SUPPLEMENTARY MATERIALS：

LCBDE, three ports, and primary continuous suture of common bile duct for the treatment of cholelithiasis and choledocholithiasis: a retrospective study

Surgery methods

The position of the patients is similar to that of laparoscopic cholecystectomy (LC) when performing LCBDE. The patient is placed in a supine position in reverse Trendelenburg and right side up position on the operation table, maximizing the exposure in the right upper quadrant. The surgeon typically stands on the patient's left, and the assistant stands on the patient's left and on the surgeon's left. Moreover, the assistant needs to change the position to the top-right side of the surgeon when removing the common bile duct (CBD) stones via choledochoscopy.

All the patients underwent laparoscopic surgery using the "three-port method" (**Figure S1 A-B**): an arc-shaped incision of 10 mm at the lower border of the navel was used as the observation port. The main operation port (Trocar, 10 mm) was 20–30 mm below the xiphoid process. The auxiliary operation port (Trocar, 5 mm) was at the intersection of the lower 50 mm below the rib edge and the right anterior axillary line. A pneumoperitoneum was established, and the intra-abdominal pressure was set at approximately 10–12 mmHg (1 mmHg = 0.133 kPa). The endoscope was placed at 30° through the observation port to explore the abdominal cavity. If no other lesions were detected, the operating instruments were placed through the main operating port and the auxiliary operating port, respectively. The Calot triangle was dissected carefully with an electric hook to expose the cystic duct, cystic artery, and CBD. A correlation

was observed between the three structures; the cystic artery was separated and cutoff by absorbable clips. Then, the proximal cystic duct was closed with absorbable clips. **LCBDE-P** Group: 4-0 absorbable thread (coated VICRYL plus 4-0, VCP422H, Ethicon Inc.USA) was selected to suspend the anterior wall of the CBD longitudinally and then lifted up. The anterior wall of the CBD was cut approximately 10–15 mm using scissors (**Figure S2 A**). The choledochoscope was inserted through the main operating port to explore the extrahepatic bile duct. In this step, the Trocar of the main operating port (10 mm) was inserted as close as possible to the CBD in the abdominal cavity, which was convenient for the surgeon to fix and adjust the position for choledochoscopy (**Figure S2 B**). Subsequently, the calculi were removed with a mesh basket using the Olympus choledochoscope, and the CBD incision was sutured with a 4-0 absorbable thread in one stage (continuous round-trip) (**Figure S3 A-B**). LCBDE-T Group: suspension and incision of the CBD were performed; the stones were explored and extracted similar to the LCBDE-P group. A suitable T-tube was selected and fixed into the CBD through the incision, which was sutured intermittently via 4-0 absorbable sutures, and the T-tube was threaded out of the abdominal wall via the 10-mm port. Finally, a suitable drainage tube was placed under the liver and fixed through the right upper quadrant via the 5-mm port (**Figure S1 C-D**) before the completion of the operation in both groups. After complete recovery from anesthesia, all patients returned to the ward safely.

