

**Pre operative preparations of
the patients for laparoscopic
surgery**

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- "Sweat saves blood" Although this is a military quotation, its essence is critical to the safe conduct of laparoscopic surgery, and indeed all of medicine.
- With proper preparation, morbidity and mortality can be minimized, and patient outcomes optimized.
- Laparoscopy is the consequence of advance medical engineering.
- Minimal access surgery has developed after grand success of laparoscopic cholecystectomy.

UNIVERSAL PROTOCOL

- PATIENT IDENTIFICATION
- PROCEDURE VERIFICATION
- CONSENT VERIFICATION

- The Universal Protocol addresses the prevention of wrong-person, wrong-site, and wrong-procedure surgeries, in addition to improving communication among care-team members, including the patient.
- The anatomic consideration pertinent to patient safety is the proper marking of unilateral procedures, also known as "sign your site" approach.
- Marking should be done with as permanent an ink marker as possible.
- Informed consent requires that a patient understand what they are consenting to.

PATIENT SELECTION

- Patients with cardiac pathology must be subjected to a thorough pre operative assessment.
- Patient presenting with decompensated congestive cardiomyopathy are at the highest risk of the laparoscopic surgeries.

PATIENT SELECTION (contd..)

- Patients that are concerned before performing laparoscopic surgeries are those with severe emphysema, asthma, cystic fibrosis or other pulmonary disease.
- It is important to evaluate the patients having upper respiratory tract infections or other conditions that may impair pulmonary functions at the time of surgery.

PATIENT SELECTION (contd..)

- Young women are at high risk for post operative nausea and vomiting following general anaesthesia.
- Haemodynamically unstable patients are contraindicated as they precipitate hypovolumic shock.

Pre operative assessment

Adequate pre operative assessment of the patient minimizes the risk of general anesthesia.

Preoperative Medical clearance (Co-existing problems)

- Respiratory problems: smoking, asthma with COPD, emphysema.
- Cardiac diseases : congestive heart failure, hypertension, IHD, LV dysfunction, cardiac arrhythmias, or coronary artery disease.
- Obesity
- Pregnancy .

Pre operative assessment (contd..)

The investigations should be given are following-

- Complete blood count with ESR
- Serum electrolytes
- Serum Creatinine
- Fasting blood sugar and 2 hours after breakfast
- ECG
- Chest X-ray P/A view
- HBsAg
- Anti-HCV
- S. alkaline phosphatase
- Blood grouping and Rh-typing

- **Complete blood count with ESR-**

It is important to evaluate whether the patient is having anaemia or any types of infections that will give us a lead to correct her illness prior to operation.

- **Serum electrolytes-**

Metabolic imbalance e.g hypokalemia , hyperkalemia , hyponatremia needs to be corrected prior to operation.

- **Serum creatinine-**

The patients with impaired renal functions needs special attention.

- **Fasting blood sugar –**

Blood glucose are monitored and controlled by giving the patients insulin if necessary.

- **Chest X-ray P/A view –**

Respiratory tract infections, COPD, cardiomegally can be evaluated by performing chest x-rays.

- **HBsAg**

Blood borne diseases needs to be identified so that these patients can be scheduled as a last case of that following day of surgery to prevent contamination.

- **Blood grouping and Rh typing**

Arrangement of blood is essential in case of anaemic patient.

Preparation for laparoscopic surgery

- Overall fitness: cardiac arrhythmia, emphysema
- Previous surgery: scars and adhesions
- Body habitus: obesity, skeletal deformity
- List of current medications and allergies
- Bowel preparation
- Normal coagulation
- Thromboprophylaxis
- Informed consent

Preparation is very similar to that of open surgery and aims to ensure that:

- The patient is fit for the procedure
- The patient is fully informed and has consented.
- Operative difficulty is predicted when possible.
- Appropriate theater time and facilities are available

Medications and Allergies

- Warfarin should be withheld 5 days to 7 days preoperatively.
- Medications that affect blood clotting, such as ibuprofen, ginkgo biloba, clopidogrel, and others, -- discontinued 7 - 10 days before surgery.
- ACE inhibitors and Angiotensin II antagonists should be discontinued at least 10 hours before general anesthesia is administered to reduce intraoperative hypotension.
- Patients receiving steroid therapy, such as prednisone, for a period of >2 weeks to 3 weeks should be advised to continue their usual doses or be given stress doses of steroids perioperatively to avoid adrenal insufficiency.
- Drugs like MAO-inhibitors and TCA react with anesthetic agents and should be discontinued approximately 2 weeks to 3 weeks before surgery.
- Serotonin specific reuptake inhibitors (SSRIs) are continued, because withdrawal can precipitate anxiety, dizziness, lethargy, palpitations, and GI complaints.

