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Purely laparoscopic extended right hemihepatectomy for hepatocellular carcinoma with bile duct tumor thrombus

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Purpose

Laparoscopic liver resection was first introduced in the 1990s and has been performed throughout the world. Since then, surgical techniques & instruments related with laparoscopic surgery have greatly advanced. And in recent times, laparoscopic major liver resections are being done for treatment of hepatocellular carcinoma.

This video shows pure laparoscopic extended right hemihepatectomy with clear bile duct margin for a patient with hepatocellular carcinoma with bile duct tumor thrombus.

Methods

The patient was in lithotomy position. The main operator was on the patient's right side. A 10mm laparoscopic flexible scope was used. We performed a 15mm skin incision for insertion of a 12mm optic port at umbilicus. Additional four working ports were inserted. There were severe adhesions in the peritoneal cavity due to previous cholangitis and transcatheter arterial chemoembolization (TACE). After adhesiolysis by using energy device, conventional cholecystectomy was done. Resection of the falciform ligament and mobilization of the right liver lobe were performed. Visible tumor on the liver dome was abutting the diaphragm, however the tumor was detached easily without spillage. During hepatic hilar dissection, enlarged lymph node (#12) was detected but was negative for malignancy on frozen biopsy. After ligating the right portal vein and right hepatic artery, liver ischemic line was marked on the liver surface. Without doing the Pringle's maneuver, superficial parenchymal dissection was performed using energy device while the deep part of the liver was dissected by using a CUSA. Because the main mass was located in segment IV, the middle hepatic vein could not be preserved. The dilated right bile duct was identified and transected. During the resection of the duct, tumor thrombus was detected intraluminally. After complete removal of the tumor thrombus, the bile duct was closed with continuous suture. The right hepatic vein was ligated with Endo-stapler. The liver and gallbladder were extracted through a Pfannenstiel incision.

Results

This operation took about 300 minutes and estimated blood loss was 400 ml. The patient was discharged 10 days after operation without significant postoperative complication. The final histopathologic report showed Hepatocellular carcinoma with clear resection margin.

Conclusion

This video shows the technical feasibility of purely laparoscopic extended right hemihepatectomy for hepatocellular carcinoma with bile duct invasion.