

## Scientific letters

### Catheter-Related Thrombosis in Left Superior Vena Cava

#### *Trombosis sobre catéter en vena cava superior izquierda*

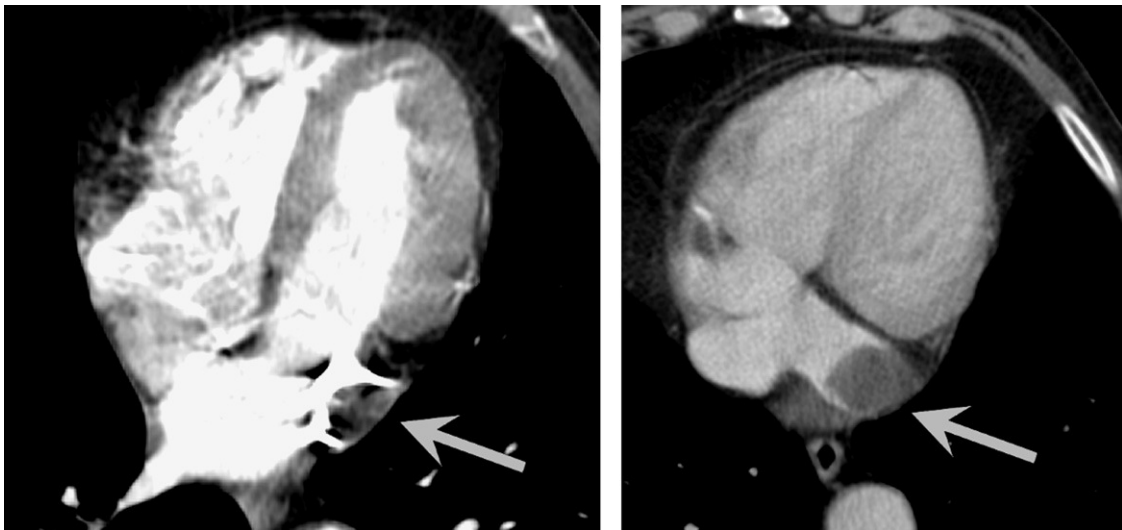
#### To the Editor,

We present the case of a 73-year-old man with a peripheral access central catheter (Drum), from the left upper extremity, for total parenteral administration of nutrition due to digestive problems. By chance, upper slices of a contrast abdominal computerized tomography (CT) study revealed what could be described as “left atrial mass” (Fig. 1). Transthoracic echocardiography showed a highly dilated coronary sinus occupied by abundant echogenic material of possibly thrombotic origin (Fig. 2).

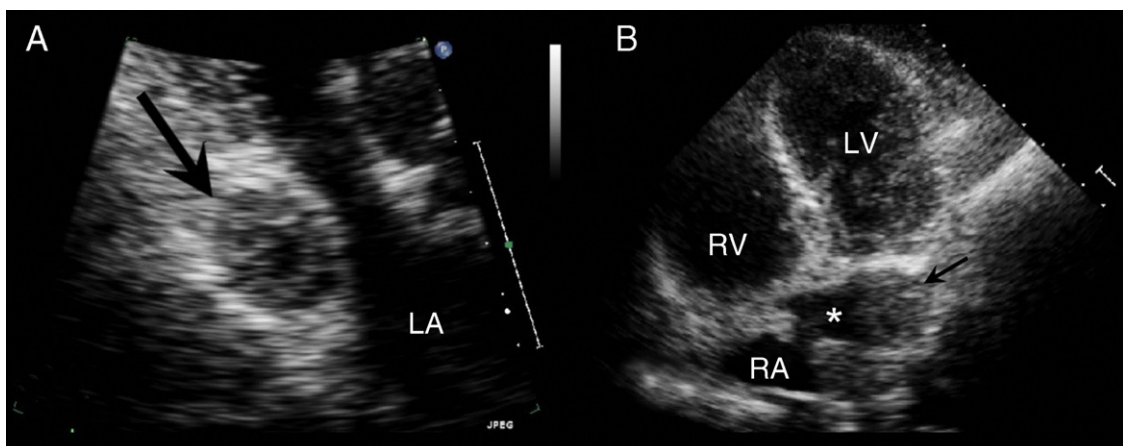
Given these findings, we checked the central catheter placement and in the control X-ray following Drum deployment found that it followed a trajectory through the left superior vena cava.

Transesophageal echocardiography was used to clarify the diagnosis and confirmed catheter placement was in the left superior vena cava, with abundant thrombotic material located between the catheter tip and coronary sinus. Agitated saline solution injected through the catheter could also have helped complete the diagnosis. However, we chose to avoid this maneuver given we might have dislodged emboli during the infusion.

Despite these findings, the catheter remained permeable and we observed no thrombosis-derived symptoms. The patient was administered anticoagulation therapy (initially with sodium heparin and later with oral anticoagulants). The first control



**Figure 1.** Contrast thoracoabdominal computerized tomography. Note the presence of a defect in repletion close to the left atrium (arrows) although the first images following contrast injection (left) show the defect is really located in a vascular structure posterior-lateral to the atrium (compatible with left superior vena cava and its continuation in the coronary sinus).