BOWEL PREPARATION

- The purpose of bowel preparation is to decrease the bulk of feces in the colon and to aid manipulation of the bowel, visualization in the surgical field, and decrease the risk of infection and anastomotic leakage should bowel opening occur.

DVT Prophylaxis

- Prophylaxis against the development of an intraoperative thromboembolism is an important consideration in all surgical procedures.
- Thromboembolism treatment guidelines:
 - ✓ Enoxaparin 1mg/kg SC 12h or 1.5mg/kg SC daily
 - ✓ Tinzaparin 175 IU/kg SC daily
 - ✓ Dalteparin 100 IU/kg SC every 12 h or 150 IU/kg SC daily
 - ✓ Fondaparinux (based on the body weight)
5 - 10 mg (BW 50 - 100 kg)
 - ✓ Unfractionated heparin IV infusion

Surgical-site infection prevention

- Hair removal - cause some degree of irritation, so now-a-days discouraged.
- Skin preparation - topical reduction in skin flora using some method of site preparation is a mainstay of modern surgical practice.

Patient positioning

- Trendelenburg position - when surgeon is focusing on the pelvis, such as laparoscopically assisted hysterectomies or tubal sterilization.
- Reverse Trendelenburg position - lap. cholecystectomy and fundoplication.
- Lateral tilt - for the access to the gall bladder and retroperitoneal structures, such as kidney.
- Lithotomy position - gynecologic and genitourinary procedures.
- Lateral jackknife position - laparoscopic adrenalectomy and thoracoscopy.

Intra-operataive complications

- The anaesthetic problems during minimal access surgeries are related to
 - cardio pulmonary effects of
 - pneumoperitonium,
 - carbon dioxide absorption,
 - extraperitoneal gas insufflation,
 - venous embolism and
 - injuries to intra abdominal organs.

Intra-operataive complications (contd..)

- Bradycardia has been reported due to rapid insufflation specially in older patients. The increasing pressure in the peritoneum increases vagal tone and bradycardia may develop.
- Pulmonary edema can result from aggressive fluid replacement or irrigating fluid absorption. It can be prevented by monitoring fluid intake and output chart .

Anaesthesia in laparoscopic surgery

- **Regional anaesthesia-** spinal anaesthesia is only for diagnostic laparoscopy and for pelvic procedure.
- **General anaesthesia** – most of the cases general anaesthesia is a routine protocol.
- **Local anaesthesia** –in very few centers are practicing laparoscopic procedure under local anaesthesia with intravenous sedation.

Premedication

- Premedication should be decided by anaesthetists depending upon type and duration of operation.
- H₂ receptor antagonist can be given to reduce acid aspiration.
- Anti-emetics for prevention of post operative nausea and vomiting.
- DVT prophylaxis is mandatory.

Intra operative monitoring

Careful monitoring of a patient undergoing laparoscopic surgical procedure is very important.

Intra operative monitoring (contd..)

Monitoring has certain elements in common for all patients which are as follows-

- ECG
- Rate of respiration
- SpO₂
- Temperature
- Pulse rate
- Cardiac output
- EtCO₂

Post operative management

- When the patient is awake he or she should be extubated and transferred to recovery room in a semi recumbent position.
- During the next 5 hours of post operative period
 - Analgesia should be achieved.
 - Vital signs and O₂ saturation are monitored.
 - Nausea and vomiting is frequent after general anaesthesia. So anti-emetics are given during post operative period.

Post operative management (contd..)

- On the morning of first post operative day, the patient should be mobile, pain free and should start soft diet.
- By maintaining proper pre operative management of a patient, proper intra operative and post operative care , sterile dressings are the key to achieve a successful surgery.

Summary

- Minimally invasive surgery is not synonymous with minor surgery.
- Complications may be related to pathophysiological changes occur due to gas insufflation, patients position and techniques.
- G/A is the choice of anaesthesia, LMA, Regional anaesthesia can be given in selected cases.