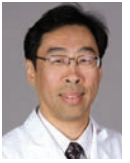


Ablation therapy an effective, minimally invasive treatment option for many liver tumors

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Liver cancer is a major public health issue in the United States, particularly given the high incidence of chronic hepatitis C infection, which increases the risk for liver cirrhosis and cancer. For patients with either hepatocellular carcinoma (primary liver cancer) or metastatic disease that spreads to the liver, advances in the field of tumor ablation therapy are providing a much-needed minimally invasive and effective treatment option, says David Lu, MD, professor of radiology and director of the UCLA Liver Tumor Ablation Program, one of the oldest and largest such programs in the United States.

When radiologists several decades ago developed the ability to use ultrasound, CT and other imaging modalities to insert a needle through the skin into a tumor, it opened up the possibility of treating the tumor in the same, minimally invasive fashion. The first approach involved the use of alcohol — so-called ethanol injection therapy. This was followed by cryo-ablation, which uses a probe to freeze the tumor; and radiofrequency ablation, which kills the tumor by heating it. “With radiofrequency ablation, the field became much more popular,” Dr. Lu says. “Using a small needle, and either an ultrasound machine or CT, you could get the probe into the tumor, generate a two to three centimeter ablation zone, and effectively deal with small liver tumors with a percutaneous procedure that took an hour or two.”

Radiofrequency ablation as a treatment for liver tumors grew dramatically in the last two decades, Dr. Lu notes. At the same time, beginning in the mid-2000s, a new heat-based ablation approach, microwave ablation, began to emerge. “With microwave, we can generate larger ablation zones because we can heat tissue at a higher temperature over a shorter time period, and we can place simultaneous microwave probes to make the ablation zones even bigger,” Dr. Lu says. “That has made it feasible to treat larger tumors that were once considered too difficult.”

Microwave has become the most popular thermal ablation therapy in the United States, although radiofrequency ablation, cryoablation and in some cases ethanol injections are still used,

Dr. Lu adds. A new non-thermal ablation technology known as irreversible electroporation, which sends short, high-voltage electric pulses to the tumor, is currently under investigation.

Although ablation is used for several types of tumors, it is particularly well suited for liver cancer. “In the early stages of hepatocellular carcinoma, when the tumor is confined to the liver, we can achieve a 50 percent five-year survival rate — nearly identical to surgical resection — with a minimally invasive procedure,” Dr. Lu says. Moreover, he notes, many patients who develop liver cancer have cirrhosis of the liver and are awaiting a transplant. The wait can be months, or years, and in the meantime these patients are closely monitored for tumors that develop in the liver, which can be immediately ablated. After hepatocellular carcinoma, the next most common liver tumor is metastasized colon cancer. While these small metastases may not be good candidates for resective surgery, patients’ lives can be significantly prolonged with ablative treatments.

At UCLA a multidisciplinary team works together to determine the best course of action for treating the lesions. “We are able to treat liver cancer percutaneously — with good outcomes and low complication rates — using these ablation techniques, but it’s important to remember that the outcomes of this therapy are best when the tumors are small and early-stage,” Dr. Lu says. “Therefore, it’s extremely important that patients who are at risk for developing liver cancer are consistently screened and monitored.” 