Brain abscess associated with persistent left superior vena cava in a 58-year-old man

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DESCRIPTION

A 58-year-old patient with no medical history was diagnosed brain abscess (figure 1 A) 2 weeks after non-invasive dentistry (tartar removal, only). Biopsy showed pus, with *Fusobacterium nucleatum* in cultures. Blood cultures were negative. There was no clinical evidence for a Rendu-Osler-Weber disease (also called hereditary haemorrhagic telangiectasia). Antibiotics were administered during 6 weeks, with good efficacy. Echocardiography showed no sign of infective endocarditis. Contrast-enhanced echography highlighted a right-to-left shunt. Contrast-enhanced CT showed persistent left superior vena cava (PLSVC), coming from left jugular vein and draining directly into the left atrium (figure 1B,C).

Intracardiac and extracardiac shunts, such as intracerebral arteriovenous malformations associated with Rendu-Osler-Weber disease, are great providers of brain abscesses.¹⁻² The PLSVC is a common thoracic venous malformation,³ with a prevalence of 0.3–0.5% of the population. Superior cava venous system derives from the embryological cardinal veins. The left cardinal vein usually regresses (its distal portion giving birth to the coronary sinus), while the right one becomes the definitive superior cava vena. PLSVC is due to the non-regression of the left cardinal vein, often associated with anomalies or missing of the coronary venous sinus. In most of the cases, the PLSVC drains into the right atrium, through the coronary sinus. Here, the PLSVC drains into the left atrium, resulting in a right-to-left shunt. As a consequence, the non-invasive dental procedure

was probably associated with low-grade and short-duration *E. nucleatum* bacteraemia, which was not stopped by the pulmonary filter, but migrated right through the left cavities to the brain. A surgical closure of this right-to-left shunt is scheduled.

In a patient with cerebral abscess, intracardiac and extracardiac shunts have to be suspected, such as intracerebral arteriovenous malformations (associated with Rendu-Osler-Weber disease), atrial septal defect or thoracic venous malformation.

Learning points

- ▶ Persistent left superior vena cava (PLSVC) is a common thoracic venous malformation.
- ▶ PLSVC could drain directly into the left atrium, resulting in a right-to-left shunt.
- ▶ PLSVC could be associated with brain abscess following non-invasive dentistry.

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Competing interests None.

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Figure 1 Cerebral MRI showing a 27 mm large left parietal abscess (A); contrast-enhanced chest CT in coronal multiplanar reconstruction (B) and three-dimensional reconstruction (C) showing the normal right superior vena cava (green arrow in B and C) and a persistent left superior vena cava (with central venous catheter, red arrow in B and C), draining into the left atrium.

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