

Steps Involved in Gallbladder Surgery

Elisa Robin*

Department of Gastro Intestinal Tract, Linstead University, Linstead, Jamaica

*Corresponding author: Elisa Robin, Department of Gastro Intestinal Tract, Linstead University, Linstead, Jamaica; Email: robin.11k@gmail.com

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Introduction

Gallbladder surgery, also known as cholecystectomy, is a common procedure performed to remove the gallbladder, typically due to gallstones causing pain, infection, or other complications. This article will explore the comprehensive steps involved in gallbladder surgery, including preoperative preparation, the surgical procedure itself, and postoperative care.

Description

Preoperative preparation

Medical evaluation and diagnosis: History and physical examination: The first step involves a thorough medical history and physical examination. The surgeon will inquire about symptoms, such as abdominal pain, nausea, and digestive issues, and assess for any signs of gallbladder disease.

Imaging studies: Common imaging techniques include ultrasound, CT scan, and MRCP (Magnetic Resonance Cholangiopancreatography). These imaging studies help confirm the presence of gallstones, inflammation, or other abnormalities in the gallbladder.

Laboratory tests: Blood tests are conducted to check for signs of infection, liver function, and pancreatic function. Elevated white blood cell counts, bilirubin levels, and liver enzymes may indicate gallbladder disease.

Patient preparation

Medical clearance: Patients with underlying medical conditions, such as heart disease or diabetes, may require additional clearance from their primary care physician or specialist.

Medication management: Certain medications, such as blood thinners, may need to be adjusted or temporarily discontinued before surgery to reduce the risk of bleeding.

Fasting: Patients are typically instructed to fast for a specific period before surgery, usually starting from midnight the night before, to reduce the risk of aspiration during anesthesia.

Informed consent

Discussion of risks and benefits: The surgeon will discuss the potential risks and benefits of the surgery, including possible complications such as infection, bleeding, or injury to surrounding structures.

Consent form: Patients must sign a consent form acknowledging their understanding of the procedure and its associated risks.

The surgical procedure

Anesthesia: General anesthesia: Gallbladder surgery is usually performed under general anesthesia, which means the patient will be unconscious and pain-free during the procedure.

Anesthesia induction: An Intravenous (IV) line is inserted to administer medications that induce sleep. Once the patient is asleep, a breathing tube is placed to assist with ventilation during surgery.

Surgical approaches: There are two main approaches to gallbladder surgery: laparoscopic cholecystectomy and open cholecystectomy.

Laparoscopic cholecystectomy: Patient positioning: The patient is positioned supine on the operating table. The abdomen is prepped and draped in a sterile manner.

Trocar placement: Small incisions (usually 3-4) are made in the abdomen. Trocars, which are narrow tubes, are inserted through these incisions to create access points for the laparoscopic instruments.

Creating pneumoperitoneum: Carbon dioxide gas is insufflated into the abdominal cavity to create a working space and enhance visibility.

Inserting the laparoscope: A laparoscope, which is a thin tube with a camera and light source, is inserted through one of the trocars. The camera transmits images to a monitor, allowing the surgeon to visualize the surgical area.

Dissection and exposure: The surgeon uses specialized instruments inserted through the other trocars to carefully dissect and expose the gallbladder. The cystic duct and cystic artery, which connect the gallbladder to the bile duct and blood supply, are identified.

Clipping and cutting: The cystic duct and cystic artery are clipped with surgical clips and then cut to detach the gallbladder.

Gallbladder removal: The gallbladder is carefully separated from the liver bed and removed through one of the incisions.

Closure: The carbon dioxide gas is released, and the incisions are closed with sutures or surgical glue.

Open cholecystectomy: Patient Positioning and Incision: The patient is positioned similarly to laparoscopic surgery. A larger incision (about 4-6 inches) is made in the upper right abdomen.

Dissection and exposure: The surgeon manually retracts tissues to expose the gallbladder, cystic duct, and cystic artery.

Clipping and cutting: The cystic duct and artery are clipped and cut similarly to the laparoscopic approach.

Gallbladder removal: The gallbladder is separated from the liver and removed through the incision.

Closure: The incision is closed with sutures or staples.

Intraoperative cholangiography: Purpose: In some cases, Intraoperative Cholangiography (IOC) is performed to visualize the bile ducts and confirm there are no stones or injuries. A contrast dye is injected into the bile ducts, and X-ray images are taken.

Technique: The surgeon introduces a small catheter into the cystic duct stump, injects the dye, and takes X-ray images to assess the bile ducts.

Postoperative care

Managing complications: Bleeding: Meticulous surgical technique and hemostasis are crucial to control bleeding. Vascular clips, sutures, or electrocautery may be used to achieve hemostasis.

Injury to bile duct or other structures: The surgeon must take care to avoid injury to the common bile duct, liver, or intestines. If an injury occurs, it may require additional surgical repair.

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Postoperative care

Recovery room: Monitoring: After surgery, the patient is taken to the recovery room where vital signs are closely monitored, including blood pressure, heart rate, respiratory rate, and oxygen saturation.

Pain management: Pain is managed with medications, such as opioids or non-steroidal anti-inflammatory drugs (NSAIDs).

Hospital stay: Observation: The length of hospital stay varies. Patients undergoing laparoscopic cholecystectomy often go home the same day or after an overnight stay, while open cholecystectomy patients may require a longer hospital stay.

Mobility and breathing exercises: Early ambulation and deep breathing exercises are encouraged to prevent complications like blood clots and pneumonia.

Discharge instructions: Activity restrictions: Patients are advised to avoid strenuous activities and heavy lifting for several weeks to allow for proper healing.

Dietary guidelines: A gradual return to a regular diet is recommended, starting with clear liquids and progressing to solid foods as tolerated.

Wound care: Instructions are provided for wound care, including keeping the surgical site clean and dry.

Conclusion

Gallbladder surgery is a well-established procedure with a high success rate and low complication rate when performed by experienced surgeons. Understanding the detailed steps involved, from preoperative preparation to postoperative care, can help patients and their families feel more informed and prepared for the surgical journey. Advances in surgical techniques and technologies continue to improve the outcomes and recovery experience for patients undergoing gallbladder surgery.