Trans-septal catheterization: a new frontier in clinical electrophysiology?

See page 943 for the article to which this Editorial refers

Invasive clinical electrophysiology started with recording His bundle potentials from the right side of the heart\textsuperscript{[1,2]}. Additional intracardiac recordings and the use of programmed electrical stimulation form the basis of current electrophysiological study. Surgical cure of ventricular tachycardias arising from the left ventricle has prompted recording and mapping of the left ventricle using the trans-aortic approach\textsuperscript{[3]}. The catheter ablation era has definitely extended the field of clinical electrophysiology to the left side of the heart. The need to ablate left-sided accessory atrioventricular accessory connections, to ablate ventricular tachycardias (left fascicular tachycardias and tachycardias related to coronary artery disease) has also required catheterization of the left ventricle. Deshpande et al.\textsuperscript{[4]} suggested that ablation of left free wall accessory connections could be performed successfully using a trans-septal approach as a first line option. However, most authors are still using the trans-aortic technique, the trans-septal 'route' being restricted to failure to ablate the accessory pathway through the trans-aortic approach. The trans-septal approach, which consists in catheterization of the left atrium from the right atrium by perforating the inter-atrial septum, was introduced by Ross et al.\textsuperscript{[5]}. Renewed interest in this technique is due to mitral valvuloplasty and left heart catheterization in patients with aortic prostheses.

Shwartz et al.\textsuperscript{[6]} and Haissaguerre et al.\textsuperscript{[7]} showed the need for linear lesions in the left atrium to successfully achieve catheter ablation of atrial fibrillation. Atrial ablation using catheter techniques is still regarded as experimental and at an investigational stage. It certainly requires a trans-septal approach. Ablation of an ectopic focus located in the left atrium requires use of the trans-septal route.

De Ponti et al.\textsuperscript{[8]} in this issue report on an impressive experience with trans-septal catheterization in performing radiofrequency catheter ablation of a variety of cardiac arrhythmias. The technique described is a 'simplified' technique. It does not require a pigtail catheter for identification of the aortic root, or pressure recordings as it is designed for use in the electrophysiology laboratory. The routine use of the His bundle catheter allows identification of the aortic valve (opposite the non-coronary cusp) and the coronary sinus indicates the infero-posterior border of the left atrium and the orientation of the mitral ring. This technique appeared safe in the hands of the authors as only five of 411 patients experienced non-lethal complications. A word of caution should be raised as the risk of complications, and particularly aortic perforation, is not negligible. We believe this technique should not be performed without an appropriate training in qualified centres. De Ponti et al.\textsuperscript{[9]} do acknowledge that in the beginning they used the skills of haemodynamicians familiar with this technique. Independent use in the electrophysiological laboratory was achieved after a certain level of experience. They did report three major and life-threatening complications (one cerebral stroke, two cardiac perforations) which appeared to be unrelated to the trans-septal catheterization. Perforation of the right atrial free wall ascribed to the technique was also observed.

Nevertheless, it is likely that trans-septal catheterization will become increasingly used in the electrophysiological laboratory when it is necessary to ablate atrial tachycardias. Recently Jais et al.\textsuperscript{[8]} were able to cure atrial fibrillation related to rapidly firing atrial focus located in the pulmonary veins. Trans-septal catheterization will probably become the new frontier of interventional electrophysiology.

S. LÉVY
Hôpital Nord,
University of Marseille,
France

References


