Laparoscopic Cholecystectomy

32

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Preference Cart

- 15-blade scalpel
- Adson forceps
- Rat tooth grasping forceps
- DeBakey forceps
- Kocher clamps
- Kelly clamps
- Mayo scissors
- Electrocautery (35/35)/grounding pad
- Suction
- General endoscopic drape and sterile towels
- 10 mm scopes and 5 mm scope
- Camera/light cord
- Insufflation cord
- Endocatch
- Suction/irrigation and saline 1000 ml
- Bupivacaine
- 10 mm syringe, 25 G hypo
- Steri-Strips 0.5 inch
- Maryland grasper
- L hook electrocautery
- Ratcheted grasper
- 2-0 Vicryl on UR-6 needle and 4-0 Vicryl on PS 2
- Ligaclip applier 5 mm
- Hassan blunt port, 5 mm ports x3
- Anti-fog

Patient Positioning/Operating Room Setup (Fig. 32.1)

- Patient position supine
- Surgeon position on patient's left
- First assistant position patient's right
- Second assistant position surgeon's left
- Nurse position first assistant right
- Anesthesiologist at patient's head
- Monitors position patient's right and left shoulder
- Trocars (Fig. 32.2)
  - 12 mm trocar at the level of the umbilicus
  - Three 5 mm trocars, one subxiphoid and two right upper and right lateral abdominal wall

Nodal Points

Exposure of the Gallbladder and Hepatoduodenal Ligament (Fig. 32.3)

- Introduce right-hand Maryland grasper through subxiphoid port.
- A ratcheted grasper is introduced by the assistant through the right lateral port.
- Grasp the gallbladder fundus with the ratcheted instrument, and push cranially exposing the hepatoduodenal ligament.
- Grasp and lift the Hartman pouch with left hand.

Dissection of the Cystic Duct and Cystic Artery

- Pull the Hartman pouch laterally to expose Calot's triangle (Fig. 32.4).
- Introduce a Maryland grasper through the subxiphoid trocar.

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R. J. Rosenthal et al. (eds.), *Mental Conditioning to Perform Common Operations in General Surgery Training*,
https://doi.org/10.1007/978-3-319-91164-9_32

