



Figure 9. Schematic drawing showing catheter ablation of atrial fibrillation using either RF energy or cryoballoon AF ablation. **A:** Shows a typical wide area lesion set created using RF energy. Ablation lesions are delivered in a figure of eight pattern around the left and right PV veins. Also shown is a linear cavotricuspid isthmus lesion created for ablation of typical atrial flutter in a patient with a prior history of typical atrial flutter or inducible isthmus-dependent typical atrial flutter at the time of ablation. A multielectrode circular mapping catheter is positioned in the left inferior PV. **B:** Shows an ablation procedure using the cryoballoon system. Ablation lesions have been created surrounding the right PVs, and the cryoballoon ablation catheter is positioned in the left superior PV. A through the lumen multielectrode circular mapping catheter is positioned in the left superior PV.

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Table 4
Anticoagulation strategies: pre-, during, and postcatheter ablation of AF

	Recommendation	Class	LOE	References
Preablation	For patients undergoing AF catheter ablation who have been therapeutically anticoagulated with warfarin or dabigatran, performance of the ablation procedure without interruption of warfarin or dabigatran is recommended.	I	A	366–373
	For patients undergoing AF catheter ablation who have been therapeutically anticoagulated with rivaroxaban, performance of the ablation procedure without interruption of rivaroxaban is recommended.	I	B–R	374
	For patients undergoing AF catheter ablation who have been therapeutically anticoagulated with a NOAC other than dabigatran or rivaroxaban, performance of the ablation procedure without withholding a NOAC dose is reasonable.	IIa	B–NR	375
	Anticoagulation guidelines that pertain to cardioversion of AF should be adhered to in patients who present for an AF catheter ablation procedure.	I	B–NR	5,6
	For patients anticoagulated with a NOAC prior to AF catheter ablation, it is reasonable to hold one to two doses of the NOAC prior to AF ablation with reinitiation postablation.	IIa	B–NR	372,376–380
	Performance of a TEE in patients who are in AF on presentation for AF catheter ablation and who have been receiving anticoagulation therapeutically for 3 weeks or longer is reasonable.	IIa	C–EO	5,6
	Performance of a TEE in patients who present for ablation in sinus rhythm and who have not been anticoagulated prior to catheter ablation is reasonable.	IIa	C–EO	5,6
During ablation	Use of intracardiac echocardiography to screen for atrial thrombi in patients who cannot undergo TEE may be considered.	IIb	C–EO	381–386
	Heparin should be administered prior to or immediately following transseptal puncture during AF catheter ablation procedures and adjusted to achieve and maintain an ACT of at least 300 seconds.	I	B–NR	369,380–382,387–393
Postablation	Administration of protamine following AF catheter ablation to reverse heparin is reasonable.	IIa	B–NR	394
	In patients who are not therapeutically anticoagulated prior to catheter ablation of AF and in whom warfarin will be used for anticoagulation postablation, low molecular weight heparin or intravenous heparin should be used as a bridge for initiation of systemic anticoagulation with warfarin following AF ablation.*	I	C–EO	1,2
	Systemic anticoagulation with warfarin* or a NOAC is recommended for at least 2 months postcatheter ablation of AF.	I	C–EO	5,6
	Adherence to AF anticoagulation guidelines is recommended for patients who have undergone an AF ablation procedure, regardless of the apparent success or failure of the procedure.	I	C–EO	5,6
	Decisions regarding continuation of systemic anticoagulation more than 2 months post ablation should be based on the patient's stroke risk profile and not on the perceived success or failure of the ablation procedure.	I	C–EO	5,6
	In patients who have not been anticoagulated prior to catheter ablation of AF or in whom anticoagulation with a NOAC or warfarin has been interrupted prior to ablation, administration of a NOAC 3 to 5 hours after achievement of hemostasis is reasonable postablation.	IIa	C–EO	372,376–380
	Patients in whom discontinuation of anticoagulation is being considered based on patient values and preferences should consider undergoing continuous or frequent ECG monitoring to screen for AF recurrence.	IIb	C–EO	

AF = atrial fibrillation; LOE = Level of Evidence; NOAC = novel oral anticoagulant; TEE = transesophageal electrocardiogram; ACT = activated clotting time.

* Time in therapeutic range (TTR) should be > 65%–70% on warfarin.