Fatal bleeding after lesion of a peripheral vein vessel: case report and literature review

Daniele Capano¹, Isabella Mercurio¹*, Roberta Costa¹, Matteo Benvenuti¹, Mario Gabbrielli¹

Abstract: We report a case of fatal vein bleeding in a 48 years old man, with a story of drug addiction, who tried to cut off a vascular neoformation from his right arm, using a pair of scissors. The particular typology of the lesions described during the autopsy, the dynamic of the death and the lack of scientific literature concerning this kind of lesions make this case report significant for analysis of death by exsanguination.

Key Words: peripheral venous injuries, hemorrhage, exsanguination.

INTRODUCTION

Death due to bleeding lesions of a peripheral venous vessel is rarely reported in scientific literature: most of the known cases of vein lesions concerns vessels suffering from varicosities or other pathologies. Deaths occurred for exsanguination are mostly related to accidental causes or to autosoppressive purposes. We report a case that does not concern these usual types of death, because exsanguination occurred after a lesion caused by a voluntary act of a man that did not have the intention to commit suicide.

CASE PRESENTATION

A 48 years old man, with history of drug addiction, was found dead by his father in his own house. According to testimonies collected by the police at the beginning of resuscitation maneuvers that were performed by a nearby nurse, soon after the man was found, the subject had already lost consciousness. The police and the coroner established that, according to circumstantial data, the man tried to cut off a vascular neoformation from his right arm (most likely a venous aneurysm, protruding from his skin), using a pair of scissors. Because of the unexpected massive bleeding, the man tried to stop the blood spilling from his arm with some towels, that were found in different rooms of the apartment and under the body, stained with blood (Fig. 1-2).

During the inspection the Italian Scientific Police found a pair of scissors, dirty with blood, in the man’s bedroom: likely, these scissors were used for the fatal sharp injury. In addition, in the shower tray, a piece of human tissue was found and provided by the judicial authority during autopsy examination. Numerous footprints of the man, made with blood, were found in the bathroom near the shower and in other rooms; droplets of blood were found in every room of the house on the walls and on the floor.

Autopsy was performed three days after the death. The cadaveric inspection confirmed that in correspondence of the bend of the right elbow, in a ecchymotic area, in which there were acupuncture signs, there was a wound, circular in shape, with diameter of

1) University of Siena, Hospital Santa Maria alle Scotte, Section of Forensic Medicine, Department of Medical, Surgical and Neurological Sciences, Siena, Italy
* Corresponding author: University of Siena, Forensic Medicine, Department of Medical Sciences, Surgical and Neurosciences, Hospital Santa Maria alle Scotte, 1 Viale Bracci, Siena, 53100, Italy, Tel.: (+39) 34677338502, Fax: (+39) 0755858443, E-mail: isabmerc@gmail.com
1.2 cm and exposition of underlying soft tissues, that appeared infiltrated with blood; its margins were sharp, reddish colored, organized in fiber-elastic tissue (Fig. 3). After enlarging the wound, in order to analyse the damaged anatomic structures, in the middle of this wound, two sectioned walls of a superficial venous vessel were highlighted; this wound bleded if pressed. Deep planes were uninjured and had no blood infiltration, as deep arterial vessels, that seemed to be separated from the lesion by a fibrous tendon. Anatomic dissection confirmed that brachial artery and radial artery were undamaged, the median anti brachial vein was sectioned in two points. This was the only injury found during autopsy, identifiable as the cause of death (Fig. 4).

The human tissue found in the shower tray and provided by the judicial authority was then analysed. Its section demonstrated the presence of the walls of a vascular vein, observable macroscopically: because of its morphology and size, there was full correspondence with the lesion found at fold of the elbow during the external examination of the corpse (Fig. 5).

Histological analyses performed on organ and tissue samples, confirmed the acuity of blood loss, highlighting the state of polyvisceral anemization: this evidence was compatible with a hemorrhagic shock. Furthermore the analysis of the human tissue confirmed that it was a vein vessel with a intimate fibrosis with the disappearance of part of the smooth muscle fibers of the middle tunic and outer lamina, compatible with aneurysmatic lesion (Fig. 6). In addition, inside the vessel, a organized neoformation with histological features of a old organized clot, that was adherent to the vessel walls was found. Death was caused by hemorrhagic shock resulting from the section of the median antibrachial vein. Histological preparations showed a blood depletion from the vessels of all the organs taken.

The repeated drug injections that the man had always done had led to numerous episodes of phlebitis of the vein, hesitated in the formation of a venous aneurysm that protruded from the skin [1]. The subject decided to remove the scissors without imagining the consequences of his gesture.

**DISCUSSION**

The peculiarity of the case described relates to the site (elbow bend, peripheral vein of the upper...
The injury occurred during a voluntary act but did not involve suicidal intent. From a review of the scientific literature, it emerges that, as far as the position is concerned, lesions are more common at the wrists [2, 3], on the contrary they are rare at the femoral level [4]. Many cases also relate to suicidal purposes [2, 3, 5, 6] by using cutting objects of various typologies. Fatal lesions of peripheral veins are reported in cases of bleeding from varicose vein vessels [7, 8], even spontaneous [9]. It is also apparent from the circumstantial data that the absence of the simplest relief maneuvers such as hemorrhage support has contributed decisively to the death of the subject.

In conclusion, death was caused by hemorrhagic shock, with massive blood loss resulting from the section of a vascular lesion in the bend of right elbow, on a voluntary basis but without suicidal purposes. In forensic literature there are no cases of this kind of lesion and death: this case report can be useful to the study about fatal bleeding by peripheral vein vessels.

Conflict of interest. The authors declare that there is no conflict of interest.

References