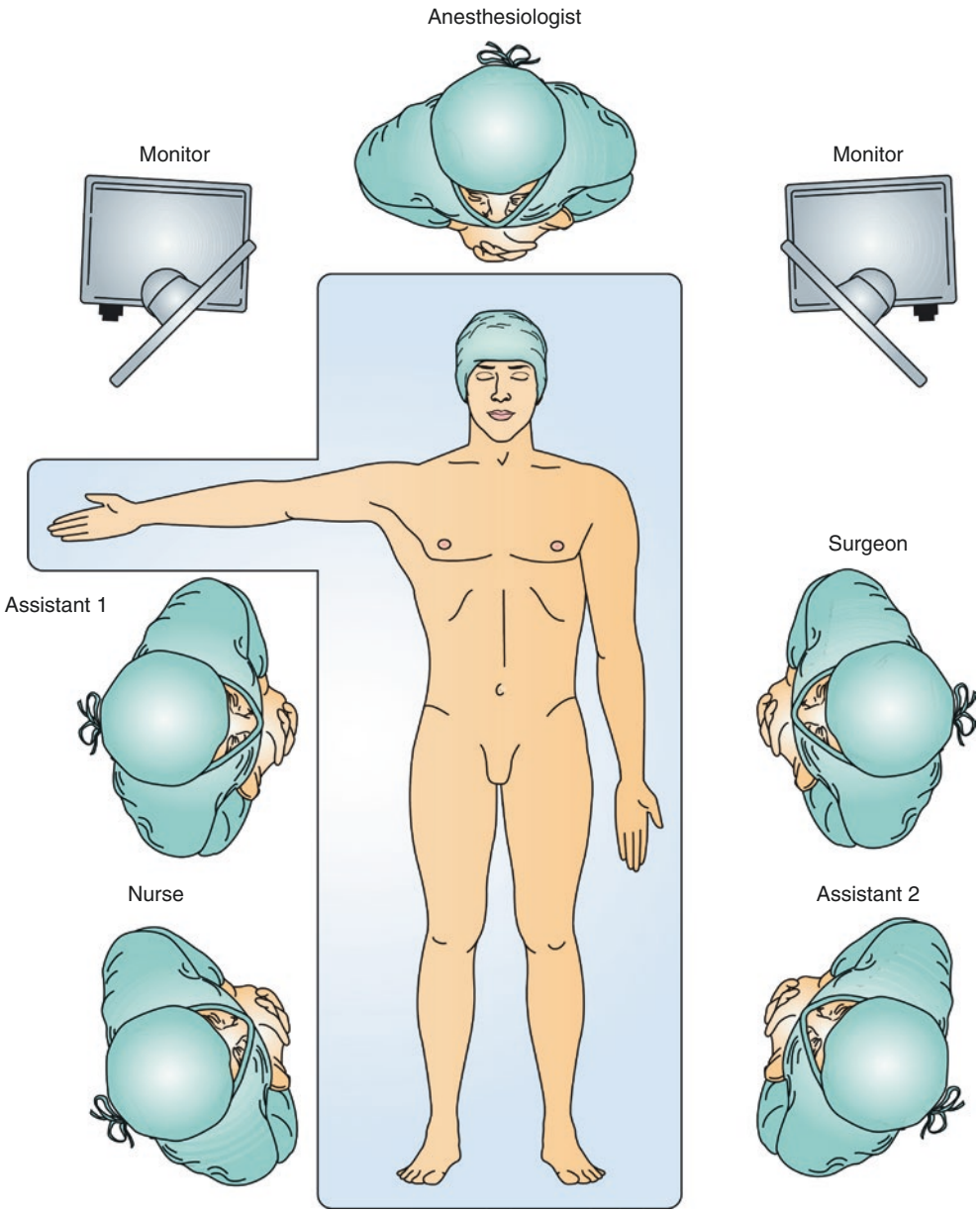

Fig. 32.1 Positioning the patient and the team. Patient is in supine position. Anesthesiologist (ANS), surgeon (S), assistants (A1, A2), nurse (N), monitor (M)

- Pull the Hartman pouch medically to expose the lateral aspect, and peel the peritoneum.
- Peel the anterior portion of the peritoneum that covers the medial aspect of Calot's triangle.
- With an open-and-close motion, the artery and cystic duct are skeletonized (Fig. 32.5).
- Obtain the "critical view of safety" (only two structures are entering the gallbladder, the peritoneum between the two structures and medially until the liver is completely open, so the liver can be visualized in between, and dissect cystic duct all the way to the junction with the gallbladder).

Division of the Cystic Duct and Artery and Dissect the Gallbladder from Liver Bed

- Through the subxiphoid port, introduce clip applier.
- On the cystic duct, apply two clips distally and one proximally.
- Introduce scissors and transect the cystic duct (Figs. 32.6 and 32.7).
- Apply clips to the cystic artery, two clips proximally and one distally.
- Introduce scissors and transect the cystic artery.
- Pull the Hartman pouch to different direction to expose the attachment; dissect the gallbladder from the liver bed with hook electrocautery.