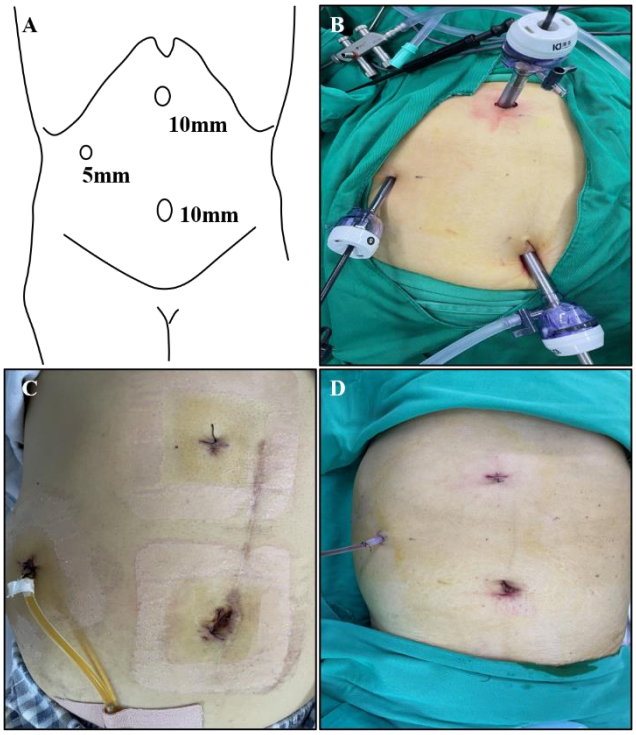

Figure S1

Figure S1. Management of LCBDE with the three-port method. **A)** The Trocars chosen for LCBDE were 5 mm, 10 mm, and 10 mm, respectively. **B)** Consistently, the three Trocars were placed corresponding to the ports. **C-D)** A suitable drainage tube was placed through the 5-mm port on the right upper quadrant.

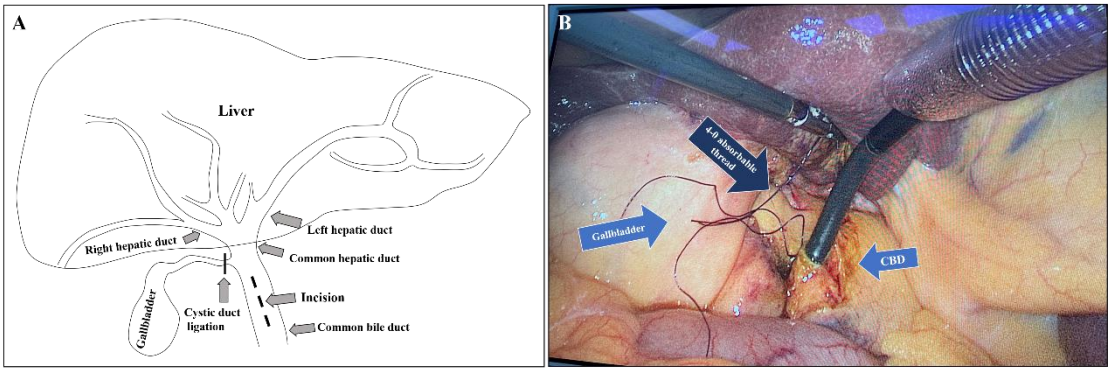

Figure S2

Figure S2. Removal of CBD stones through choledocholithotomy. A) The anterior wall of the CBD was cut directly approximately 10–15 mm after **B)** 4-0 absorbable thread was used to suspend the anterior wall longitudinally. The CBD was explored via choledochoscopy.

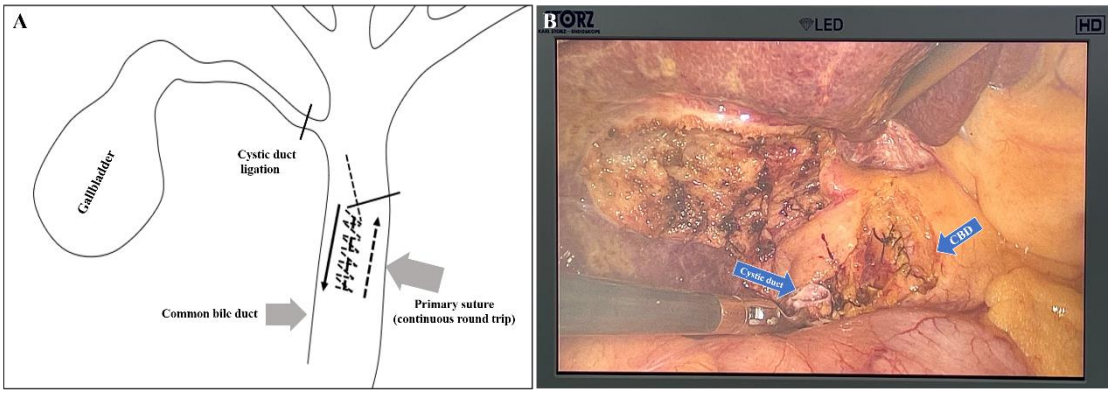

Figure S3

Figure S3. Primary continuous suture of CBD. A-B) The CBD incision was sutured with the 4-0 absorbable thread via a continuous round-trip approach.