SAGES 2025
MARCH 12-15, 2025
LONG BEACH, CA – LA'S "WATERFRONT PLAYGROUND"

Transthoracic repeat hepatectomy

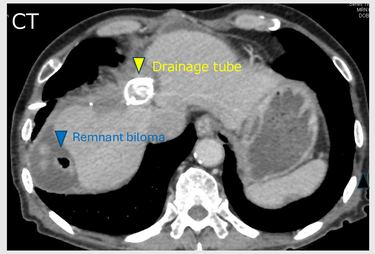
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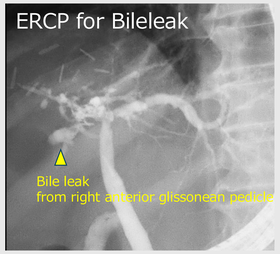
Introduction

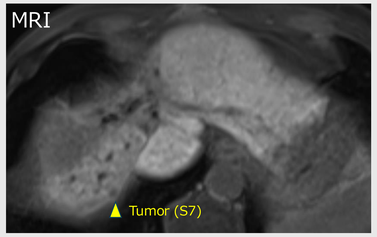
Minimally invasive surgery (MIS) for liver resection has become widely accepted for repeat hepatectomy. However, in some cases, dense adhesions make the transabdominal approach extremely difficult. The liver is located beneath the diaphragm, and depending on the tumor's location, a transthoracic approach may be the simplest and most direct route. Here, we report a case of a patient who underwent repeat hepatectomy via a thoracoscopic approach due to the predicted difficulty of a transabdominal approach.

Case Presentation

The patient was a 78-year-old male with recurrent hepatocellular carcinoma (HCC) in segment 7 (S7) following laparoscopic right anterior sectionectomy for an S8 HCC. After the previous surgery, bile leakage occurred from the Glissonean pedicle of the anterior section, and bile leakage persisted in the abdominal cavity at the time of the current surgery.



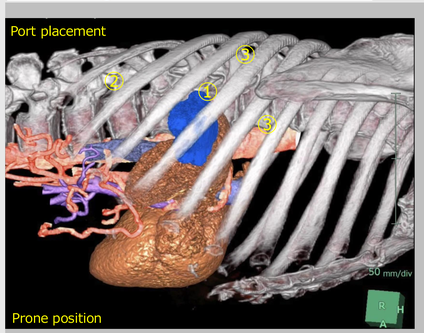


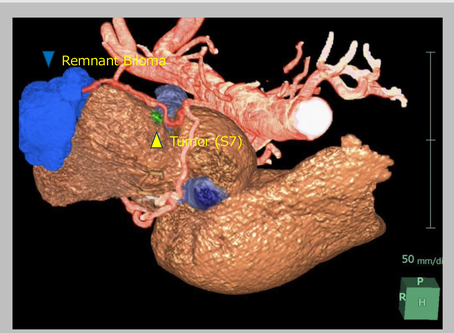


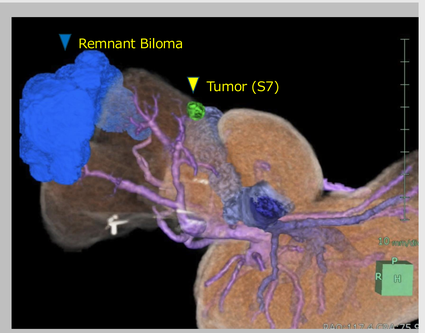
Surgical procedure

Given the anticipated challenges of a transabdominal approach, we planned for a transthoracic partial resection of S7. The patient was placed in the prone position, and the surgery was initiated under differential lung. After adhesiolysis in the thoracic cavity, intraoperative ultrasound (IOUS) was used to identify the location of the S7 tumor through the diaphragm. The diaphragm was incised, retracted with sutures, and the liver surface was exposed. A partial hepatectomy of S7 was performed.

