Cryoballoon freeze was limited to 180 s, reaching a minimal temperature of −57°C. The left phrenic nerve, because of its proximity to the LAA,1 was monitored by fluoroscopy during CB ablation, progressive LAA spike delay resulted in LAA isolation (time to block, 73 s; CB temperature, −48°C; Figure B). Cryoballoon freeze was limited to 180 s, reaching a minimal temperature of −57°C. The left phrenic nerve, because of its proximity to the LAA,1 was monitored by fluoroscopy during spontaneous breathing. After further conventional CB2 PV isolation, total procedure- and fluoroscopy-time were 70 and 12.0 min, respectively. Interestingly, transesophageal echo demonstrated a substantial ablation-induced acute edema of the LAA-PV ridge (Figure C and D). Discharged on low molecular weight heparin (enoxaparin 0.8 mL twice a day), the patient was rescheduled for elective percutaneous LAA closure approach may be preferable.

Discussion
Atrial appendages have been identified as sources of atrial arrhythmias.2 The LAA has been considered an additional AF trigger site beyond the PVs3 and termed the 5th PV. LAA isolation using point-by-point radiofrequency current ablation is feasible, but there are safety concerns about ablating at the LAA ostium. To best of our knowledge, this case is the first description of single shot LAA isolation using the intraluminal soft tip circumferential multipolar catheter, (2) straightforward LAA isolation and visualization of time to effect, and (3) proof of permanency of CB LAA isolation. These initial observations may point toward an additional anatomic target during CB AF ablation in selected patients. In our patient, we decided to perform a staged AF ablation procedure, including LAA isolation (because of spontaneous electric activity originating from the LAA as described by DiBiase et al4), followed by LAA occlusion. The optimal antithrombotic treatment in electrically isolated LAA remains unclear. It seems reasonable that either life-time intensified oral anticoagulation or mechanical LAA closure is required. Previously, feasibility of concomitant AF ablation and LAA occluder implantation has been reported.4 However, our transesophageal echo findings after ablation may rather indicate that a staged AF ablation and LAA closure approach may be preferable.

Disclosures
K.R.J. Chun, S. Bordignon, A.Fürnkranz, and B. Schmidt received speaking honoraria from Medtronic. B. Schmidt is in the advisory board for Boston Scientific. The other authors report no conflicts.

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**Keywords**: ablation ■ appendage ■ atrial appendage tachycardia ■ atrial fibrillation ■ occlusion

**Figure.** See text for description. Please note, in B and E, the surface electrocardiogram differs because of the compound motor action potential (CMAP) configuration for phrenic nerve function monitoring during the index second generation cyroballoon (CB2) procedure. LAA indicates left atrial appendage; and RAO, right anterior oblique.
Durable Single Shot Cryoballoon Isolation of the Left Atrial Appendage Followed by Percutaneous Left Atrial Appendage Closure

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