Laparoscopic Cholecystectomy

First View

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INTRODUCTION:

- Laparoscopic cholecystectomy is now the gold standard for the treatment of gallstones.
- Most commonly performed Minimal Access Surgery by General surgeons
- Gall stone disease affects 23.3% population worldwide
INDICATIONS

- Cholelithiasis
- Mucocele
- Empyema gall baldder
- Cholesterosis
- Typhoid carrier
- Porcelain gallbladder
- Acute cholecystyitis
- Adenomatous gall bladder polyps
- As part of Whipple’s procedure
Surgical Anatomy

- Cystic Artery
- Hepatic Artery
- Portal Vein
- Common Bile Duct
Topographic Anatomy

Vascular supply:
1. Gallbladder
2. Cystic artery
3. Mascagni lymph node
4. Proper hepatic artery
5. Abdominal aorta
6. Portal vein
7. Gastroduodenal artery
Surgical Anatomy

of Cholecystectomy

Calot's
American School Position

In American Position Surgeon stand left to patient
American Position
French Position

In French Position Surgeon stand between the leg of the patient
Creation of Pneumoperitoneum

- 10-20 degree head down
- 10 mm trans-umbilical incision
- Lift abdominal wall & insert Veress needle at 45 degree elevation angle
- Start insufflation at 1 litre/minute
Port insertion

- **Position:**
  - 1\(^{st}\) 10mm Umbilical for telescope
  - 2\(^{nd}\) 10mm Left Epigastric
  - 3\(^{rd}\) 5mm right hypochondriac for operating instrument
  - 4\(^{th}\) 5mm port in right hypochondrium 5 cm lateral to third port for Fundus traction
Retraction of Gallbladder

Proper exposure of Cystic Pedicle is required
Traction & Lysis of Adhesion

Hook can be used for adhesiolysis
Traction & Lysis of Adhesion

- Dissection starts on the anterior edge of Hartmann's pouch
- Peritoneum of the superior leaf of the cystic pedicle is divided superficially as far back as the liver by pledget, Scissors, Hook or Maryland.
Traction & Lysis of Adhesion

Scissors Dissection with Monopolar current
Dissection of Cystic Pedicle

Separation of the cystic duct anteriorly from the cystic artery performed by opening the jaw of Maryland.
Overshooting is dangerous

During hook dissection principles of electrosurgery should be kept in mind.
Clipping of cystic artery

- Two clips are placed proximally on the cystic artery.
- Cystic artery is clipped and then divided by hook scissors.
- Artery is then grasped with a grasper on the gallbladder wall and then divided distal to the clips.
Operative Cholangiogram should be routine
Clipping of cystic duct & artery

Clipping of cystic duct followed by dissection
Operative Cholangiogram

Cholangiography Should Be Routine, Not Selective

(JAMA. 2003;289:1639-1644, 1691-1692)

- Insertion of ureteric catheter by correct alignment of cystic duct and saline infusion

- Contrast medium injected & the patient should be in trendelenberg position
Intra-operative Cholangiogram

CBD stones

Obstruction of CBD

Normal Cholangiogram
Ligation of Cystic Duct

- Roeder or Meltzer extracorporeal slip knot is used

- Clipping though easy but unsafe because of reports of internalization of clip and formation of Cat eye stones
Dissection of Gallbladder from Bed

Anterolateral traction helps in proper dissection of gallbladder from gallbladder bed
Dissection of Gallbladder
Extraction of Gallbladder

- The gallbladder is extracted through the 11.0mm operating port inside a bag.
- Extraction inside a bag is recommended as a safeguard against stone loss and contamination of the exit wound.
Extraction of Gallbladder with gentle traction
Extraction of Gallbladder
Incision of neck of GB to suck the bile for Extraction of Gallbladder
Extraction of Gallbladder

Suction of Gallbladder to empty it helps in extraction of gallbladder
Extraction of Gallbladder

Ovum forceps should be used to extract stones from inside the gallbladder.
Extracted Gallbladder
Extracted gallbladder with stones
Endobag for taking stone out
Ending of the operation

- Abdomen should be examined for any possible bowel injury or haemorrhage
- Remove the Instrument and then port
- Remove telescope leaving gas valve of umbilical port open
- Remove port carefully and close the port wound
Routine application of drainage tube is not required
Laparoscopic Cholecystectomy

Video of laparoscopic cholecystectomy
Two port Cholecystectomy

Two port cholecystectomy is possible in the hand of experienced surgeon.
Two port Cholecystectomy

We have developed new two port technique, First time telecasted on our National News Channel.
Two Port Cholecystectomy

Strategically passed extracorporeal knot helps in two port laparoscopic cholecystectomy
Two Port Cholecystectomy

The suture can be pulled from outside to give proper exposure during dissection of gallbladder from bed.
Two Port Cholecystectomy

Gallbladder can be taken out from 10 mm epigastric port
Two Port Cholecystectomy

Video of two port cholecystectomy
Thank You

R.K. Mishra’s Course in Istanbul, Turkey