Endovascular treatment of superior vena cava obstruction helping permanent pacing

Traitement endovasculaire de l’obstruction la veine cave supérieure permettant une stimulation cardiaque permanente

Cyrus Moini, Mario Auguste, Grégory Schoukroun, Jean-Marc Pernes, Patrick Dupouy

A 58-year-old woman with a right pulmonary adenocarcinoma complicated by cerebral metastases, treated for six months with chemotherapy (docetaxel-cisplatin) through an internal catheter via the left subclavian vein and cerebral radiotherapy, was admitted with a new history of dizziness and presyncope episodes. She had been diagnosed previously with paroxysmal atrial fibrillation and treated with amiodarone to maintain sinus rhythm. The Holter monitor, performed during admission, confirmed multiple pauses of up to five seconds.

Before performing permanent pacing, we took the precaution of performing venography and a thoracic angioscan because of the neoplastic history and the left internal catheter. We discovered complete occlusion of the superior vena cava (SVC) (Fig. 1) and attempted to recanalize the SVC using percutaneous transluminal angioplasty.
The left communicant basilic vein was cannulated and an 8-Fr sheath was inserted using the Seldinger technique. The SVC obstruction was crossed with a stiff 0.035-inch hydrophilic wire (Terumo Medical Corporation, Somerset, NJ, USA) and inflation was done using a non-compliant 7.0 × 40 mm ultra-thin balloon (Dorado™, Bard Ltd., Crawley, UK) (Fig. 2). The next step was to remove above the site the distal extremity of the internal catheter using a lasso (25 mm goose-neck) before stenting (Fig. 3). We completed by stenting with two manuals crimping expandable stents (Palmaz Genesis PG 59 mm and 39 mm) that were overexpanded with a 12 mm, then a 14 mm and finally a 16 mm balloon. Venography demonstrated wide patency of the SVC covering the neoplastic stenosis (Fig. 4). The procedure ended with repositioning of the distal extremity of the internal catheter using the same lasso. Two days later, we implanted the dual chamber pacemaker with no complications, using active screw leads in both cavities (Fig. 5).

This case demonstrates the successful application of angioplasty to facilitate endocardial insertion of permanent pacemaker leads, even in case of neoplastic occlusion of the superior vena cava.

Figure 1. Venogram showing complete occlusion of the superior vena cava.

Figure 2. Balloon inflation of the superior vena cava using a 7.0 × 40 mm balloon.

Figure 3. Removing above the site the distal extremity of the Portacath.

Figure 4. Venogram showing patency of the previously occluded superior vena cava.
SVC. We believe that the use of angioplasty in the setting of cardiac pacing is likely to increase, not only in cases such as this one, but also with the advent of biventricular pacing and defibrillation.

**Disclosure of interest**

The authors have not declared any conflict of interest.

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**Figure 5.** Right implantation of the dual chamber pacemaker.