5. ATRIAL TACHYCARDIA, ATRIAL FLUTTER & WPW SYNDROME

5.1 ABLATION OF INCISIONAL REENTRANT TACHYCARDIA CAUSED BY LUNG TRANSPANTATION

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A 58 year old female underwent orthotopic left lung transplantation for emphysema. She enjoyed rapid recovery from her surgical procedure but developed almost daily episodes of symptomatic palpitations, persisting 32 months following transplant.

Electrocardiogram demonstrated atypical atrial flutter, and she reported to the electrophysiology (EP) laboratory for mapping and catheter ablation. At EP study, she was found to have left atrial flutter, cycle length 230 ms, with variable atrioventricular conduction. Entrainment and activation mapping were both consistent with left atrial origin. Transseptal mapping demonstrated high frequency fractionated diastolic atrial electrograms recorded from the site of posterior anastomosis between the grafted pulmonary vein and the left atrium. Post pacing intervals recorded from this site were identical to the tachycardia cycle length. A single radiofrequency lesion terminated the tachycardia, rendering the patient noninducible. She has remained free of symptoms for over six months post ablation.

This is the first published report of incisional reentrant atrial tachycardia involving a lung transplant. Standard entrainment mapping and radiofrequency ablation techniques proved satisfactory in curing the arrhythmia.

5.2 A NEW APPROACH TO CAVO-TRICUSPIDAL ISTHMUS ABLATION

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Aim: cavo-tricuspidal isthmus (CTI) block assessment using right ventricular (RV) pacing in pts with ventriculo-atrial conduction.

Methods: pts submitted to CTI ablation for typical atrial flutter were studied with a quadrupole catheter in RV, a decapolar in the coronary sinus (CS), an eicosapolar around the tricuspid annulus and an 8 mm ablator. Circumnular activation (CA) was analysed during CS and RV pacing in pts with spontaneous sinus rhythm or cardioverted during ablation. Pts without ventriculo-atrial conduction were excluded. The linear lesion was performed during RV pacing, looking at atrial signals splitting. CTI block was confirmed by analysis of CA during CS and RV pacing.

Results: out of 15, 9 (60%) pts were included. Before ablation, during RV stimulation, the collision front of CA shifted counter clockwise with respect to CS pacing, without variation of Halo-like catheter activation time (82±31 ms vs 77±26, p<0.49). After ablation, CA was similar during CS and RV pacing, showing fully descending lateral right atrium activation (115±33 ms vs. 103±29, p=0.09). Double potentials on the ablation line were more splitted during CS pacing than RV pacing (126±24 ms vs. 108±20 ms, p=0.009), but less detached from the V wave. All pts were successfully ablated.

Conclusions: in pts with ventriculo-atrial conduction, RV pacing can substitute CS pacing in the assessment of isthmus block.

5.3 LATERAL LINE VERSUS SEPTAL LINE FOR ABLATION OF ISTHMUS DEPENDENT ATRIAL FLUTTER - EFFICACY, SAFETY

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We ablated 26 patients with atrial flutter; in 13, a lateral line (LL) of isthmus block was drawn; in the other with draw a septal line (SPT); we used 8 mm non-irrigated tip catheters (60W power (PW); maximal temperature (TEMP) of 54°C (LL). In SPT we interrupted radiofrequency with high rate junctional rhythm (HRH) and looked for another finding may have implications for optimal patient selection for AFL ablation.

Figure 1. Kaplan-Meier estimates of the time to atrial fibrillation occurrence post-ablation in patients with EF ≤ 35% (solid line) and EF 36-55% (dotted line).

5.4 SEVERE LEFT VENTRICULAR SYSTOLIC DYSFUNCTION INCREASES ATRIAL FIBRILLATION AFTER ABLATION OF ATRIAL FLUTTER

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Introduction: Severe left ventricular systolic dysfunction (LVSD) is associated with a high incidence of atrial fibrillation (AFib). Afib that occurs after a successful atrial flutter (AFL) ablation may negate the potential benefits of the ablation. We hypothesized that severe LVSD increases the incidence of post-ablation Afib despite a successful AFL ablation.

Methods: 90 consecutive patients with LVSD who underwent ablation for AFL at Montefiore Medical Center from August 2001 to January 2005 were classified according to the severity of LVSD. Group 1 (n=36) consisted of patients with EF ≤ 35%, and group 2 (n = 54) consisted of patients with EF 36-55%. There were no statistically significant differences in baseline patient characteristics between the 2 groups.

Table 1. Baseline patient characteristics (N=90)

<table>
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<tr>
<th>Age (yrs)</th>
<th>Male</th>
<th>EF %</th>
<th>Prior AFib</th>
<th>Ischemic</th>
<th>Dilated RA</th>
<th>LA size (mm)</th>
<th>AFL duration (mth)</th>
<th>Prior AADs</th>
<th>Group 1 (n=36)</th>
<th>Group 2 (n=54)</th>
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<tbody>
<tr>
<td>54±17</td>
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<td>30±7</td>
<td>16±4</td>
<td>10±2</td>
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<td>36 (12)</td>
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*p<0.01. The success with LL and SPT was similar; PW and TEMP were reduced in SPT, pulses interrupted with HJR. SPT was safe with less PW; SPT required higher number of pulses TDTP was longer.

Conclusion: After an AFL ablation, severe LVSD increases the incidence of AFib (11% vs. 7.4%, p=0.004) independent of a prior history of Afib. This finding may have implications for optimal patient selection for AFL ablation, and the use of adjunctive therapies.

5.5 UTILITY OF LONG INTRODUCER SHEATH DURING TRANS-CATHETER ABLATION OF RIGHT SIDED ACCESSORY PATHWAYS

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We ablated 26 patients with atrial flutter; in 13, a lateral line (LL) of isthmus block was drawn; in the other with a septal line (SPT); we used 8 mm non-irrigated tip catheters (60W power (PW); maximal temperature (TEMP) of 54°C (LL). In SPT we interrupted radiofrequency with high rate junctional rhythm (HRH) and looked for another finding may have implications for optimal patient selection for AFL ablation.