

# Cryoballoon Ablation for Atrial Fibrillation

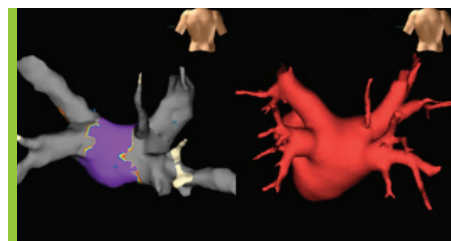
## Patient Case Study

A 68-year-old male patient with symptomatic paroxysmal atrial fibrillation (AFib) had been hospitalized two times for cardioversion despite sotalol therapy. He had a relatively structurally normal heart with a normal ejection fraction and mildly dilated left atrium at echocardiogram. A pre-procedure CT scan demonstrated an anomalous right pulmonary vein in addition to the standard four pulmonary veins (*Figure 1*).

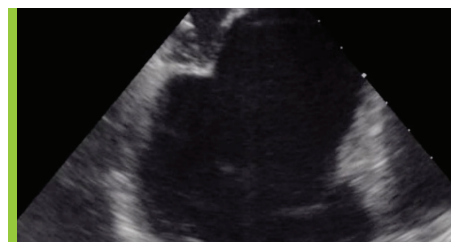
The foundation of the AFib ablation procedure is to electrically isolate the pulmonary veins, with either radiofrequency energy or cryoablation. A growing body of literature has demonstrated the safety and efficacy of cryoballoon technology for AF ablation with improved success rates, shorter procedure times and lower repeat procedure rates.

The AFib ablation procedure is performed percutaneously via the femoral veins and typically takes about 2 hours to complete. To improve safety and efficacy of the pulmonary vein isolation procedure, intracardiac ultrasound was utilized to guide the transseptal puncture (*Figure 2*). A 28mm cryoballoon was utilized to electrically isolate all four pulmonary veins and, in *Figure 3*, the left inferior pulmonary vein is targeted. The inferior leak was occluded and the vein was isolated with cryoapplication.

After two years, the patient has had no further atrial fibrillation on serial ambulatory rhythm monitoring and is off of sotalol and oral anticoagulation medication.



*Figure 1 - Electroanatomic voltage map (left) demonstrates level of isolation of the pulmonary veins and the anomalous right pulmonary vein. Pre-procedure CT scan (right) demonstrates pulmonary vein anatomy.*



*Figure 2 - Intracardiac ultrasound.*



*Figure 3 - Intracardiac ultrasound demonstrating 28 mm cryoballoon targeting the left inferior pulmonary vein.*

Doylestown Health is **1 of 6 national training sites for physicians for cryoballoon ablation.**

## About Cryoballoon Ablation

**FIRE AND ICE trial demonstrates efficacy, safety.** The biggest trial to date comparing cryoballoon and radiofrequency ablation found cryoballoon ablation to be equally effective and safe for patients with drug-refractory paroxysmal atrial fibrillation.<sup>1</sup>

**Repeat procedure rate under 4%.** Doylestown Health is the lead U.S. enroller in a national study demonstrating a repeat procedure rate < 4% with cryoballoon ablation, suggesting it could be a single shot procedure for many patients.<sup>2</sup>

**Highest volume center in the Philadelphia region for cryoballoon ablation.** Doylestown Health performs about 200 cryoballoon ablations per year.<sup>3</sup> A comparison of Medicare data found high volume ablation centers had fewer complications.<sup>4</sup>

**1 of 6 national training sites for physicians.** Doylestown Health cardiac specialists, highly experienced in treating AFib, train physicians from around the United States to perform the cryoballoon ablation procedure.

**Cryoballoon ablation is FDA approved for paroxysmal AFib.** For patients with persistent AFib, we offer every treatment option and the most sophisticated mapping technology — delivering the highest quality of care in a cost-efficient way.

## Doylestown Health's AFib Center

The AFib Center of Doylestown Health's Richard A. Reif Heart Institute offers inpatient and outpatient treatments to control and eliminate AFib. Ideal treatment goals include resetting the heart's rhythm, controlling heart rate and preventing blood clots — as AFib is a risk factor for stroke and congestive heart failure.

The AFib Center utilizes the top-rated expertise and resources of the Heart Institute to offer a broad range of tailored AFib therapies, including:

- Lifestyle management
- Medication
- Radiofrequency ablation
- Cryoablation
- Convergent ablation  
(*The Convergent Approach*)
- Cardioversion

Subspecialty trained cardiac specialists, skilled at determining the best course of treatment based on each patient's unique needs, offer advanced therapies, access to innovative clinical trials and success rates that consistently meet or exceed national averages.

## Additional AFib Treatment Options

### The Watchman™ – Preventing Stroke in AFib Patients



The Watchman™ is a permanent implant that helps to prevent stroke in AFib patients without the side effects of blood thinning medications. A fabric-covered device shaped like a parachute, The Watchman™ expands to close the opening of the left atrial appendage to prevent clots from leaving the heart. Doylestown Health specialists currently offer The Watchman™ procedure and are highly skilled in the techniques to implant this advanced device, which makes it possible for patients to stop taking Coumadin in about 45 days.

#### References

1. Kuck, Karl-Heinz, MD, and others, for the FIRE AND ICE Investigators. "Cryoballoon or Radiofrequency Ablation for Paroxysmal Atrial Fibrillation," *N Engl J Med*, published April 4, 2016. [nejm.org/doi/full/10.1056/NEJMoa1602014](http://nejm.org/doi/full/10.1056/NEJMoa1602014)
2. Knight BP, Novak PG, Sangrigoli R et al. "Sustained Treatment of Paroxysmal Atrial Fibrillation Post-Approval Study (STOP AF PAS)." Presented at HRS Scientific Sessions 2015 (P001-60).
3. Medtronic Inc. Data
4. Desmukh et al. "In-hospital Complications Associated with Catheter Ablation of Atrial Fibrillation in the United States Between 2000-2010," *Circulation*, 2013; 128: 2104-2112.

## Cryoablation Team



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## Refer a Patient

Early referrals lead to better outcomes.

For patients who are early on in their disease and have failed drug therapy, earlier referrals lead to better outcomes. To learn more or to refer a patient, call 267.880.DHAF (3423) or visit [DoylestownHealth.org/AFib](http://DoylestownHealth.org/AFib).