Ablation Modality Comparison

	Microwave Ablation by NEUWAVE™	Radiofrequency Ablation	Cryoablation
Energy Properties	• Energy readily propagates regardless of tissue type or desiccation • ≥ 60°C causes instantaneous cell death[1]	• Energy requires a circuit to propagate heat • Tissue desiccation causes impedance which breaks the electrical circuit and limits current flow	• Freeze / Thaw / Freeze cycle • Cycle is required as cell death is not instantaneous[12]
Probes	Versatile portfolio with the availability of minimally invasive 17 gauge probes • **PR Probe –** Distal energy control to help protect non-target tissue • **LK/LN Probes –** Tissue-tuned for large single probe ablations • **PR *XT* / LK *XT* (15 ga.) Probes –** Stiffer probe shaft for difficult probe placements	• Conventional and multi-tined probes only	• Larger diameter probes increasing invasiveness[5] • Conventional probes only
Ablation Size	• 0 – 4 cm with a single probe[2] • Multi-probe capability with synchronized energy delivery for larger ablations[3]	• 0 – 3 cm with a single probe[9] • Smaller ablation zones due to desiccation and impedance • No synchronous multiple probe systems	• 0 – 2 cm with a single probe[13] • No synchronous multiple probe systems
Ablation Time	5 – 10 minutes[4]	10 – 45 minutes[9]	25 – 30 minutes[13]

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Ablation Modality Comparison

	Microwave Ablation by NEUWAVE	Radiofrequency Ablation	Cryoablation
Clinical Considerations	• Faster heating to >160°C temperatures[5] • ≥ 30% tissue contraction[6] • Less susceptible to heat-sink in vascular tissue[7] • Larger ablation zones in the lung vs radiofrequency[8] • Ablation Confirmation Software to confirm the technical success of procedures	• Inability to reach high temperatures > 100°C[5] • Significantly less tissue contraction in the liver[6] • More susceptible to heat-sink in vascular tissue[7,10] • Smaller ablation zones in the aerated lung tissue[5] • No integrated software to confirm the technical success of procedures • Risk of skin burns with grounding pads[11]	• Complication risks – cryoshock and inability to coagulate tissue decreases utility in patients with cirrhosis, poor liver function and clotting disorders[13] • Larger ablations increase the risk of hematomas[14] • Highly visible ice ball, however the ice ball does not represent to the lethal isotherm[13]

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