MEDICAL BREAKTHROUGHS
RESEARCH SUMMARY

TOPIC: FIRST-IN-THE-WORLD MICROWAVE ABLATION BURNS AWAY LIVER TUMORS
REPORT: **MB #4866**

BACKGROUND: The liver is a vital organ that serves many critical functions in the body. It is responsible for metabolism of drugs and toxins, removing degradation products of normal body metabolism from the blood, and synthesis of many important proteins and enzymes. The liver is located in the upper right quadrant of the abdomen and is divided in eight segments reflecting the eight major divisions of the portal vein and bile duct. Blood enters the liver via two main channels, one being the hepatic artery and the other being the portal vein. These bring nutrients and oxygen into liver cells, also called hepatocytes, and bile ducts. Blood leaves the liver via hepatic veins and into the inferior vena cava which immediately enters the heart. The liver helps create bile, excretes it into microscopic channels that form into bile ducts that join into a single hepatic duct the brings bile to the intestine.
(Source: https://surgery.ucsf.edu/conditions--procedures/liver-resection.aspx)

DIAGNOSING: The traditional form of treatment for large malignant tumors that form on the liver is resection, or hepatectomy. Liver resection is the removal of all or a portion of the liver. Only people with good liver function, good enough general health to sustain surgery, and a single tumor that has not grown into blood vessels can have this operation. Most patients with liver cancer also have cirrhosis meaning depending on the severity of the cirrhosis, there may not be enough liver left behind to properly function following resection. Before surgery becomes a viable treatment option, imaging tests such as CT and MRI with angiography are done to see if the cancer can actually be removed completely.
(Source: https://www.cancer.org/cancer/liver-cancer/treating/surgery.html)

NEW TECHNOLOGY: Cleveland Clinic is the first hospital in the world to perform a new FDA-approved microwave ablation technology that can burn liver tumors away rather than cut them out. The procedure is minimally invasive and uses a single needle connected to a powerful 150-watt microwave generator. This new procedure can burn away a malignant liver tumor as large as two and a half inches. During the operation, a laparoscopic ultrasound probe is inserted through two small incisions into the abdomen to locate the tumor. Surgeons then perform a quick biopsy using an extremely small biopsy needle under laparoscopic view to confirm the cancer diagnosis before proceeding with the ablation procedure. Then, using the ultrasound for navigation, a needle is inserted through the skin into the liver tumor. When surgeons are ready, the microwave generator is powered up, delivering heat that destroys the lesion. Ultrasound monitoring confirms the entirety of the tumor is treated by the microwave ablation.
(Source: https://newsroom.clevelandclinic.org/2020/11/24/cleveland-clinic-first-in-the-world-to-use-latest-ablation-technology-to-destroy-large-liver-tumors/)

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If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at mthomas@ivanhoe.com