Esophageal Damage After PV Isolation with the Cryoballoon Catheter

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Introduction: Due to its advantageous safety profile**,** use of the Cryoballoon for AF ablation is becoming increasingly prevalent. While atrial esophageal fistula formation has never been described with cryoablation, significant decreases in lumenal esophageal temperatures (LET) have been observed. The clinical significance of this is unknown, but LET changes during RF ablation correlate with esophageal damage. Accordingly, post-procedural esophageal endoscopy (EGD) was systematically performed on four paroxysmal AF patients undergoing balloon cryoablation.

Methods: N/A

Results: In one patient, a 64 year-old woman, post-procedural EGD revealed a superficial ulceration at the retrocardiac esophageal location. Seventeen full ablation lesions (240s in duration) had been delivered: LSPV-4, LIPV-4, RSPV-4, RIPV-5. Two significant LET drops (Δ>1°C from baseline) were observed, both occurring in the RIPV using the 28 mm balloon; the LET nadir was 25.6°C (baseline 35.6°C). The patient was asymptomatic, and was given proton-pump inhibitors. A 1-month follow-up EGD revealed complete resolution of the ulcer.Significant LET drops were also observed in the remaining three patients, without evidence of esophageal damage. In patient one, 18 full lesions had been delivered (LSPV-3, LIPV-3, RSPV-3, RMPV-3, RIPV-6), resulting in 9 LET drops--RIPV-6, LSPV-3, LIPV-1. The LET nadir was 33.1°C (baseline 36.3°C). In patient two, 12 full ablation lesions had been delivered: LSPV-4, LIPV-3, RSPV-2, RIPV-3. Four significant LET drops (LSPV-2, LIPV-2) were observed, with an LET nadir of 31.9°C (baseline 34.6°C); In the third patient, 18 full ablation lesions had been delivered: LSPV-5, LIPV-7, RSPV-3, RIPV-3. Three LET drops were observed in both the RIPV and RSPV, with LET nadirs of 32.2°C and 22.1°C, respectively (baseline 36.5°C).

Conclusions: This case clearly demonstrates that Cryoballoon ablation can cause esophageal ulceration. Perhaps the absence of atrial-esophageal fistula formation with cryoablation may be related to the post-ablation healing process, rather than an inherent inability of cryoenergy to cause esophageal damage.

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