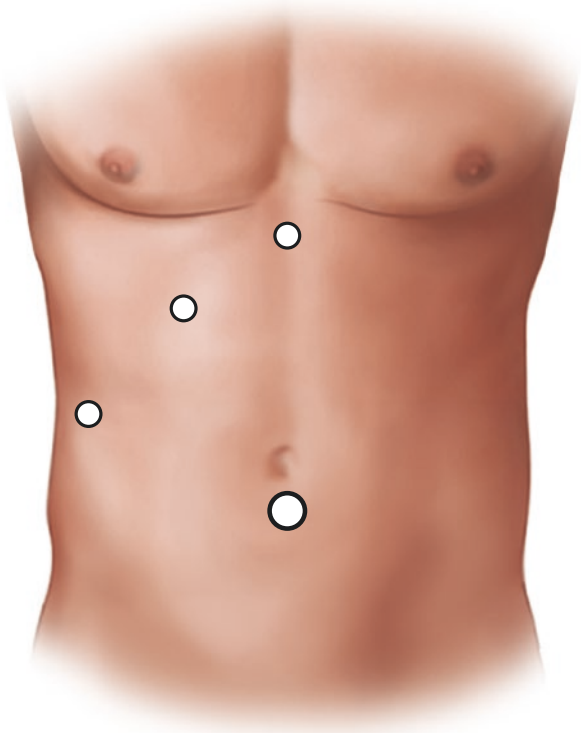

Fig. 32.2 Port placement for laparoscopic cholecystectomy

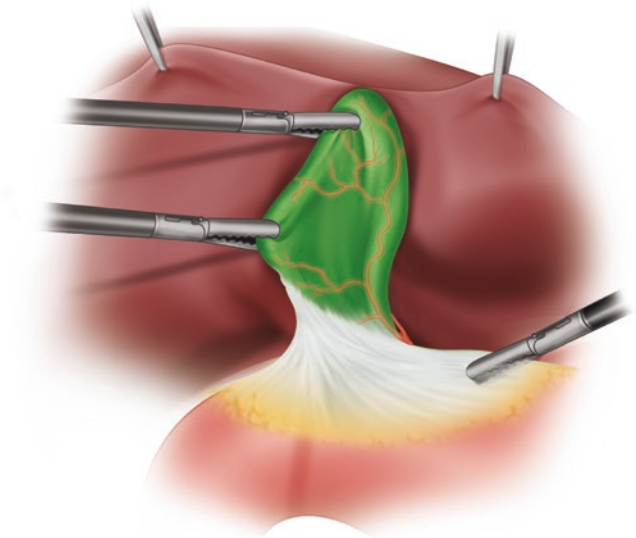

Fig. 32.3 Exposure of the gallbladder and hepatoduodenal ligament

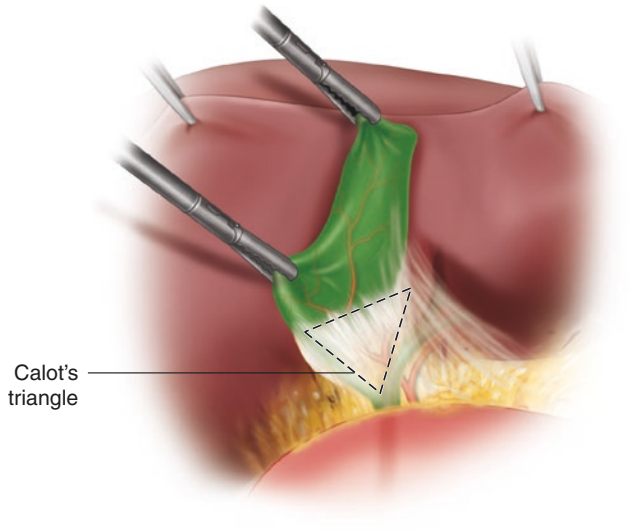

Fig. 32.4 Pull the Hartman pouch laterally to expose Calot's triangle

Irrigation, Hemostasis, and Specimen Removal

- Switch to 5 mm camera and introduce it via right lateral port.
- Introduce an endo bag through umbilical trocar site.
- Place the gallbladder in the bag with a grasper from subxiphoid port (Fig. 32.8).
- Remove bag through umbilicus.
- Irrigation and hemostasis of liver bed area, check cystic duct and cystic artery stumps
- Close umbilical port trocar site fascia with 2-0 Vicryl.
- Close skin of other port sites with 4-0 Vicryl or Monocryl subcuticular suture.

Pearls and Pitfalls

- Laparoscopic cholecystectomy has gained wide acceptance as a gold standard treatment since its introduction in 1987.
- Despite the fact of being safe and effective, possible surgical complications, especially in the hands of inexperienced surgeons, are bile leaks, bleeding, and infection.
- Obtaining the critical view of safety will prevent in most cases the most threatened complication of this procedure, a common bile duct injury.
- Perioperative ultrasound and blood test of liver function are very important before surgery.
- In the presence of possible common bile stones or unclear anatomy, intraoperative cholangiogram should be performed.

