Pulsatile varicose veins caused by tricuspid valve regurgitation

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Summary We report an uncommon case of pulsatile varicose veins in a young woman caused by tricuspid valve insufficiency of rheumatic origin combined with an incompetent valve at the sapheno-femoral junction. She was treated with limited stripping of the great saphenous vein and local varicosities were excised. Postoperative recovery was complicated by a large haematoma in the thigh. Following our recent experience we believe that patients like this, with elevated venous pressure and requiring anticoagulant therapy for prosthetic valves, should be treated with sapheno-femoral dissociation alone.

Keywords: pulsatile varicose veins, tricuspid valve insufficiency.

Introduction

Pulsatile varicose veins may occur either in arteriovenous (AV) fistulae or in tricuspid valve insufficiency when it is combined with an incompetent valve at the sapheno-femoral junction. In the later case the wave of ventricular systole is conducted backwards along the inferior vena cava to the superficial venous system of the lower limb resulting in visible pulsation of the varicosities. We report a case of pulsatile varicose veins in a young lady, suffering from rheumatic heart disease, treated with limited stripping of the long saphenous vein, as well as our experience with a large postoperative haematoma in the thigh resulting from her treatment.

Case report

A 35-year-old woman was admitted to our hospital with a short history of gross varicosities of the right leg which had developed recently. Two years prior to her admission she had undergone mitral valve replacement (Bjoerk-Shiley prosthesis) due to rheumatic heart disease and had received anticoagulant therapy (Warfarin) from then on. At the time of initial assessment for cardiac surgery, she was catheterized via her right groin for cardiac investigation.

On physical examination we observed extremely large varicosities in her right groin. On closer inspection these varicosities were pulsating. Although an audible bruit was not detected, the existence of an AV fistula caused by previous catheterization could not be excluded. The rest of the physical examination revealed greatly increased pressure in the external jugular vein, a moderate ankle oedema, extensive haemochromatosis, especially on the right leg, and a systolic murmur of the tricuspid and pulmonary valves, respectively.

Venous sampling from the varicosities of the right groin and the upper arm (for comparison) for gas analysis was not indicative of an AV fistula in the groin.
Fig. 2D-B-mode Doppler investigation disclosed free communication between the right ventricle and the right atrium during the systolic phase of the cardiac cycle.

\[ PO_2 = 27.5 \text{ mmHg, Sat} = 50\% \text{ (groin), } PO_3 = 46.7 \text{ mmHg, Sat} = 81.4\% \text{ (arm), the difference being related to stasis of blood in the varicosities of the groin and hence maximal deoxygenation of haemoglobin}. \]

A venogram of the right leg showed a normal deep venous system. She was further investigated with a 2D-B-mode color Doppler device which disclosed serious tricuspid valve incompetence with free communication between the right ventricle and right atrium during the systolic phase of the cardiac cycle (Fig.).

With the prothrombin time almost normal (13"/15"), following 48-h discontinuation of warfarin, and under penicillin coverage surgical exploration of the right groin was performed. Although the varicosities, the saphenous and femoral veins were pulsating, we did not find an AV fistula. The blood pressure in the saphenous vein was measured and found to be 25 cmH\textsubscript{2}O (18.37 mmHg). We removed the varicosities in the groin and performed limited stripping of the great saphenous vein. Although we did pay attention to meticulous haemostasis and proper and adequate bandaging, she developed a rather large haematoma in the thigh in the immediate postoperative period which resolved few weeks later. On follow-up examination 3 months later, she was doing well and the ankle oedema as well as the haemochromatosis had been remarkably reduced.

**Discussion**

It is well established that tricuspid valve regurgitation can cause pulsation of the long saphenous system if an incompetent valve is present at the sapheno-femoral junction. Pulsatile veins have been observed in the neck, forearm and forehead, and less commonly in other areas of the body.\textsuperscript{1,2} Venous pulsation is exaggerated...
When the pressure in the pulmonary artery is highly elevated as it happens when mitral stenosis coexists with tricuspid valve regurgitation. Several cases of pulsating varicose veins have been reported in the literature. The cardiac origin of the pulsatile varices necessitates differential diagnosis from an AV fistula, especially when cardiac catheterization has been performed via the ipsilateral femoral vessels. Furthermore the presence of a murmur does not exclude the cardiac component in cases of pulsating varicosities as Hollins and Engeset have reported.

Although the clinical picture and aetiology of pulsatile varicose veins have been fully described in previous reports, there is no information regarding the indications for surgical therapy, the preferable type of surgery and any possible complications thereof. Patients of this category with huge varicosities, complicated with bleeding, venous ulcer, eczema, lipodermatosclerosis, extensive haemochromatosis and ankle oedema, should be offered surgical therapy. The postoperative haematoma in the thigh experienced by our patient following limited stripping of the long saphenous vein has convinced us that the therapy of choice has to be a sapheno-femoral dissociation along with removal of local varicosities and meticulous haemostasis only. Although limited stripping of the long saphenous vein is the treatment of choice for primary varicose veins, the elevated venous pressure in pulsatile varicosities along with the anticoagulant therapy given compulsorily to patients with prosthetic valves can cause serious postoperative haematoma in spite of preoperative discontinuation of anticoagulants and proper bandaging.

Acknowledgements

We appreciate the contribution of Dr E. Matsakas, M.D, and Dr T. Demovelis, M.D, cardiologists, for cardiac ultrasound investigation.

References