Minimally Invasive Liver Resection
Supported by syngo DynaCT

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Patient history
The 62-year-old male patient suffered from hepatocellular cancer due to a chronic hepatitis C.

Diagnosis
Hepatocellular carcinoma located in liver segment 6.

Treatment
The minimally invasive approach was planned due to the favorable localization of the tumor.
A pre-operatively acquired MRI scan was segmented for pre-operative planning with the help of the DKFZ in Heidelberg. The segmentation helped to segment the liver from the rest of the abdomen and to make vessels and the tumor visible within the organ.
Surgery started with placing 4 ports and an insufflation of CO₂. The abdomen was prepared for optimal access to the tumor and therefore the position of the patient was changed to reverse Trendelenburg (10°) and tilt to the left (15°).
Then a syngo DynaCT was performed and the 3D volume was automatically registered with the pre-operative MRI volume. The fusion of both volumes could be visualized in the 2D fluoroscopic image to get a real-time update of the current situation. This fluoroscopic control with syngo iPilot, 3D/3D Fusion, proved helpful in navigation the instruments very precisely (fig. 1).
The cancerous tissue was removed and surgery was finished successfully without any adverse events.

Comments
It was the first case in liver surgery supported by syngo DynaCT and the future advancement of the technologies involved will be very interesting and are definitely being planned.

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Live monitoring enables precise navigation of instruments.