Varicose veins are a common pathology affecting 14–59% of the population of the developed countries. Superficial veins of the lower extremities are the most frequent example of this disorder. It is associated with many complications, such as oedema, skin pigmentation, dermatitis, chronic ulcers and even cancer. One rare but potentially life-threatening complication is the acute severe bleeding, which has been described in several forensic reports as an unusual cause of death. We herein report a case of acute bleeding from a leg varicose vein and review briefly its clinico-pathological characteristics. The medico-legal office and local Ethic Committee approved the study.

Report

During external examination of a 55-year-old woman, who was found dead at her home with evidence of extensive blood loss, the only source established was a small 4 mm ruptured varicosity on the postero-medial aspect of her right upper leg, nearly 10 cm below the medial epicondyle of the femur (Fig. 1a). There were moderate superficial varicosities of both legs. Skin pigmentation, dermatitis or
chronic ulcers were not observed. The lethal venous ulcer (Fig. 1a and b), was removed and fixed in formalin. An incision through the bleeding hole, covered by thrombotic material (Fig. 1c), revealed an enlarged superficial tributary to the greater saphenous vein. Small pieces from the ruptured vein and a neighbouring thrombosed vein segment (Fig. 1b) were taken for routine histological examination. Microscopically, the ulcerated vein (Fig. 1e, g and h) had an irregular wall with detectable thickness at the side of rupture. Abundant thrombotic material and a significant number of acute and chronic inflammatory cells covered the ruptured margin. The adjacent dermis contained various dilated capillaries, inflammatory cells and collagen fibres. The epidermal layer covering the ulcer margins showed an increased thickness with marked dermal papillae. The neighbouring thrombosed segment (Fig. 1d and f) revealed an uneven vein wall. It had considerable thickness and mural thrombosis at the skin side. In the surrounding dermis, dilated capillaries and marked fibrosis were established, while no significant changes were observed in the epidermis covering this area.

Discussion

Up to now, a number of forensic and few clinical reports, reviewed recently, described cases of severe bleeding from a ruptured leg varicose vein. People in their sixth to ninth decades of life were usually affected. The youngest was a 31-year-old man, and the oldest was an 86-year-old woman. There were no significant differences in sex distribution or laterality of the lesions. The acute perforation usually affects superficial vein tributary around the medial malleolus (Fig. 2a). The most distal lesion location was on the medial foot arch. The most proximal location, found in our case, was in the upper third of the calf. The
vein rupture can occur either spontaneously or after minor trauma.\textsuperscript{2–4} The particular social background and predisposing factors for severe bleeding after varicose leg ulcer have been summarised.\textsuperscript{3}

From the pathological point of view, severe potentially fatal haemorrhage from a leg varicosity has been associated with either acute perforation (in the majority of cases)\textsuperscript{2,3} or exacerbation of a chronic venous ulcer.\textsuperscript{2,4} In the first type, an enlarged vein segment (’bleb’) is accidentally ruptured causing profuse bleeding (Fig. 2b(I)). The possible pathogenesis of the process may be summarised on the basis of our histological observations. The first stage is the local vein thrombosis, predominantly at the skin side, followed by thickening and incorporation of the thrombus. In the opposite skin, an epidermal hyperplasia appears. Both vein thrombosis and skin inflammation create a ’weak point’ for further outward rupture. Probably, increased intravenous pressure in the superficial leg veins due to cardiac dysfunction or deep vein thrombosis has an important role. The second type of profuse bleeding is preceded by chronic skin ulceration followed by erosion of an underlying larger vein (Fig. 2b(II)).

Irrespective of the reasons, when a varicose vein segment is ruptured profuse bleeding may occur, which could possibly lead to unconsciousness and fatal exsanguination in less than 20 min.\textsuperscript{3} The first important step must be to make the patient to lie down and elevate the affected leg,\textsuperscript{5} which can help in decreasing the intravenous pressure and bleeding. The urgent help includes compression by bandages or tourniquet placement, but choosing proper site along the leg is crucial. Misguided by the ’arterial-like’ bleeding one can wrongly place the tourniquet proximally with a fatal consequence.\textsuperscript{4,5} Varicose vein surgery or endovascular procedures offer the only definite treatment.

In conclusion, the present article and few literature descriptions illustrate the dangerous nature of even the small, ’cosmetic’ leg varicosities, which, in a particular situation, may become lethal and require proper and timely management.

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References