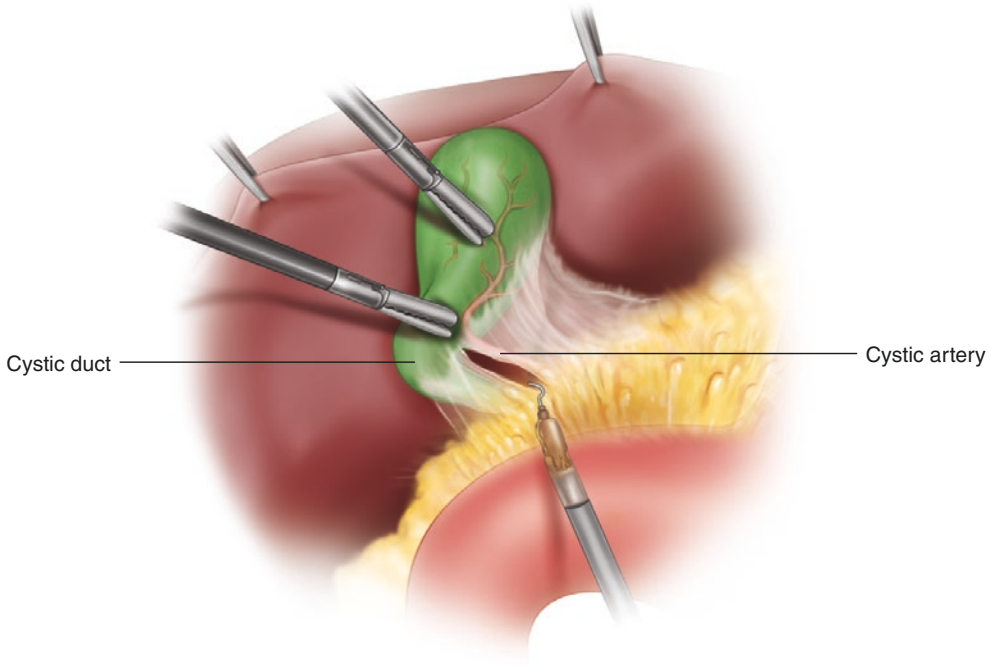

Fig. 32.5 Cystic duct and artery are skeletonized

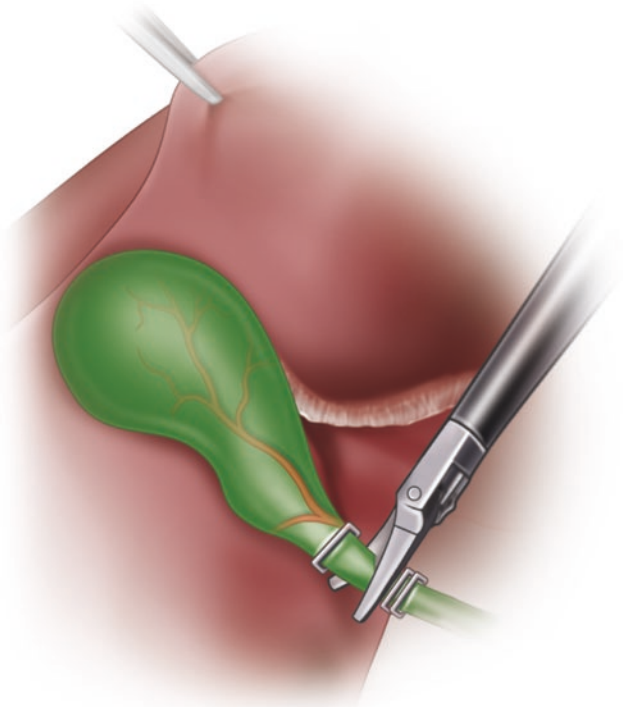

Fig. 32.6 Cystic duct is clipped and is being transected

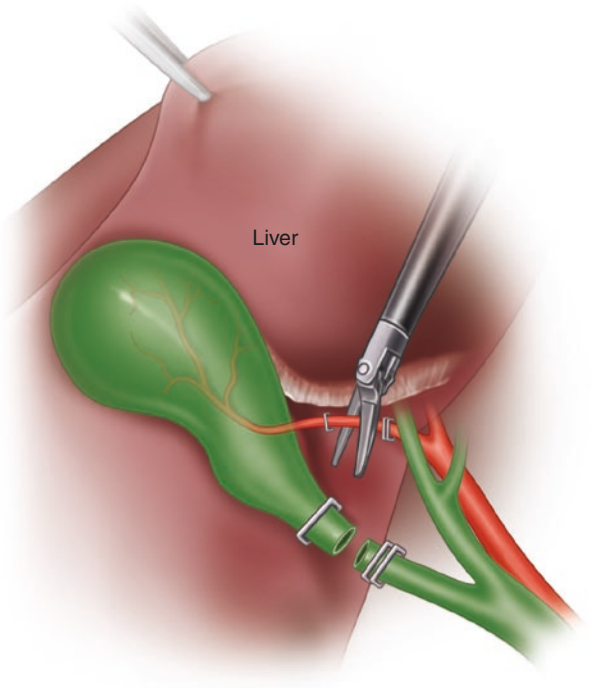

Fig. 32.7 Scissors diving the clipped cystic artery

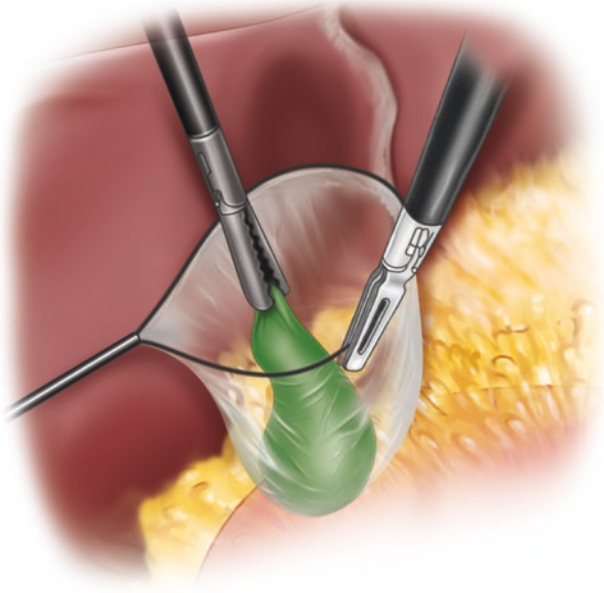

Fig. 32.8 Specimen removal

- Incisionless fluorescence cholangiography is an easy technology that can help in the identification of the biliary anatomy prior to, or during, the dissection.
- Patient history of prior pancreatitis, jaundice, or CBD stones should be taken into consideration before surgery. If the suspicion is high for CBD stones, an ERCP or an intraoperative cholangiogram should be performed.

Access Reader Checklist Appendix

☑ READER CHECKLIST
Laparoscopic Appendectomy

✓ PREFERENCE CARD

►**Instruments**
__15-blade scalpel
__Adson forceps
__Rat Tooth Grasping Forcep
__DeBakey forceps
__Kocher Clamps
__Kelly Clamps
__Mayo Scissors
__Electrocautery (35/35)/Grounding pad
__Suction
__General endoscopic drape and sterile towels
__10 mm scopes and 5 mm scope
__Camera/light cord
__Insufflation cord
__Suction/irrigation and Saline 1000 ml
__Bupivacaine
__10 mm Syringe, 25 G hypo
__Steri-strips ½ inch
__Maryland grasper
__L hook electrocautery
__Ratcheted grasper
__Endocatch
__Ligaclip Applier 5 mm
__Hassan blunt port, 5 mm ports x3
__Anti fog

►**Sutures**
__2-0 vicryl on UR-6 needle
__4-0 Vicryl PS-2 needle

✓ PATIENT POSITIONING/ OPERATING ROOM SETUP

►**Patient Positioning**
__Patient position supine

►**Operating Room Setup**
__Surgeon on patient's left side
__First assistant on patient's right side
__Second assistant on surgeon's left
__Nurse on first assistant right
__Anesthesiologist at patients head
__Monitor position at patient's right and left shoulder
__Trocars
__12-mm trocar at the umbilicus
__Three, 5-mm trocar: one xyphoid and two right upper and lateral abdominal wall

✓ NODAL POINTS

