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Image in Medicine

MARSHALL'S VEIN PERSISTENCE: A RARE AND OCCASIONAL FINDING DURING PACEMAKER IMPLANTATION

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ABSTRACT

In adults the oblique vein of Marshall is usually absent or very thin, and it is hard to be found. In this case report we describe a case of persistence observed during pacemaker implantation.

Key words: vein of Marshall, vascular diseases, pacemaker implantation

INTRODUCTION

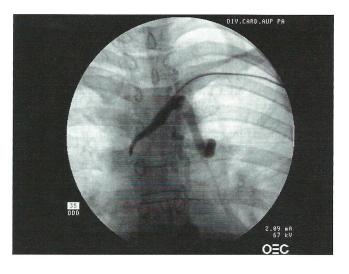
The persistence of Marshall's oblique vein allows the return of venous flow from the superior vena cava system to the right side of the heart, without haemodynamic disturbance. It is rarely found in a normal population, with a slightly higher incidence in patients with congenital heart disease (3%-10%) (1).

We describe a case of persistence of Marshall's vein observed during pacemaker implantation.

CASE REPORT

A 54-year-old man was admitted to our division for syncope. The routine blood tests and the electrocardiogram were normal. An advanced atrioventricular block was observed during continuous ECG monitoring. For this reason he underwent dual chamber pacemaker (PM) implantation.

Left cephalic vein was isolated, but the right ventricular lead introduction failed, because it was impossible to reach the superior vena cava, even if metallic guidewire was used. After a venography we found an abnormal connection between the left brachiocephalic venous system and the



superior vena cava (Marshall's vein persistence, see figure 1). The implantation was performed later by the right side approach without problems.

DISCUSSION

The superior vena cava system derives from the cardinal veins and flows into the primitive venous sinus through the ducts of Cuvier. An anastomosis between the two anterior cardinal veins, the left brachiocephalic (innominate) vein, diverts the left superior systemic venous flow directly into the right anterior cardinal vein (right brachiocephalic vein). The left duct of Cuvier and the left cardinal anterior vein below the anonymous vein, compressed between the left atrium and the pulmonary hilum, will gradually get obliterated becoming a fibrous ligament or vein of Marshall, while the proximal portion of the horn of the left venous sinus will persist as coronary sinus (2, 3). The Marshall oblique vein in

adults is usually absent or very thin. It descends obliquely downward and right until the diaphragmatic face of the left atrium reaches the coronary sinus. It plays an important embryogenetic role acting as the vestige of the left superior vena cava of the embryo (4). Although Marshall's vein persistence is a rare finding during PM implantation and can be solved with a contralateral approach, this brief report could be helpful to keep in mind how to recognise it, avoiding unnecessary and potentially dangerous attempts during leads implantation.

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