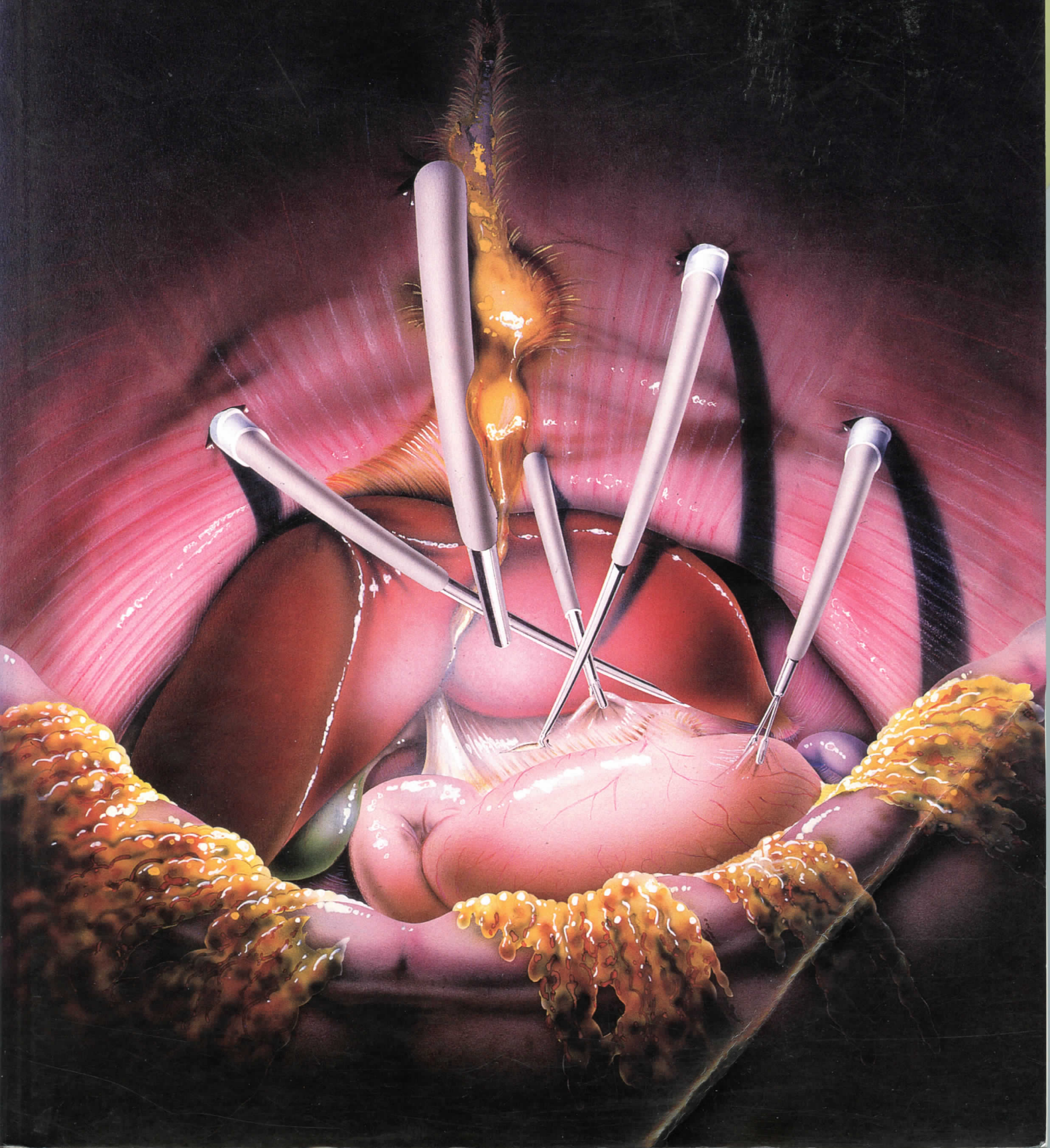


EUROPEAN COURSE ON LAPAROSCOPIC SURGERY

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CHAPTER VI HEPATO-BILIARY

3. CHOLECYSTECTOMY

3.1. INTRODUCTION

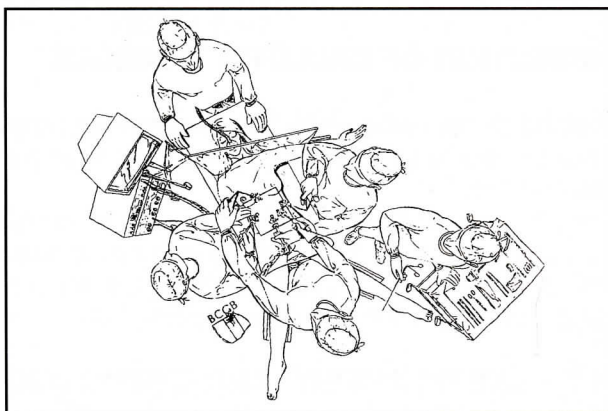
Laparoscopic cholecystectomy has been the big bang in the creation of surgical laparoscopy. Cholecystectomy is only surpassed by appendicectomy in numbers of operative procedures in our Western world. Five hundred thousand cholecystectomies are performed in the United States every year.

