INNOVATIVE TECHNIQUES

UNIQUE IMAGE REVIEW


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Mapping and ablation of accessory pathways have evolved a great deal over the past few decades as catheters have replaced the need for open heart surgery procedures. More recently, catheter-based mapping of accessory pathways has evolved even further to remote movement based on technologic advances in the field. Magnetic navigation systems (MNSs) have allowed operators to move soft, pliable catheters for mapping while reducing the need for fluoroscopy, and yet still maintaining efficacy during ablation.1–3 Here, we present images showing a unique method of moving a catheter magnetically during mapping followed by ablation.

A 30-year-old man with pre-excitation by electrocardiogram was brought to the electrophysiology (EP) laboratory for recurrent tachycardia and palpitations. He also had a history of surgical patent ductus arteriosus (PDA) closure as a child. During diagnostic EP testing, he was found to have a left-sided bypass tract participating in orthodromic tachycardia. Transseptal access was attempted but could not be performed successfully because of difficulty passing the needle across the septum. Therefore, a retrograde aortic approach was used to position the ablation catheter on the left side of the heart. To avoid ventricular ectopy during mapping, a remote MNS was used with a 4-mm tip magnetic ablation catheter. Magnetic vectors were moved to allow...
for the positioning of the body of the catheter into the left atrium to achieve stability. Figure 1 shows a right anterior oblique view of the catheter with the proximal portion prolapsed into the left atrium and the tip of the ablation catheter just underneath the mitral valve. Figure 2 shows successful ablation of the bypass tract with a single radiofrequency application using the catheter position shown.

We outline here the use of an older form of access, the retrograde aortic approach using a remote magnetic technology (RMT) catheter for the ablation of a left-sided accessory pathway. In the early days of ablation, retrograde aortic approaches were commonly used to access the left side of the heart. However, in more recent years, transseptal access has become more popular as the safety and experience of this technique has increased. With the retrograde aortic approach, use of an RMT catheter can be difficult, as the soft catheter is not always easily passed across the aortic valve. Generally, the soft catheter can either be prolapsed across the valve, or guided straight across keeping the catheter straight using a magnetic vector pointed towards the left ventricular apex. Unique to this case is the use of the left atrium, where the proximal body of the catheter was prolapsed for stability. Adoption of newer technologies such as remote magnetic navigation will also require development of techniques to move and position the catheter. The technique of prolapsing the proximal portion of the catheter into the left atrium may be a useful approach when mapping accessory pathways using a retrograde aortic approach with an MNS. The two major advantages of this include the reduction of ventricular ectopy from the catheter and improved catheter stability. Although this cannot be done with conventional manual ablation catheters, remote magnetic navigation catheters are soft and pliable and can be positioned in unique ways. We hope that electrophysiologists will continue to “think outside the box” when adopting these newer technologies.

References