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Wound age determination in forensic pathology and medicine

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In forensic pathology it is not only important to determine whether skin wounds are vital or not but also to give an estimation of wound age. In the past, it was suggested that histological characteristics could classify a vital wound. For example hemorrhage, i.e. the extravasation of erythrocytes after damage of blood vessels, was postulated to represent a vital wound characteristic. Hemorrhage, however, can also occur in non-vital wounds, e.g., due to mechanical manipulation of the body. The same is true for swelling, which may occur in loosely arranged tissue, independent of wound infliction. Therefore a pure morphological description to determine a vital wound is inadequate. Immunohistochemistry of wounds has been studied extensively, especially related to inflammatory cells or extracellular matrix-associated markers. We developed a new method in order to estimate wound age in early post-traumatic vital skin wounds up to 30 minutes old by analyzing immunohistochemical expression of Fibronectin, CD62p and Factor VIII in wound hemorrhage. Furthermore we have developed a probability scoring system, analyzing morphological characteristics and extracellular matrix proteins as well as inflammatory cells and mediators that can be used to determine wound age in skin biopsies of living subjects that can be applied in forensic medicine for wound age determination.

Biography

Judith Fronczek is a MD working as an autopsy pathologist at Symbiant Pathology Expert Centre in The Netherlands. She is finishing her PhD on new techniques in forensic pathology and autopsy pathology.

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