Venous stenting as a treatment for pacemaker-induced superior vena cava syndrome

Mise en place d’un stent pour traiter un syndrome cave supérieur en relation avec un stimulateur cardiaque

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An 86-year-old woman was referred to our institution for pacemaker dysfunction (right ventricular complete lead fracture; Fig. 1). She had had double-chamber pacemakers (three device replacements) for complete atrioventricular block for 30 years. A new ventricular lead was inserted via a right subclavian vein puncture. One year later, she started complaining about swollen eyelids and bloating of the head. The physical examination was normal except for gross distension of the neck veins. Contrast enhanced computed tomography confirmed partial intravascular obstruction of the superior vena cava (SVC) due to possible thrombosis. Anticoagulation therapy with 10 days (heparin infusion followed by oral anticoagulants) failed to relieve the symptoms, which became progressively worse. General oedema of the upper body, increasing varicosities at the surface of the skin around the navel and large internal haemorrhoids were observed.

Abbreviation: SVC, superior vena cava.
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Venous stenting for superior vena cava syndrome

Superior venocavography showed proximal stenosis of the SVC with drainage via the azygous system (Figs. 2 and 3). A self-expanding Wallstent® (Boston Scientific Corp., Natick, MA, US), 6 cm in length, was inserted and deployed within the stenosis (Fig. 4). The pacing electrodes were fixed between the wall of the SVC and the Wallstent® (Fig. 5). Subsequent angiography showed free flow of contrast into the right atrium (Fig. 6).

Within 24 hours of the procedure, congestion of the upper body had resolved. Warfarin was prescribed. At follow-up, 6 weeks after the procedure, the previous symptoms and signs had resolved completely and the pacemaker was functioning normally.
SVC syndrome caused by stenosis around the leads (three in this case) is rare. This report demonstrates that stents can be used safely in severe cases of SVC syndrome. The Wallstent\textsuperscript{®} is recommended to avoid electrode damage; however, leads are trapped and cannot be removed in case of infection. This major limitation has to be taken into account.

**Disclosure of interest**

The authors declare that they have no conflicts of interest concerning this article.