Radiofrequency ablation is the preferred treatment for typical cavotricuspid isthmus-dependent atrial flutter and involves the creation of an electrically inactive scar extending across the cavotricuspid isthmus.¹ This results in a break in the re-entrant circuit that is integral to this arrhythmia. The success of this anatomical ablation is typically proven by demonstrating bidirectional isthmus conduction block:² pacing from either side of the ablation site shows a delay in the time taken for the spread of activation to the opposite side and also a change in the activation pattern along the isthmus.

In this report, we illustrate the presence of isthmus block during sinus rhythm in a 44-year-old man after successful radiofrequency ablation of typical isthmus-dependent atrial flutter. A duodecapolar (2–10–2 mm interspace) catheter was positioned traversing the tricuspid valve annulus-inferior vena cava isthmus with its distal electrode (M1) in the distal coronary sinus and its proximal electrode (M10) along the right atrial freewall. Figure 1a shows the intracardiac electrograms (EGMs) at baseline with the patient in sinus rhythm. Surface electrocardiogram leads I, II, aVF and V1 are shown at the top. The duodecapolar catheter recordings are shown below, arranged sequentially from proximal to distal electrodes. EGMs were recorded at a sweep speed of 100 mm/s. At baseline, atrial activation spreads from the right atrial freewall to the distal coronary sinus, i.e. from M10 to M1. During the procedure, ablation was performed between the M5 and the M6 electrodes. Figure 1b shows the EGMs during sinus rhythm following ablation. EGMs were recorded at a sweep speed of 200 mm/s. A distinct break in the spread of activation is noted between M6 and M5. Atrial activation spreads sequentially from M10 to M6, after which M2 is the next earliest site to be activated, most likely from conduction via Bachman’s bundle. Activation then spreads towards the proximal coronary sinus from M2 to M5. Figure 2 shows cine images depicting the catheter positions in the left anterior oblique 45-degree and right anterior oblique 30-degree projections. Successful isthmus block after radiofrequency ablation for typical atrial flutter is thus manifest even during sinus rhythm.

References
Figure 1: Intracardiac electrograms during sinus rhythm at baseline before radiofrequency ablation: (a) paper speed 100 mm/s and after ablation (b) paper speed 200 mm/s.)
Figure 2: Cine images showing the position of the duodecapolar catheter along the tricuspid valve annulus proximally extending into the coronary sinus distally in left anterior oblique 45-degree and right anterior oblique 30-degree projections. Also seen are a decapolar catheter in the His position and the ablation catheter at the lower lateral right atrial wall.