UNTOWARD EVENTS of ATYPICAL LOCATION after SCLEROTHERAPY

ÉVÉNEMENTS FÂCHEUX de LOCALISATION ATYPIQUE après SCLÉROTHÉRAPIE

S.E. ZIMMET

CASE 1

The patient is a 48 year old female with an unremarkable past medical history other than she had undergone ultrasound-guided sclerotherapy (UGS) of an incompetent left SSV, without incident, several years ago.

The patient returned on 24 May 2004 and complained of asymptomatic varicose veins. Physical examination revealed bulging 4 mm varices of the left calf and scattered spider and reticular veins of both legs. Duplex ultrasound examination demonstrated reflux of the left SSV. The left GSV, CFV, FV and PV were normal.

UGS was done to the left SSV (1.5 ml 3 % STS foam : Tessari, 3:1) and sclerotherapy was done to the varix (STS .33 %), spider and reticular veins (STS .15 %, .25 %). Post-operative instructions included ambulation and class II compression stockings.

The patient called on 11 June 2004 and complained of pain in the left calf. She stated it was « like a pulled muscle », a « soreness ». The symptoms had been present for 2 days and were worse with walking and better when standing still.

Physical examination : minimal tenderness left calf, no erythema, induration, or edema

Ultrasound : left SSV closed; the left GSV, gastrocnemius veins, PV, CFV, FV and PTV were normal

Diagnosis : probable musculoskeletal pain

Treatment : ibuprofen 400 mg TID prn, call in 3 days or sooner if symptoms increased.

The patient was seen on 15 June for a Botox treatment. Her leg was « doing better ».

She called on 29 June 2004. She had been vacationing for one week with her family. She had had no problems and was doing fine until about 1 hour ago. She developed sudden leg swelling from her left foot to the thigh while riding on a ferry to the airport to catch a return flight home. She also complained of leg pain and noted her leg had become purplish. She felt « clammy and nervous ». She did not have shortness of breath or chest pain.

I advised the patient not to fly and to go to the emergency room. The patient took a taxi to the emergency room while her husband put their daughter on the plane to return home. Tragically, the patient arrested in the cab and was not able to be revived. An autopsy revealed a ruptured isolated iliac artery aneurysm.

Isolated iliac artery aneurysms are rare. Based on more than 26 000 autopsies, Brunkwall et al. found an incidence of 0,03 % [1]. Like aortic aneurysms, isolated iliac aneurysms usually occur in older men [2]. Rupture has been reported to occur in up to 60 % with a mortality rate up to 55 % [3]. Iliac artery aneurysms are often asymptomatic, but can present with symptoms due to rupture or to compression or erosion of surrounding structures. This could manifest as ureteral obstruction with pyelonephritis, compression of femoral, obturator or sciatic nerves causing neurological symptoms, or erosion into a ureter or bladder causing massive hematuria [2]. There have been reports of dramatic presentations due to the spontaneous rupture of an iliac artery aneurysm into the iliac vein, resulting in a large AV fistula [4]. Most symptomatic iliac artery aneurysms can be palpated as pulsatile masses on abdominal, rectal or pelvic exam [5]. The diagnosis can be confirmed with MRI or CT scan. Iliac artery aneurysms appear to enlarge unpredicably [6] and diameter seems to be the most important determinant for rupture [2].

Isolated iliac artery aneurysms are rare but dangerous aneurysms frequently associated with spontaneous rupture. It may be best to manage these aneurysms aggressively as rupture is associated with a high mortality rate. While emerging endovascular techniques hold promise, it appears that surgical resection and reconstruction remain the gold standard for definitive management [7].

CASE 2

The patient was a 62 year old male with an unremarkable past medical history. He underwent endovenous laser ablation of the left GSV in the past and did well. He presented for sclerotherapy of spider veins in the lateral thigh for cosmetic reasons. The pattern was that of the typical lateral system of Albanese. 4mm reticular veins were injected with a total of 6 ml 0,6 % polidocanol foam (Tessari, 2 :1).

Vein and Dermatology Clinic 1801 N. Lamar Blv Suite 103 AUSTIN, Texas 78701 USA.

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At the end of the session the patient complained of « feeling funny ». He was able to speak but stated he felt he was having difficulty speaking and words were coming out slowly (expressive aphasia). He also complained of right arm weakness, and said that the arm felt as if it did not belong to him, even when he looked at it.

On exam he was able to move his arm and it did not appear weak as compared to the opposite side. Blood pressure and pulse were normal on multiple measurements. The episode gradually resolved over a 20 minute period.

Atrial septal defect was found on transesophageal echocardiography.

