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LETTER TO EDITOR

Modified complex open cholecystectomy reduces the risk of bile duct injury: A surgeon's experience

Dear Editor,

The author of surgery from the School of Medicine of the University of Tokyo, Japan[1] described three surgical methods that can replace complex laparoscopic cholecystectomy, namely laparoscopic subtotal cholecystectomy. Laparoscopic anterograde cholecystectomy and conversion to open cholecystectomy. As early as 2013, the Tokyo Guide pointed out that for the cases of complex laparoscopic cholecystectomy, it is recommended to change the cholecystectomy to open surgery. For cholecystectomy, some studies have shown that surgeons have less experience in performing open cholecystectomy because of the greater proportion of laparoscopic cholecystectomy,Therefore, open surgery may not be safe.[2] At the same time, in a survey of experts from Japan, South Korea and Taiwan, only 17.5% of people replied that laparotomy makes surgery easier[3]; Therefore, it is very necessary to master the technique and experience of cholecystectomy, which is difficult to cut. So our team made more detailed improvements to every step of the complex open cholecystectomy in our clinical work, which not only saves the operation time, but also greatly reduces intraoperative bile duct injury and bleeding.

Here we would like to share some of our clinical experience about complex open cholecystectomy which could reduce the risk of bile duct injury. In our surgery, we often take the right epigastric rectus abdominis incision at first, because if the biliary tract exploration is needed, it is convenient to select the position where the T tube is placed. Find the bottom of the gallbladder in the abdomen and lift the bottom of the gallbladder with Alice's forceps. Make full use of the push, scrape, and suction effects of the attractor to obtuse separation; Following the gallbladder on one side of the liver, and cut the gallbladder from the liver longitudinally to the neck of the gallbladder, During the longitudinal incision, we always take the inside of the capsular cavity as a guide, The upper part of the cavity is the end point of the longitudinal incision. After decompression, if there are stones in the neck, it can be taken out smoothly, In this way, the opening of the cystic duct can be clearly seen, and the direction of the gallbladder duct is clear. Then the gallbladder was transected at the top of the gallbladder neck, in the process of encountering obvious bleeding clamps, the bleeding site provided clues to the gallbladder artery, which is convenient to find the gallbladder artery. Take the first transection of the gallbladder and the bleeding of the superior gallbladder wall as the direction, in Calot's triangle, close to the cystic duct scraping and peeling, Isolation of the gallbladder artery and ligation. Continue to separate downwards, reserve a cyst duct which is long enough, and cut the neck of the gallbladder again. In the process of transection of the gallbladder, we have to cross the gallbladder several times in the neck of the gallbladder, it not only can avoid damage to the common bile duct but alao can accurately confirm the position of the cystic duct and the presence or absence of stones in it. At the same time, it can determine the cystic duct mouth and have bile outflow, determine the location of the common bile duct, Clamp and ligate the cystic duct at the appropriate location of the common bile duct. Finally, the conventional electrocautery remains in the liver surface gallbladder mucosa, rinse, check the operation area for bleeding and bile leakage, place the drainage tube, and close the abdomen (Fig. 1).

We retrospectively analyzed 18 cases of refractory cholecystectomy performed by our surgical team from 2016 to 2018. All patients were discharged 2–3 days, and 18 patients had no complications such as bile leakage, hemorrhage and bile duct injury.

Complex gallbladder due to edema adhesion often leads to unclear anatomical relationship. So an experienced surgeon is required to perform the procedure. During the

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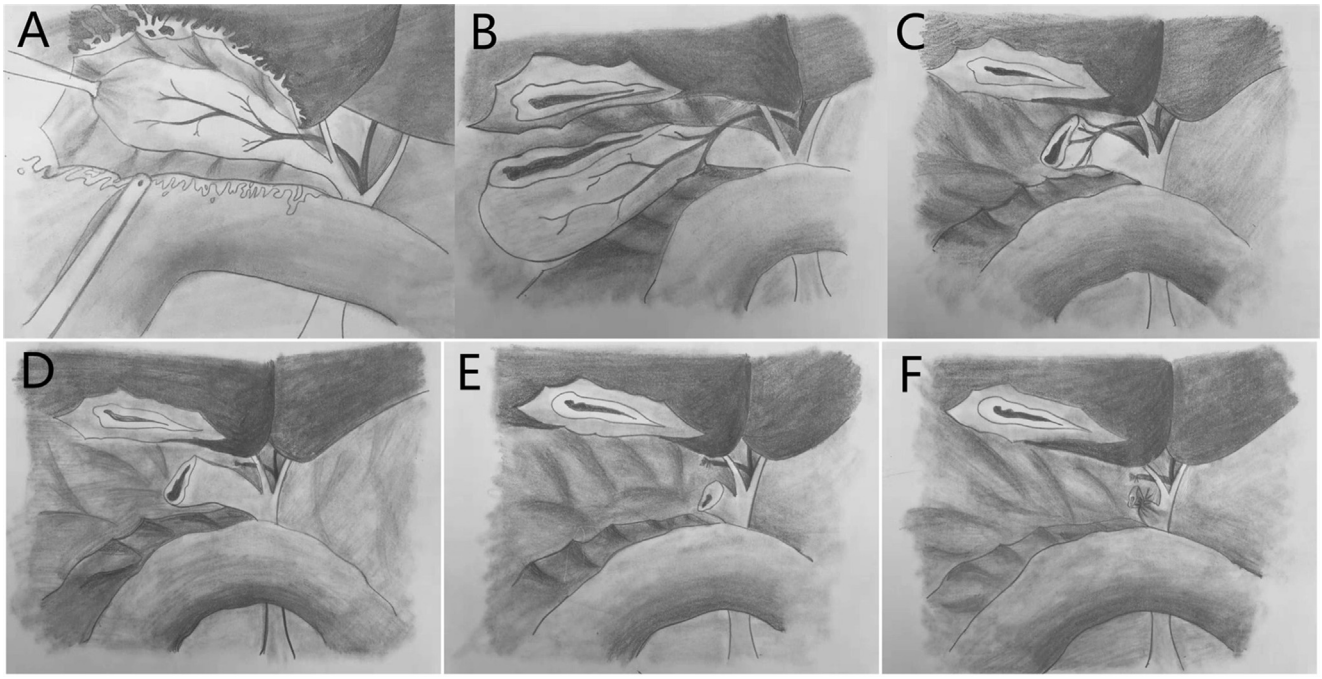

Figure 1 Schematic illustration of Complex open cholecystectomy.

whole operation, we should start dissection from the bottom of the gallbladder, Make full use of the push, scrape, and suction effects of the attractor to obtuse separation, always take the cyst cavity as a guide, and dissect carefully, repeatedly cut the neck of the gallbladder, Consolidate at every step. Only in this way can we avoid unnecessary bile duct injury and bleeding during the operation. Complete high quality surgical resection.

Conflicts of interest

All the authors have no potential conflicts of interest to disclose.

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