**Figure 2.** Transthoracic echocardiography. A: detail of the long parasternal axis; note a highly dilated coronary sinus protruding towards the left atrium with echolucent content. B: apical 4-chamber plane, modified with posterior projection to include coronary sinus drainage (\*) into the right atrium; note the presence of thrombotic material in the coronary sinus (arrow). LA, left atrium; LV, left ventricle; RA, right atrium; RV, right ventricle.

echocardiogram (at 1 week) revealed the continued presence of thrombus. We therefore decided to withdraw the catheter, without initial resolution of the clot. However, 2 weeks later we found it had disappeared.

Persistent left superior vena cava is a relatively frequent anatomic variable of central venous drainage (1% in the general population). It is often found during central catheter placement or when using imaging techniques.<sup>1</sup> Catheter placement using this access is not contraindicated and pacemaker electrode deployment via this route has been described elsewhere.<sup>2</sup> However, both in central catheter placement and pacemaker electrode deployment, control X-ray projections must be studied to exclude anomalous trajectories. In selected cases, echocardiography is useful in clarifying catheter location with respect to cardiac structures.<sup>3</sup>

We have found no other cases of catheter thrombosis in the left superior vena cava in the literature. Hence, we consulted general guidelines on deep vein thrombosis to decide what action to take. Guidelines include catheter withdrawal, anticoagulation therapy or fibrinolysis<sup>4</sup> and, occasionally, thrombectomy by aspiration,<sup>5</sup> or surgical withdrawal of the clot.<sup>6</sup> Several studies discuss the hypothetical chance that fibrinolysis and catheter withdrawal might help dislodge fragments of thrombotic material, although results of series reported show catheter withdrawal can be performed safely.<sup>4</sup> In our patient, given good clinical tolerance and the large amount of thrombotic material, we initially decided against manipulating the catheter. However, faced with no initial improvement, we finally opted for withdrawal, which gave rise to no complications and enabled us to resolve the patient's condition.

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## Increased Mortality in Patients With Diabetes Associated With Olmesartan for the Prevention/Delay of Microalbuminuria Onset: a Matter of Concern?

**Aumento de mortalidad asociado a olmesartán en pacientes diabéticos para la prevención o retraso de microalbuminuria: ¿es una causa de preocupación?**

To the Editor,

Microalbuminuria cannot be ignored by cardiologists because it is considered a predictor of coronary artery disease in patients with type 2 diabetes. Angiotensin II receptor blockers (ARB-II) have been accepted nephroprotective agents in patients with type 2 diabetes with microalbuminuria since publication of the Irbesartan Patients with Diabetes and Microalbuminuria (IRMA-2) study.<sup>1</sup> In patients with macroalbuminuria, the Reduction of Endpoints in NIDDM with Angiotensin II Antagonist Losartan (RENAAL)<sup>2</sup> and Irbesartan in Diabetic Nephropathy Trial (IDNT)<sup>3</sup> studies showed a slowing of progression to terminal kidney disease. However, in patients with diabetes with microalbuminuria, the Diabetic Retinopathy Candesartan Trial (DIRECT)<sup>4</sup> showed no significant reduction in microalbuminuria.

Recently, the Randomized Olmesartan and Diabetes Microalbuminuria Prevention (ROADMAP) study<sup>5</sup> has been published. Interestingly, it found that the use of olmesartan vs placebo to be associated with a significantly reduced incidence of microalbuminuria (23% relative reduction). However, it also showed

increased incidence of cardiovascular death with olmesartan (15 vs 3 patients;  $P = .01$ ), mainly due to sudden cardiac death (7 patients vs 1) and death from myocardial infarction (5 patients vs 0). Any-cause mortality was unfavorable, but non-significant, for olmesartan (26 vs 15 patients).

In an attempt to clarify this recent concern, we aimed to determine the safety in terms of mortality of ARB-II use in patients with type 2 diabetes with normoalbuminuria, microalbuminuria or macroalbuminuria in a combined analysis.

The present meta-analysis included all randomized placebo-controlled studies of patients with type 2 diabetes and using ARB-II in the intervention group, published in English- or Spanish-language peer-review journals that present mortality data (at least any-cause mortality). We conducted a systematic review of MEDLINE/PubMed and ISI Web-of-Knowledge databases until April 2011. The search terms were *losartan*, *irbesartan*, *valsartan*, *olmesartan*, *candesartan*, *eprosartan*, *telmisartan*, combined with *diabetic nephropathy* and *randomized trial*. We also reviewed meta-analyses and recent review articles.

We calculated the relative risk (RR) with 95% confidence interval using Mantel-Haenszel weighting. We determined heterogeneity using Cochran's Q test and the H- and I-statistics.<sup>2</sup> Publication bias was determined using the Egger and Macaskill method. We also performed an analysis of sensitivity. Statistical analysis was with SPSS 15 and the Domenech JM macro (Macro!MAR for SPSS Statistics, V2010.04.15. UAB).

Of 459 articles, only five met our inclusion criteria<sup>1-5</sup> (1.1%); these included 9603 patients (Table 1). Essentially, the causes of exclusion were: a) nonrandomized design; b) lack of placebo