Laparoscopic Cholecystectomy Complications

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Complications after laparoscopic cholecystectomy (LC)

- Biliary complications
  - Biliary tree injuries
  - Biliary strictures
  - Retained CBD stones
  - Bile leakage and billiomas
  - Perforation of gallbladder
  - Dropped stones
- Non-biliary complications
  - Hollow viscus injury
  - Pneumothorax
  - Diaphragm injury
  - Bleeding

Surgical complications: Diagnosis and Treatment 2007

Bleeding after LC

- Up to 1/3 of all major complications
- 2nd MCC death in pts undergoing LC (after anesthesia-related complications)
- Reported incidence up to 2%
- Majority of these complications encountered at the "*set up'* phase
  - Creation of pneumoperitoneum and trocar placement

J Am Coll Surg 2001:192:252-36

Bleeding after LC:

Factors implicated in the causation of bleeding complications

Surgical Factors	•Inadequate training and experience •Rough technique •Improper usage of instruments •Inattentive handling of instruments •Inadequate exposure •Failure to recognize anatomical landmarks •Forceful retraction
Patient-Related	•Acute cholecystitis •Cirrhosis •Portal hypertension •Coagulopathy •Adhesionss •Previous surgery •Anatomical abnormalities
Instrument Failures	•Defective instruments

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Bleeding after LC

- Intraoperative
  - Vascular injury
    - Major vessel injury
      - Aorta, cava, iliacs, R hepatic artery, portal vein
    - Minor vessel injury
      - Epigastric artery, omental or mesenteric vessels
  - Slippage of clips/ligature of cystic artery
  - Liver bed bleeding
  - Dissection planes, adhesions
- Postoperative bleeding
  - Internally vs externally
  - Poorly documented in literature
  - Incidence, indications for reexploration and operative findings, still not established in literature

Bleeding after LC:

Classification of patterns of bleeding

	Major	Minor
Intra-Operative Bleeding	•Any bleeding that requires conversion for control/repair. This could be — Bleeding from intra-abdominal vessels: Aorta •Vena cava •Superior mesenteric vein •Portal vein •Right hepatic artery •Cystic artery •Mesenteric vessels •Omental vessels Bleeding from any other site such as •The liver bed	•Bleeding from the vessels of the abdominal wall: Epigastric vessels — have the potential to cause significant haemorrhage but are by and large controllable by pressure, packing or suturing
Postoperative Bleeding	•Any bleeding, external or internal, that requires Re-exploration Additional surgical procedure such as wound exploration Blood transfusion	•Abdominal wall haematomas •Port site bleeding that can be controlled without additional surgical means beyond pressure, packing or suturing

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Management

- Intraoperative bleeding
  - Low threshold for conversion to open approach
  - Control, isolation, dissection and repair of injured vessel
  - Damage control if necessary
  - Judicious use of electrocautery
- Post operative bleeding*
  - High level of suspicion in Dx
  - Aggressiveness of management tailored to severity of bleeding
  - Low threshold for reexploration in post op bleeding
  - Conservative management may be safely established in stable patients

*Recommendations made on Level 3 evidence

General recommendations

- Careful trocar placement during set up
  - Direct vision
- Transilumination of abdominal wall to avoid epigastric vessels
- Removal of trocars under direct vision and after decreasing intrabdominal pressure
- Achieving critical view during dissection
- Judicious use of hemostatic agents
  - eg. Fibrin glue, oxidize cellulose packing

Current Surgical therapy 9th ed
Mastery of Surgery. 5th ed

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