Laparoscopic cholecystectomy is nothing but the logical emergence of a years long search from surgeons who were not satisfied with the relatively high morbidity after conventional cholecystectomy. The search for alternative treatments included : lithotripsy, percutaneous lithotomy and ether dissolution of gall bladder lithiasis.

All these "minimally invasive technique", however, leave a diseased gall bladder in place. Laparoscopic cholecystectomy, while providing all the advantages of the minimally invasive therapy, also provides a definitive cure for the gall bladder disease.

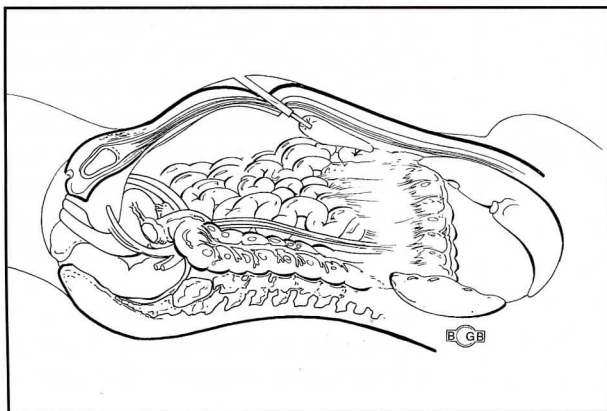
3.2. TECHNIQUE

3.2.1. PLACEMENT OF THE PATIENT



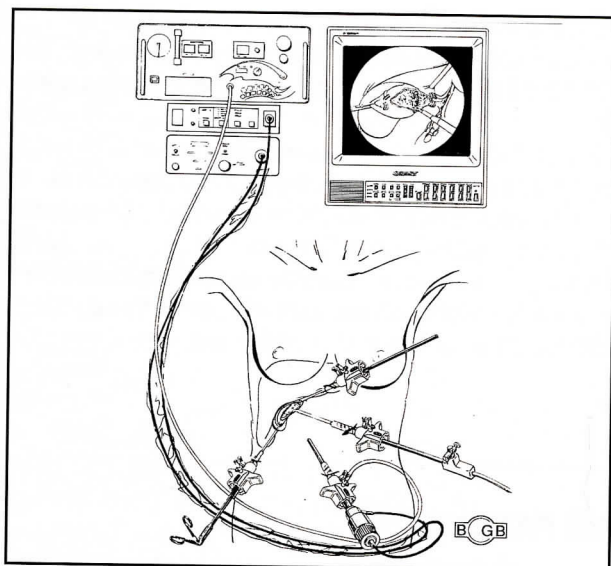
The patient is put under general anesthesia and is intubated. A double lumen nasogastric tube is introduced. The patient is put in the lithotomy position, the thighs being only slightly flexed. The operating table is put in reverse Trendelenburg 30°. The surgeon is positioned between the patient's legs, the first assistant is to the left of the patient and the second assistant to the right. The surgeon, optical system, operative field and monitor have to be approximately in one straight line.

3.2.2. INITIATION OF THE PNEUMOPERITONEUM



Veres's needle is introduced at the level of the umbilicus. A maximum 14 mm Hg intraperitoneal pressure is established, thanks to a high volume insufflator.

3.2.3. PLACEMENT OF TROCARS AND TOOLS



Four trocars are introduced :

1. a 10 mm trocar through the umbilicus,
2. a 5 mm trocar high in the epigastrium, just to the right of the falciform ligament of the liver,
3. a 5 mm trocar under the right costal margin, at level of the anterior axillary line,
4. a 10 mm trocar half way between trocar 1 and 2.2 cm to the left of the midline.

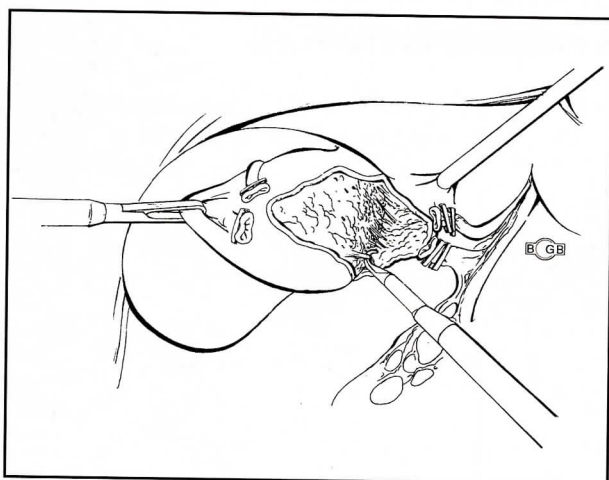
The optical system with a 30° angled scope is introduced through trocar 1, a probe is introduced in trocar 2 in order to retract the liver, a grasping forceps (fenestrated and atraumatic) is introduced in trocar 3 and the coagulating hook is introduced in trocar 4.

