngeal muscles (the strap muscles and the cricothyroid muscle)

D: Focal hemorrhage in the sternocleidomastoid muscle

F: Hemorrhage in the pharyngeal constrictor muscles

G: Hemorrhage in the posterior cricoarytenoid muscle

The analysis of the class A-G hemorrhages revealed that the majority of hemorrhages belonged to classes B, C, and D. Class B hemorrhages were more frequent in the supine position while class C hemorrhages were more frequent in the prone position. In the positive group as well as the control group, the supine position was the most common followed by the prone position.

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