is uncommon, but may be difficult to manage without permanent pacing. Three of 400 consecutive pts (0.8%) with AVNRT referred for catheter ablation had PR intervals >300 ms in the absence of AV nodal blocking drugs. None had evidence of spontaneous AV block, infranodal conduction disease, or symptomatic bradycardia. All failed prior trials of low dose AVN blocking drugs and/or class I antiarrhythmics. Age ranged from 58–84 yrs. At baseline (B), AH intervals were 240–345 ms. AV Wenckeback occurred at a paced CL of 600–550 ms at B, and 390–430 ms during isoproterenol (I) infusion. Dual pathway physiology was not observed at B or during I in any pt. Retrograde FP conduction was present in all pts; VA Wenckebach occurred at paced CL of 700–580 at B, and 340–380 ms during I. Typical AVNRT was induced in each pt only during I (380, 420, 470 ms) with HA intervals of 133, 90 and 45 ms respectively. The atrial exit of the retrograde FP was targeted for ablation. VA block was produced in each pt without significant alteration in AH interval or paced AV Wenckebach CL. During follow-up of 8, 12 and 20 months, all pts remained asymptomatic, without recurrent AVNRT, AV block or symptomatic bradycardia. At last follow-up, the PR interval was unchanged for preablation values.

Conclusions: In pts with recurrent AVNRT and markedly prolonged PR intervals, selective ablation of the retrograde FP can eliminate AVNRT without resulting in further impairment of antegrade AVN function. In such pts without preexisting indication for pacing, retrograde FP ablation may be considered an effective alternative which defers or eliminates the need for subsequent permanent pacing.

1099-169 Multi-electrode Stretching Catheter for Creation of Linear Radiofrequency Lesions in the Atrium: Comparison With Standard Multi-electrode Design and Dragging Approach

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Radiofrequency (RF) ablation techniques for atrial fibrillation require the creation of long linear lesions in an attempt to compartmentalize the atria. We compare linear lesions with 1) a multi-electrode catheter designed to stretch the atrial wall (A. Stretch), 2) a standard multi-electrode catheter (Standard), 3) and the dragging technique. Catheter performance was assessed in 16 adult ovines. Lesions with the multi-electrode catheters were made by delivering RF energy for 60 sec at 70°C through each coil. Pacing thresholds were tested at each coil before and after each lesion. Drag lesions were made with a 4–6 mm tip catheter and retraced at least twice. The table shows the total lesion length (mm), the longest continuous lesion (mm) and the mean fluoroscopy time (minutes).

	A Stretch	Standard	Dragging
Total Length	45.1 ± 21.9	26.5 ± 6.1	32.8 ± 12.4
Longest Continuous	30 ± 15.3	19 ± 8	30 ± 14
Fluoroscopy Time	2.9 ± 1.1	7.0 ± 3	17.2 ± 4

For lesions in trabeculated regions the average number of electrodes with good pacing threshold was nine with the atrial stretch and four with the standard multi-electrode catheter. The atrial stretch catheter makes significantly longer lesions with shorter fluoroscopy time. This design allows the catheter to conform better to the anatomy of the atria and may also flatten the irregular endocardial surface improving electrode contact.

1099-170 Mapping of Koch's Triangle and Slow Pathway Ablation Guided by Nonfluoroscopic Electroanatomical Imaging

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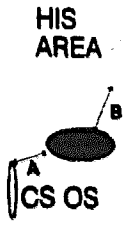
We used a novel magnetic catheter tracking system with precise spatial localization (Biosense) to map Koch's triangle and direct slow pathway ablation in 10 pts with typical atrioventricular nodal reentry (AVNRT). Mapping and ablation were performed in sinus rhythm. The area over which His potentials were recorded was tagged, as were the borders of the coronary sinus (CS) os. The area of Koch's triangle was 3.33 ± 1.23 cm^2, range 1.76–5.58 cm^2, and correlated with right atrial volume (mean 59 ± 15 ml, r = 0.89, p = 0.002). The mean CS os diameter was 10 ± 2 mm, and the mean recordable His area was 0.71 ± 0.25 cm^2. Radiofrequency applications (RFA) were directed to a circumscribed area (black oval) anterosuperior to the roof of the CS in the right lateral projection. A median of 2 RFA produced junctional rhythm and eliminated previously inducible AVNRT in each pt. The successful RFA was 13 ± 6 mm anterosuperior to the roof of the CS os (A), and 15 ± 2 mm below the most inferior His (B).



Conclusions: Electroanatomical imaging facilitates identification and visualization of spatial relationships within Koch's triangle. In this preliminary study, the constancy of successful RFA sites in relation to fixed landmarks despite a broad range of atrial dimensions suggests a potential role for this mapping technique in the treatment of AVNRT.

1099-171 Valve Function Abnormalities After Radiofrequency Catheter Ablation of Left Atrioventricular Accessory Pathway: Long-term Follow-up

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Background: A systematic long-term Doppler-echocardiographic (DPE) evaluation on valve function in patients with left-sided accessory pathways (AP) submitted to radiofrequency ablation (RFA) is not available.

Methods: Color Doppler-echocardiograms to grade aortic (AOR) and mitral regurgitation (MR) were prospectively obtained from two hundred patients submitted to RFA, from August 1992 to August 1995. RFA procedure was performed with the retrograde aortic approach when the ablation catheter is placed beneath the mitral valve leaflet on the ventricular aspect of the annulus. AOR and MR were classified using 3 grades of severity. DP were obtained before 2 weeks, 6, 12 and 24 months after RFA procedure.

Results: One operator performed two hundred twenty-two procedures to ablate 206 accessory pathways. They were divided in 3 groups.

One hundred and eighty-four, 10 and 6 patients were submitted to 1, 2 and 3 procedures respectively and valve R developed in 8 pts. After a mean follow-up of 32 ± 10 months, no new valve abnormality was detected.

Groups	1	2	3
Number (n) RFA procedures	1-50	51-100	101-222
Mean n of RF applications	12 ± 6	9 ± 8	5 ± 4
Procedure Duration (min)	160	130	120
Mitral Regurgitation (n pts)	5	1*	0
Aortic Regurgitation (n pts)	1	0	0
MR + AOR (n pts)	1	0	0
Valve Surgery required	0	1	0

*Pt had severe MR because of papillary muscle rupture in the third day after the procedure needing surgical intervention.

The development of AOR and MR was related to the number and time of procedures and independent of number of applications or AP location.

Conclusions: 1) The occurrence of valvar abnormalities was related to operator learning curve experience. 2) Long-term follow up fails to demonstrate increase in valvar regurgitation.

1099-172 Epicardial Localization of Ventricular Outflow Tract Tachycardias

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A total of 42 pts underwent electrophysiologic testing and attempt for intervention for initial (ECG-) diagnosis of an arrhythmia generating from the right ventricular outflow tract (RVOT). In 22 of these pts the underlying arrhythmogenic substrate (AS) was localized and sequentially ablated with the use of radiofrequency current (RFC) from within the endocardial aspect of the RVOT. The left ventricular outflow tract (LVOT) was additionally studied in 3 of the remaining pts and as a consequence of failing AS-localization in both cardiac chambers an epicardial, transvenous mapping of RVOT and LVOT was performed in 2 of them. For this purpose a 2 French multipolar mapping catheter was introduced along the coronary venous route into the anterior region between RVOT and LVOT. In contrast to the results coming from the endocardial mapping where no preceding of the local ventricular activity (LVA) compared to onset QRS-complex was achieved (pacemap), epicardial mapping resulted in an identical pacemap in both pts. In one of the