3.2.4. EXPOSURE AND DISSECTION OF CALLOT'S TRIANGLE

The right lobe of the liver is retracted by the probe while the grasping forceps grasps the fundus of the gall bladder and pushes this to the right of the patient so as to put the peritoneum of Callot's triangle under traction.

This forceps will subsequently pull the neck of the gall bladder ventrally, which will expose the posterior aspect of Callot's triangle. Dissection is initiated by incising the posterior peritoneal sheath with the coagulating hook. The next step is to incise the entire peritoneal sheath of Callot triangle while the gall bladder is forcefully pulled posteriorly.

3.2.5. SKELETONIZATION OF CYSTIC ARTERY AND CYSTIC DUCT



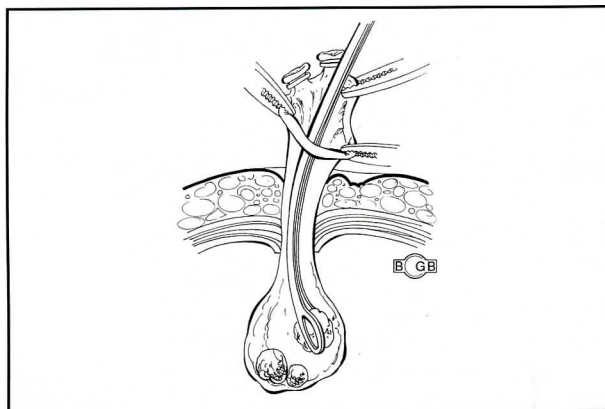
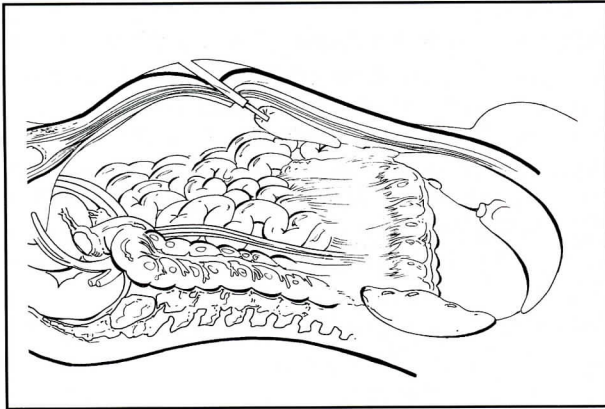
Dissection of the cystic pedicle is performed with the coagulating hook. In order to dissect artery and cystic duct safely, the gall bladder will be successively pulled anteriorly and posteriorly so that the ventral and dorsal aspect of the structures can be identified. Elective ligation of artery and cystic duct with clips can only be performed after perfect skeletonization of those structures. The common bile duct has to be visualised on all occasions, and so does the right branch of the hepatic artery.

Two clips are placed proximally and 1 clip is placed distally. Transection of artery and cystic duct is performed with the scissors.

3.2.6. RETROGRADE CHOLECYSTECTOMY

The neck of the gall bladder is pulled to the right of the patient so as to put the cholecysto-hepatic adhesions under tension. Severance of those adhesions is performed under direct view with the coagulating hook. Traction, and counter traction usually allow for an easy dissection of the gall bladder bed. This dissection is usually bloodless.

3.2.7. EXTRACTION OF THE GALL BLADDER



Once free, the gall bladder is left on the anterior side of the liver. In order to verify the degree of closure of the cystic stump, it is placed under a level of water, any leaks can thus be easily identified.

All accumulated blood can now be safely suctioned by the suction pump, care being taken not to dislodge any clips. The optical system is subsequently introduced in trocar 4. An alligator clamp is introduced in trocar 1. The gall bladder neck is grasped and pulled inside trocar 1 under direct vision. Trocars, alligator clamp and gall bladder neck are then pulled back under tension through the abdominal wall. The gall bladder neck is grasped with two Kelly clamps and incised. Bile is aspirated with the suctioning device. A forceps can now be introduced through the incision in the gall bladder neck and the larger stones can now be fragmented. The gall bladder is subsequently extracted without problems. The pneumoperitoneum is released and the umbilical wound is cleaned with an antiseptic solution. The skin is closed with staples. No drains are left except in case of acute cholecystitis.