

Research Article

Ischemic Stroke Following Sclerotherapy of Varicose Veins

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Abstract:

Sclerotherapy consists of an injection of a sclerosing foam or liquid to occlude the varicose vein. This therapeutic method is recognized for its immediate effectiveness and its low complication rate. Certain neurological complications have been reported, notably ischemic stroke (CVA), which remains a very rare complication. We report the case of Mrs. FK aged 35, without any particular personal history, who presented to vascular surgery for sclerotherapy of her varicose veins. During the procedure, the patient presented a sudden onset of impaired consciousness associated with left hemiplegia with aphasia.

She was immediately transferred to medical intensive care. Brain computed tomography (CT) confirmed the diagnosis of stroke. As part of the etiological assessment, we performed a transesophageal echocardiography (TEE) on the 7th day of his hospitalization, which was in favor of a patent foramen ovale (PFO). In the literature, this complication has been reported by certain authors but it remains rare. CiVA is secondary to the presence of a PFO. It may be a gas embolism (related to the product used) in which case the stroke is early, or a cruoric embolism, in which case it occurs late. Is echocardiography systematic before sclerotherapy? Through this case and referring to the literature, we will review this entity of stroke of rare etiology.

Keywords: sclerotherapy, varicose veins, PFO, stroke, systematic echocardiography, gas embolism, cruoric embolism.

Introduction

Sclerotherapy is the targeted chemical ablation of varicose veins by an intravenous injection of a sclerosing agent in liquid or foam form. After sclerotherapy, the veins transform into a fibrous cord, a process known as sclerosis (1-4). Transient migraine symptoms may be observed after any type of sclerotherapy. They are more common after foam sclerotherapy (5-7, 8,9). It has been suggested that a right-to-left shunt, present in approximately 30% of the general population, may be a factor, allowing foam bubbles to pass into the arterial circulation (10-14). Visual disturbances occurring after sclerotherapy may correspond to an episode of migraine with aura (15). Among the strokes reported after sclerotherapy, two entities have been described; early-onset stroke, linked to paradoxical air embolism, which is a specific complication of foam sclerotherapy (12, 16), and stroke secondary to paradoxical thrombotic embolism, with late-onset symptoms, which appeared as a result of various methods of treating varicose veins (17, 18). It was specified by the experts that patients who experienced stroke did not have an intracerebral clot but air bubbles were reported in the cerebral arteries (19-22). Therapeutically, in the event of gas embolism several articles report the effectiveness of hyperbaric oxygen therapy. In the event of persistent deficiency, classic revascularization procedures such as thrombolysis and/or thrombectomy are used (23).

We report the case of Mrs. FK aged 35, without any particular personal history, who consulted vascular surgery for sclerotherapy of her varicose veins. During the procedure, the patient presented a sudden onset of impaired consciousness associated with left hemiplegia with aphasia. The patient was immediately transferred to medical intensive care. Initial brain CT was normal. The stroke was confirmed 48 hours later by a second CT scan. As part of the etiological assessment, we performed a TEE on the 7th day of his hospitalization, which was in favor of a PFO (figure 1). The diagnosis was a paradoxical gas embolism. After 15 days, the patient had after-effects such as hemiplegia with dysarthria. Treatment consisted of prescribing anticoagulant while waiting for closure of the PFO.

Discussion

Foam sclerotherapy (MS) has gained wide recognition for the treatment of varicose veins, due to its immediate effectiveness and low complication rate (24). Minor side effects were noted, related to the procedure at the injection site (hyperpigmentation and pain). Two cases of septicemia were noted in 1996, in liquid sclerotherapy over a period of 20 years (25). Neurological complications, visual auras, headaches, and ischemic strokes have also been reported (26). Stroke secondary to PFO can occur immediately, linked to a paradoxical gas embolism, or it can be late, due to a cruoric embolism. Mechanisms of cerebral ischemia associated with air embolism include local blood flow

obstruction, vasospasm, endothelial damage caused by platelet induction or direct thrombin activation. In the literature, only two cases with minimal after-effects after 15 days have been reported to date (24, 27) over a period of more than 20 years and one case of transient ischemic attack (27). The patients had an unknown PFO. The volume and/or quality of the injected foam can be discussed. Considering the high prevalence of PFO in the adult population which is estimated at around 30% (29), the risk of stroke after sclerotherapy appears to be extremely low. According to the recommendations of the 2nd European Tegnsee Consensus on Foam Sclerotherapy [28] and expert opinion (30), the search for a PFO, or right-left communication in general, is not necessary before an SM, but the presence of a Symptomatic PFO is an absolute contraindication to sclerotherapy. It was recommended that patients who experienced even minimal neurological symptoms remain in bed for a longer period of time (Grade 2C), avoid injecting large amounts of foam, or perform liquid sclerotherapy (Grade 2C), the patient should avoid performing a Valsalva maneuver in the period immediately following the injection (Grade 2C), decide on a case-by-case basis (carry out a benefit/risk assessment based on each particular indication) (Grade 2C) (31).

Conclusion

Neurological disorders after sclerotherapy correspond in the majority of cases to migraine auras. Strokes are exceptional, and occur in the presence of a PFO. Current guidelines do not recommend testing for PFO. However, the patient must be warned of the potential complications of the procedure.



Figure 1: TEE, bicaval cut, presence of a PFO

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