

GOING BEYOND THE BIOPSY

Liver Diagnostic Technologies

Pitfalls of Liver Biopsy

Liver biopsy is the removal of a small piece of liver tissue from a patient using a hollow needle to diagnose or evaluate liver disease. Considered the “gold standard” diagnostic tool, biopsy is essential to detect many liver conditions, but it does pose several risks:

Liver Scarring

Major bleeding

Pain

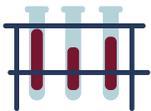
Organ Collapse

Infection

Death

Less Invasive Liver Diagnostic Tools

Fatty liver disease, in many cases, does not need a traditional biopsy for an accurate diagnosis. Advancements in technology are expanding the range of tools available to assess liver health.



Blood Tests

Estimation of liver stiffness or scarring from a standard blood draw (FIB-4, ELF, APRI)



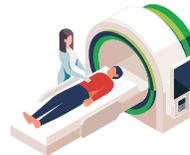
Transient Elastography (TE)

Specialized form of ultrasound that maps the flexibility of the liver's soft tissue



Shear Wave Elastography (SWE)

Specialized ultrasound imaging that uses special pulses for high-quality visualization of liver tissue and stiffness



Computed Tomography (CT)

High-resolution, 3D imaging of the liver to understand complex conditions and prepare treatment; exposure to radiation



Breath Biopsy (Emerging Technology)

Evaluation of certain organic compounds in breath samples that correlate to blood metrics to assess liver function



Multiparametric Magnetic Resonance Imaging (MMRI)

Specialized form of MRI that measures and calculates several distinct metrics (without injecting a contrast agent) for a comprehensive view of the liver and its health



Magnetic Resonance Elastography (MRE)

Imaging combining sound waves (ultrasound) with magnetic and radio waves (MRI) to image of the liver and its stiffness without radiation



Ultrasound

Simple imaging of the liver for preliminary disease investigation (sonography)



Genetic testing

Analysis of DNA collected via blood, spit, or mouth swab to detect one of many genetic diseases of the liver



Innovative Biopsy Tools

Narrower needles and real-time visualization (like with ultrasound) to guide the procedure to reduce risk