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Laparoscopic excision of huge hepatic cyst under near-infrared fluorescence imaging using indocyanine green

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Purpose:

Indocyanine green (ICG) is fluorescent dye under near-infrared light and has been widely used in various fields of hepatobiliary surgery. Many hepatobiliary surgeons have used ICG fluorescence imaging for liver mapping in liver resection, intra-operative fluorescence cholangiography and hepatic tumor localization. Intraoperative ICG fluorescence imaging is a very simple, safe, and enables surgeons to acquire real-time visualization of hepatobiliary anatomy. Hence, it reduces postoperative complications such as bile duct injury.

Methods:

We describe the case of a 64-year-old male who underwent laparoscopic excision of huge hepatic cyst guided under near-infrared fluorescence imaging using indocyanine green.

Results:

The patient presented in our department with epigastric discomfort and his computed tomography revealed increased size of hepatic cyst from 9cm to 14cm during 4 years. The cyst compressed the inferior vena cava and displaced the locations of duodenum and pancreas and abutted on common bile duct and portal vein. We planned laparoscopic excision of hepatic cyst with ICG fluorescence imaging because of prevention of bile duct injury during dissection between cyst and common bile duct. 2.5mg ICG was administrated 30 minutes before dissection around common bile duct. We could acquire very accurate and real-time visualization of biliary anatomy owing to ICG fluorescence imaging, intraoperatively. Hence ICG fluorescence imaging enable very meticulous dissection during operation. He had no postoperative complications such as biliary leakage or stricture and his postoperative CT scan showed usual postoperative findings. He was discharged on 7th postoperative day.

Conclusion:

Conclusively, ICG fluorescence imaging is a novel technique in hepatobiliary surgery providing intraoperative real-time visualization to surgeons. This safe and convenient technique has the potential to become a standard procedure for hepatobiliary surgery.