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Lecture Title : Hepatic Steatosis Quantification Across Ultrasound Vendors: Principles and Practical Differences
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With the global increase in the prevalence of metabolic dysfunction-associated steatotic liver disease (MASLD), the clinical necessity for an objective and reproducible method to quantify hepatic steatosis has grown significantly. Traditionally, ultrasound assessment of fatty liver relied on the subjective visual grading of liver echogenicity, which often suffered from high inter-observer variability. To overcome these limitations, major ultrasound vendors have recently introduced various quantitative software tools that provide numerical values to assess the degree of liver fat content more accurately.
However, in a clinical setting, practitioners often encounter challenges due to the diversity of available equipment. Because each vendor employs unique beamforming technologies, different transducer frequencies, and proprietary calculation algorithms, the resulting measurements are not always directly comparable across different platforms. These technical variations necessitate a deeper understanding of vendor-specific characteristics, including their respective cut-off values and the factors influencing measurement reproducibility, such as Region of Interest (ROI) placement and patient-related variables.
The purpose of this session is to review the physical principles of hepatic steatosis quantification and to compare the practical differences between major ultrasound vendors. By examining the current technological landscape, this lecture aims to provide a clearer framework for interpreting quantitative data and ensuring diagnostic consistency in a multi-vendor environment.