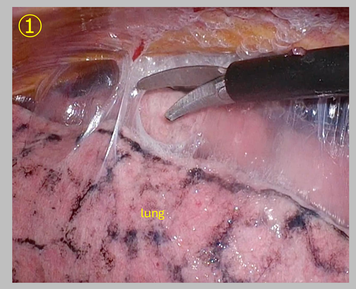
3D images before operation

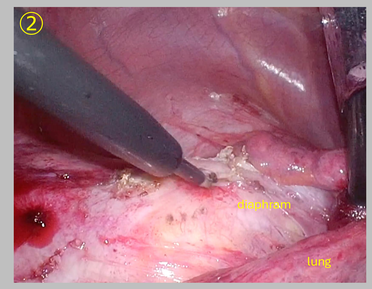


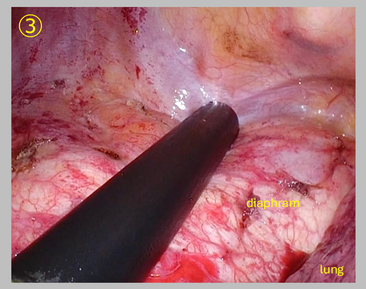


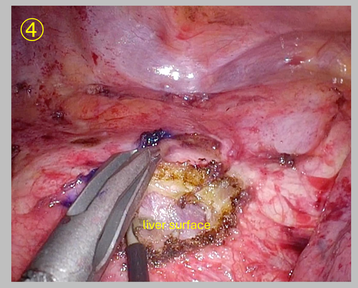


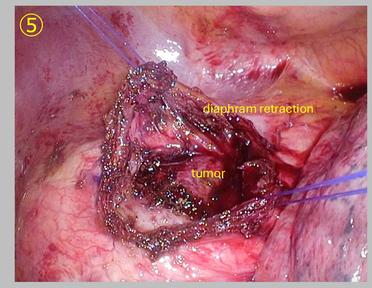
Surgical Technique

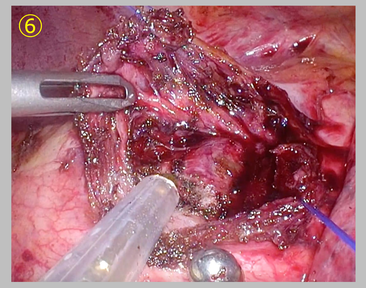


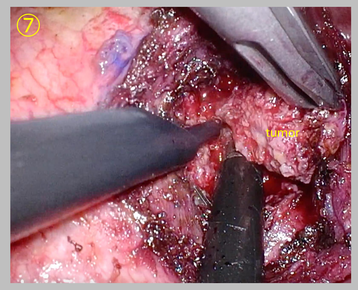


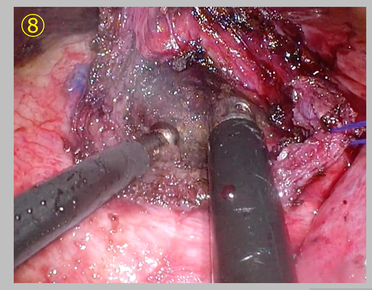


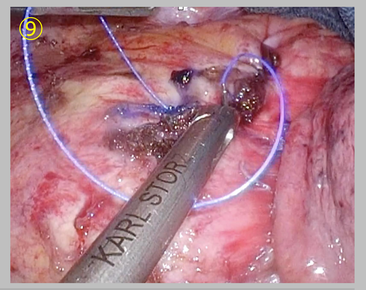












Results

Operative time: 3:25
Blood loss: minimal
Postoperative course: discharged without complications on postoperative day 4
Postoperative diagnosis: HCC

①Right lung adhesion dissection
②Diaphragm exposure
③Tumor localization using intraoperative ultrasound
④Diaphragm incision
⑤Diaphragm retraction and expansion
⑥Liver transection
⑦Specimen extraction
⑧Hemostasis
⑨Diaphragm closure

Discussion

Repeat hepatectomy for tumors in segments 7 and 8 with dense adhesions typically requires right liver remobilization, increasing the complexity of the surgery. For tumors located beneath the diaphragm, a transthoracic approach may be the best option. However, there are risks, including bleeding due to the inability to perform the Pringle maneuver and the potential for diaphragmatic hernia following diaphragmatic incision. In cases like this, where severe adhesions are expected to make a conventional transabdominal approach extremely difficult, thoracoscopic liver resection was considered a good indication, taking into account the tumor location and the risk of bleeding.