

CASE REPORT

Pathology/Biology

A rare suicide case involving fatal bleeding from varicose veins

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Abstract

This case report deals with a sharp force suicide case, which may challenge the experience of many forensic pathologists as well as the studies published to date. An overview of the published cases shows that sharp force suicides account only for 1.6%–3% of all suicides and the self-inflicted injuries are usually localized on the body parts easily accessible with one's hand including the neck, thorax, or upper extremities, as well as in locations of major vascular bundles or vital organs. Reported, however, is a case in which the victim relied on the knowledge of her medical condition and used a kitchen knife to incise her varicose veins, which resulted in fatal bleeding. The case is rare on a number of grounds: incision of varicose veins is rarely the method of choice in suicide cases, injuries of peripheral veins are rarely fatal, and so are injuries of isolated veins where no damage to arteries is suffered.

KEYWORDS

autopsy, fatal hemorrhage, forensic pathology, incised wounds, sharp force fatality, suicide, varicose veins

Highlights

- Sharp force suicides account only for 1.6–3% of all suicides.
- Fatal bleeding from the peripheral vascular system is a rare condition.
- Varicose veins have a potential for heavy bleeding.
- Suicide cases rarely involve incised wounds of varicose veins.

1 | INTRODUCTION

Available literature indicates that sharp force suicides account only for 1.6–3% of all suicides [1–3]. Most of the cases involve the use of kitchen knives or razor blades, with the offending weapon usually being found at the death scene [4]. Self-inflicted injuries are usually localized on the body parts easily accessible with one's hand including the neck, thorax, or upper extremities, while lower extremities are targeted only rarely [2,5]. A case presented herein discusses an unusual case of suicide involving the use of a kitchen knife to incise varicose veins in lower extremities.

2 | CASE REPORT

A 75-year-old woman with a known clinical history of permanent atrial fibrillation, hypertension, diabetes mellitus, and chronic venous insufficiency was found unresponsive lying on a bed in a semi-sitting position with her feet touching the floor. Her trousers were rolled up to the knee level, thus exposing her calves. During on-site examination, severe varicose veins with multiple incised wounds were observed on her calves. The bedsheets and the floor were heavily stained with blood, and a blood-stained kitchen knife was found in the proximity of the body (Figure 1). A suicide note had

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FIGURE 1 Severe varicose veins (asterisk) with multiple incised wounds on the inner aspects of the bilateral calves (arrows). The blood-stained kitchen knife in the proximity of the body (arrowhead) [Color figure can be viewed at wileyonlinelibrary.com]

been left in the kitchen. Furthermore, prescription drugs including warfarin (anticoagulant), losartan (antihypertensive), desloratadine (antihistamine), and alprazolam (benzodiazepine) were found at the scene. There was no known history of mental illnesses or suicidal ideations of the deceased.

Forensic autopsy revealed severe varicose veins and multiple diagonally oriented, both superficial and deep, incised wounds on the inner aspects of the bilateral calves. On the right calf, there was one dominant incised wound measuring 6.5 cm in length and 0.2 cm in depth, while on the left calf there were two parallel dominant incised wounds measuring 7 cm in length and 0.2–0.3 cm in depth. Different varicose veins were incised as a result of each of the dominant wounds (Figure 2). Internal examination revealed well-developed signs of hypovolemic shock; the kidneys as well as other organs were pale; the heart was contracted and empty, and the brain showed signs of edema. Furthermore, the autopsy revealed moderate atherosclerosis affecting mainly the aorta and coronary arteries showing 25% narrowing of their diameter; the heart weighted 380 g and the left ventricle was hypertrophic. There were no signs of left ventricle chronic insufficiency. The toxicology blood screening revealed the presence of warfarin (anticoagulant), losartan (antihypertensive), metamizole (analgetic), and alprazolam (benzodiazepine); the concentration of each of these drugs was within the therapeutic range. The cause of death was hypovolemic shock due to multiple incised wounds of bilateral lower extremity varicose veins. The manner of death was suicide.

3 | DISCUSSION

Varicose veins occur when superficial veins of the lower extremities become dilated, elongated, and tortuous [6]. Their prevalence

estimates vary widely by geographic location, especially in developed countries [7]. Varicose veins develop as a result of a connective tissue disorder affecting the veins, which leads to vein dilatation and thus to venous valves insufficiency. The factors that increase the risk of developing varicose veins include advanced age, female sex, sedentary and static work, pregnancy, obesity, hormonal contraception, and smoking [8].

The complications of varicose veins may range from mild complications such as lower extremity edema, skin pigmentation, dermatitis, skin ulcers, or lipodermatosclerosis, to more severe ones like venous ulcers (acute or chronic) or fat necrosis. Fragile walls are also responsible for spontaneous bleeding or trauma-related bleeding [9,10].

Increased hydrostatic blood pressure in lower extremity veins in cases of both spontaneous varicose vein rupture and superficial varicose vein injury can cause severe blood loss, which can rapidly lead to the loss of consciousness and death. The risk factors which may contribute to massive blood loss are not only the increased blood hydrostatic pressure in veins but also alcohol consumption, anticoagulant medications, and pre-existing medical conditions including sclerotic changes of the vessel walls, liver cirrhosis, chronic heart failure, chronic kidney failure, congenital, or acquired coagulopathies [11].

