

## **Catheter ablation of atrial fibrillation: radiofrequency catheter ablation for redo procedures after circumferential pulmonary vein isolation with the cryoballoon technique**

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Catheter ablation has become the first line of therapy in patients with symptomatic, recurrent, drug-refractory atrial fibrillation. Cryoablation has been shown to be a safe and effective technique for pulmonary vein isolation. However, the arrhythmia recurrence rate is high after cryoablation procedures and there are no established strategies for redo procedures in these patients. Therefore, we have summarized our initial experience with two different strategies for redo procedures using radiofrequency catheter ablation.

**Methods:** Fifteen patients (paroxysmal AF: 11 patients, persistent AF: 4 patients) had to undergo a redo procedure after initially successful circumferential PV isolation with the cryoballoon technique (Arctic Front Balloon, CryoCath Technologies). The redo ablation procedures were performed using a segmental approach or a circumferential ablation strategy (CARTO; Biosense Webster) depending on the intra-procedural findings.

**Results:** During the redo procedure, a mean number of  $2.1 \pm 0.4$  re-conducting PVs were detected (using a circular mapping catheter). In 12 patients, a segmental approach was sufficient to eliminate the residual PV conduction because there were only a few recovered PV fibers. In the remaining 3 patients, a circumferential ablation strategy was used because of a complete recovery of the PV-LA conduction.

All recovered PVs could be isolated successfully again. At 3-month follow-up, 80 % of all patients were free from an arrhythmia recurrence (12/15 patients). There were no major complications.

**Conclusions:** In patients with an initial circumferential PVI using the cryoballoon technique, a repeat ablation procedure can be performed safely and effectively using radiofrequency catheter ablation. In most cases only a few re-conducting PV fibers were found and therefore, a segmental re-ablation approach seems to be sufficient in the majority of patients.