As a fetus, the right to left shunt through the foramen ovale and the ductus arteriosus allows relatively little blood to reach the uninflated lungs. After birth there is a decrease in pulmonary artery vasoconstriction creating a large increase in pulmonary blood flow. Decreased pulmonary vascular resistance results in decreased right ventricle and atrial pressures. An increase in systemic vascular resistance causes an increase in left ventricle diastolic pressure, resulting in higher left atrial pressures. These pressure changes usually cause the foramen ovale to be sealed by the valve of the foramen ovale against the wall of the atrial septum [8].

A patent foramen ovale (PFO) is relatively common, affecting about 25 % of the adult population [9]. An atrial septal defect is the failure of atrial septal closure at locations other than the foramen ovale along the atrial septum. This occurs in about 2 per 1 000 live births, and while they often close spontaneously, about 15 percent of patients develop progressively pulmonary vascular disease [8].

Emboli from the venous system can reach the systemic arterial circulation by passing through an abnormal communication between the chambers of the heart. This was termed « paradoxical embolism » by Cohnheim in 1877 [10]. This right to left shunt can present with neurological abnormalities or features suggesting arterial embolism. When there is an intracardiac communication, right to left shunting can occur during mechanical ventilation and when right atrial pressure is elevated from pulmonary or cardiac disease. It can also occur during normal inspiration or after Valsalva maneuvers that occur with coughing and defacation [11].

Visual disturbances seem to occur more commonly following foam vs. liquid sclerotherapy [12]. 10 % of 100 patients who had been treated with a mean of 26 mL foam experienced transient neurological symptoms [13]. Foam bubbles seem to routinely get to the pulmonary circulation. Twenty-two patients were evaluated by transesophageal duplex following foam sclerotherapy [14]. Bubbles were seen in all patients as a moderate enhancing of pulmonary arterial flow. 10 of 10 patients treated with Varisolve® were noted to have bubbles in the right heart [15]. One of these patients had bubbles in the carotid artery and developed visual disturbance and a temporary decrease in a measure of cognitive function.

The visual and neurological events that can follow foam sclerotherapy may be secondary to bubbles entering the systemic circulation via an intercardiac communication. Valsalva maneuvers could cause a transient right-left shunt. To date there are no reports of long-term visual or neurological complications following foam sclerotherapy. More experience and research with this emerging modality will better delineate its risks as well as long-term efficacy.

CASE 3

The patient was a 55 year old male in otherwise excellent health and on no medications. He was treated for bilateral great saphenous vein incompetence in 1994 with a bilateral SFJ crossectomy. He did well post-operatively and had been essentially asymptomatic for the past 10 years.

In May 2004 he complained of bilateral increasing dependent edema and leg heaviness of one years duration. Physical exam confirmed bilateral large varices in the GSV distribution, thigh to ankle, with bilateral moderately advanced corona phlebectatica.

Duplex ultrasound showed that on the left he had developed pudendal varices that extended to the GSV with reflux to the ankle. On the right a duplicated GSV was found. Both branches were incompetent. The CFV, FV and PV were normal in both legs.

On 17 August 2004, the right GSV system was injected with a total of 3 cc of 3 % STS foam (Tessari, 3,5:1) under duplex guidance, just above the GSV bifurcation in the upper thigh. Post injection duplex confirmed foam dispersion down both GSV branches and vasospasm of the GSV to just below the knee. The patient tolerated the procedure well. He was placed in 30-40 mmHg stockings and instructed to walk for 20 minutes in the vicinity of the office. Post-op instructions included compression and ambulation.

The patient returned on 7 September 2004, and was found to have excellent sclerosis of the right GSV system. He had experienced no post-operative problems. The left GSV was then injected, just distal to the GSV-pudendal junction under duplex guidance, using 3 cc of 3 % STS foam prepared in the same fashion as the previous treatment. The procedure was well tolerated. The same compression and ambulation instructions were given.

At 5:30 that afternoon the patient's wife telephoned, and stated that she had come home from work to find her husband lying fully unclothed on the floor of her kitchen. He was barely arousable. His speech was dysarthric and he could not stand. He was taken to the hospital by ambulance. In the emergency room he continued to be dysarthric, ataxic and hypersomnolent. Reflexes were globally suppressed. CT of the brain was unremarkable and electrolytes, hemogram, EKG and urine analysis were normal. A toxicology screen was negative for barbiturates, amphetamines, benzodiazepines and cannabinoids.

A blood alcohol level was 0,198 mg/dl, which roughly equates to drinking 14 beers over a 5 hour period. The patient was observed for a few hours and released. He had fully recovered by the next day. Subsequent treatment with foam sclerotherapy was well tolerated.

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