The available studies show that only 0.8–4% of all suicides by sharp force involve incised or stab wounds of peripheral veins [3,4], since what is usually targeted are the major veins on body parts easily accessible with one's hand such as groins, thighs, or ankles [12,13]. In addition, in more than 70% of all such suicide cases multiple superficial incised or stab wounds are also present, as is the case herein. These superficial wounds are also referred to by some authors as tentative or hesitation wounds [1,4,14].

Rare are the cases where isolated veins are incised (with no artery damage) and subsequently lead to fatal bleeding [15]. One such case was published by Rabl et Sigris, who reported a case of a 34-year-old man with fatal bleeding from a small femoral vein lesion with a diameter of 2 mm [15]. Capano et al described a case of fatal bleeding in a drug user who had tried to remove a vascular neofor- mation from the right arm using a pair of scissors [16].

Other published cases involved fatal bleeding from AV fistulas, which serve as a special connection joining a vein and an artery and thus providing an easy access for hemodialysis in patients with chronic kidney failure [17]. Most of the published cases involved people having medical education or patients aware of the complications that their disease might involve. Such cases are also referred to by some authors as medical-knowledge-related or disease-knowledge-related suicides [18,19].

In this case, the external examination revealed multiple superficial incised wounds localized on the calves of the deceased, while other body areas typically wounded in suicide cases were intact. Based on these findings, it is reasonable to assume that the victim was aware of her medical condition and the related risks of heavy bleeding from varicose veins provoked by the wounds. Even though

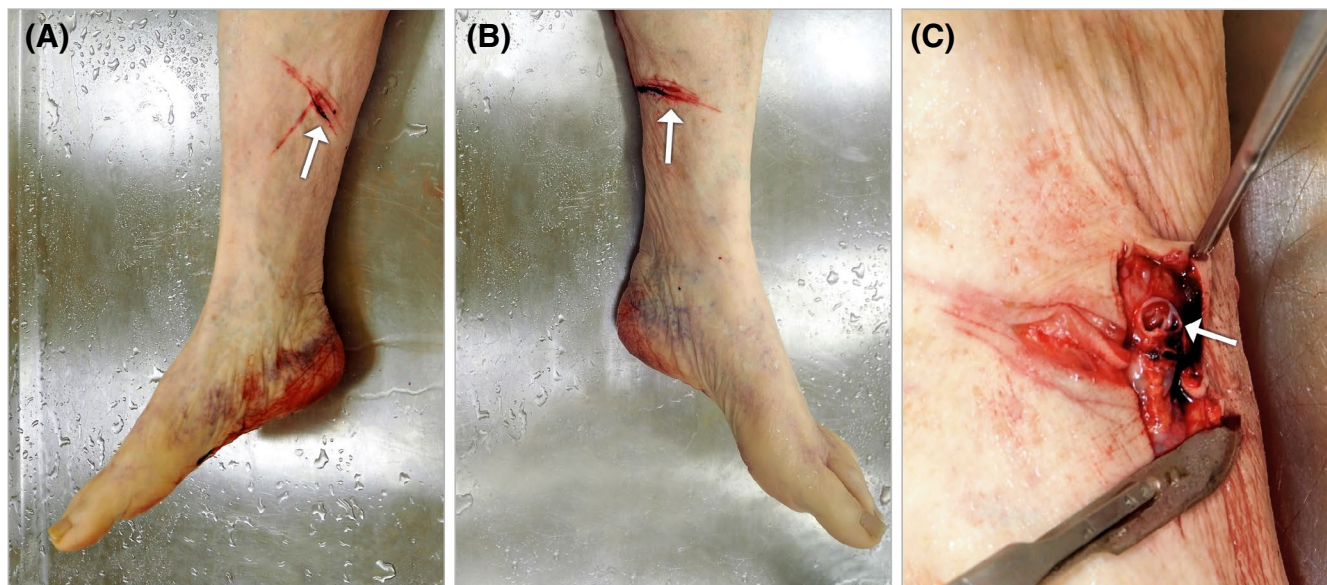


FIGURE 2 Multiple incised wounds localized on the inner aspects of the victim's calves (arrow in A and B). In C, the incised varicose vein on the left calf is visualized (arrow) after autopsy incision and retraction of the overlying skin [Color figure can be viewed at wileyonlinelibrary.com]

there is nothing to suggest that the victim had any advanced knowledge of anatomy, the theory that she was aware of the risk of heavy bleeding is supported by a statement of her daughter, who said that her mother had experienced repeated spontaneous varicose vein bleeding in the past. Another factor that may have contributed to the victim's decision to target varicose veins includes their good visibility, which allowed good visual control of the site while inflicting the injuries. Incising the varicose veins on both lower extremities resulted in massive external hemorrhage. The extent of blood loss was caused not only by increased hydrostatic blood pressure in varicose veins, but also by the long-term use of anticoagulant drugs (warfarin). Further, superficial wounds alone are sufficient to cause such massive hemorrhage, so the pain suffered is not as severe as in the case of wounding deep anatomical structures such as muscles, or nerve-vascular bundles. The reason for committing the suicide was explained in the suicide note where the victim had stated that she was no longer able to take full care of herself and did not want to be a nuisance to her family.

Fatal bleeding from the peripheral vascular system is rarely encountered in forensic medical practice. Such cases involve victims having severe pre-existing medical conditions or being on medication affecting blood coagulation. This is also confirmed by the present case since the victim had been on warfarin medication. Therefore, incising the varicose veins on three sites was sufficient for a rapid development of hemorrhagic shock. In our experience, such a suicide method is extremely unusual; that may be why, to the best of our knowledge, no case involving such a method has been published to date.

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