

**Up to Date and Perspectives for Hepatocellular Carcinoma's Intraoperative Ultrasound From Contrast Enhanced Intraoperative Ultrasound and Intraoperative Elastography to Ultrasound Guided Liver Resections**

Ioana Iancu<sup>1,2</sup>, Adrian Bartoş<sup>1,3</sup>, Cristian Cioltean<sup>4</sup>, Sandu Brânzilă<sup>4</sup>, Horea Bocşe<sup>4</sup>, Andrei Herdean<sup>1,2</sup>, Nadim Al Hajjar<sup>1,3</sup>, Cosmin Puia<sup>1,3</sup>, Cornel Iancu<sup>1,3</sup>, Dana Bartoş<sup>1,2</sup>

<sup>1</sup>“Prof. Dr. Octavian Fodor” Regional Institute of Gastroenterology-Hepatology, Cluj-Napoca, Romania

<sup>2</sup>Department of Anatomy and Embryology, “Iuliu Hațieganu” University of Medicine and Pharmacy, Cluj-Napoca, Romania

<sup>3</sup>Department of Surgery, “Iuliu Hațieganu” University of Medicine and Pharmacy, Cluj-Napoca, Romania

<sup>4</sup>Department of Surgery, “Prof. Dr. Octavian Fodor” Regional Institute of Gastroenterology-Hepatology, Cluj-Napoca, Romania

**Abstract**

With all the technological progress registered so far, hepatocellular carcinoma is still a diagnostic and therapeutic challenge, the optimal management being ensured only by a personalized attitude, offered by a multidisciplinary approach. Ultrasound plays an essential role in the guidelines for this neoplasm, the intraoperative application being mandatory to increase the survival of these patients, when the surgical approach is possible and indicated. This paper highlights the main indications for intraoperative ultrasound in the diagnosis and treatment of hepatocellular carcinoma, along with areas that have developmental potential.

**Key words:** hepatocellular carcinoma, intraoperative ultrasound, ablative techniques, ultrasound guided resections, elastography