



Electrode Array for Radiofrequency Tissue Ablation

[View U.S. Patent No. 7,367,974 in PDF format.](#)

WARF: P03367US

Inventors: Dieter Haemmerich, David Mahvi, John Webster, David Schutt

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a faster method of bipolar RF ablation that uses an electrode array to heat tissue between electrodes.

Overview

The liver is a common site for both primary and metastasizing cancer. Surgical resection, the preferred treatment for liver cancer, is a time consuming procedure during which the surgeon must cut through tissue while avoiding or closing large blood vessels. Blood loss during resection can increase the chance of post-operative complications and decrease patient survival rates.

One method of reducing blood loss is radiofrequency (RF) ablation, which involves passing an electrical current from a probe inserted into the tissue to a ground pad situated on the patient's skin. The electric current coagulates tissue near the probe with heat, sealing it against blood flow. RF ablation originally involved inserting, removing and reapplying a single mono-polar probe at many locations along a tissue slice, a process that generally took too long for clinical practice.

The Invention

UW-Madison researchers have developed a faster method of bipolar RF ablation that uses an electrode array to heat tissue between electrodes. The electrodes are inserted into the tissue along a resection cut line. To heat the tissue, RF energy is applied in bipolar mode between pairs of probes set in a comb-like configuration. Power is switched between pairs of electrodes in half-second intervals, allowing all probes to heat the tissue, but avoiding increased impedance, which compromises effective heating.

Applications

- Thermal coagulation of tissue during surgery to minimize blood loss

Key Benefits

- More rapidly ablates areas of tissue than previous methods
- Allows a surgeon to thermally coagulate tissue, rather than having to close tissue surgically, saving time and preventing blood loss
- Coagulates vessels up to five mm in diameter; in contrast, mono-polar probes can only coagulate vessels up to three mm
- No ground pads are necessary, eliminating risk of skin burns below the pads.
- May be used on any solid organ, including the liver, kidney, spleen, or brain
- Heat is concentrated between electrodes, allowing ablation of thin slices of tissue.
- Ablation region can have a variety of shapes.
- Electrodes may be inserted separately to mold to the organ's shape or rapidly inserted in unison.

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

Additional Information

OK



WARF
Wisconsin Alumni Research Foundation

| info@warf.org | 608.960.9850

Related Intellectual Property

- [View Continuation-in-Part Patent in PDF format.](#)

Tech Fields

- [Medical Devices : Medical tools](#)
- [Radiation Therapy : Ablation](#)

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

OK



WARF
Wisconsin Alumni Research Foundation

| info@warf.org | 608.960.9850