►**Exposre of Gall Bladder and Hepatuduodenal Ligament**
__Introduce right hand Maryland grasper through subxyphoid port
__Eatcheted grasper introduced by assistant through right lateral port
__Grasp gallbladder fundus with ratcheted instrument and oushed cranially exposing hepatoduodenal ligament
__Grasp and lift Hartman pouch with left hand

►**Dissection of Cystic Duct and Cystic Artery**
__-Pull Hartman's pouch laterally to expose the Calot's triangle
__Introduce Maryland grasper introduced through subxyphoid trocar
__Pull Hartman's pouch medically to expose lateral aspect and peel peritoneum
__Peel anterior portion of peritoneum that covers medial aspect of Calot's triangle
__With open-and-close motion, artery and cystic duct are skeletonized
__Obtain "critical view of safety" (only two structures entering gallbladder, that peritoneum between two structures and medial until liver is completely open, so liver can be visualized in between, and dissect cystic duct all the way to junction with gallbladder)

►**Division of Cystsic Duct and Artery, Dissection of Gall Bladder from Liver Bed**
__Introduce clip applier through sub-xyphoid port
__On cystic duct, apply two clips distally and one proximally
__Introduce scissors and transect cystic duct
__Apply clips to cystic artery, two clips proximally and distally
__Introduce scissors and transect cystic artery
__Pull Hartman's pouch to different direction to expose attachment, dissect gallbladder from liver bed with hook electrocautery

►**Irrigation, Hemostatis and Specimen Removal**
__Switch to 5 mm camera and introduce via right lateral port
__Introduce Endobag through umbilical trocar site
__Place gallbladder in bag with grasper from subxyphoid port
__Remove bag through umbilicus
__Irrigation and hemostasis of liver bed area, check cystic duct and cystic artery stumps
__Close umbilical port trocar site fascia with 2-0 vicryl
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