# **Short Communication**

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# Preparing for laparoscopic surgery: a quick note

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#### **ABSTRACT**

Laparoscopic surgeries are performed even in the remotest areas of the world today and are not bereft of complications. This article is an effort to provide the surgeons with a quick check note on patient preparation before a laparoscopic surgery. It hopes to remind them of some of the unique difficulties brought about by pneumoperitoneum and positioning and the measures which may be needed to counter them.

Keywords: Laparoscopic, Pneumoperitoneum

#### INTRODUCTION

### Preparing for laparoscopic surgery: a quick note

Abraham Lincoln had said "Give me six hours to chop down a tree and I will spend the first four sharpening the axe." Suboptimal patient preparation has obvious deleterious consequences for the operative team, be it a surgeon or the anaesthesiologist and eventually of course, both.

#### Patient preparation

For laparoscopic surgeries, cardiovascular and pulmonary assessment for risk stratification becomes vital because of the various physiological changes associated with pneumoperitoneum. Check lists such as those advocated by WHO or the surgical care improvement project (SCIP) which represents a series of guidelines to decrease the incidence of certain complications in the immediate (30-day) postoperative time frame have been proposed.<sup>1</sup>

These are safety measures, devised as protocols essentially to ensure proper preoperative preparation.

Preparation of a patient for laparoscopic surgery broadly includes;

- A detailed discussion of the procedure. We take an
  informed consent explaining all the benefits and all
  risks, including conversion into an "open" procedure
  intraoperatively. Patients' expectations from the
  procedure has important bearing on the overall
  success of the procedure.
- Assessment and optimization of the comorbid medical conditions. The team must decide, when not to go for a laparoscopic approach based upon the coexisting patient comorbidities eg as in a respiratory cripple. This requires multidisciplinary teamwork in assessment and evaluation of such patients.
- Bowel preparation: Back in 1981, a landmark metaanalysis concluded that evidence supporting antibiotic bowel preparation prior to colorectal surgery was such that further studies which included "no-treatment" control groups, should be considered unethical! More recently, Society of American Gastrointestinal and Endoscopic Surgeon Recommend: "preoperative mechanical bowel preparation be used to facilitate manipulation of the bowel during the laparoscopic approach and to

facilitate intraoperative colonoscopy when needed." (++OO, weak).<sup>2</sup> The choice of bowel preparation in most laparoscopic centres is as per institute protocols and/or surgeons' choice.

 We follow the fasting recommendations for laparoscopic surgeries which has been advocated by the American Society of Anesthesiology (ASA) and are as follows.<sup>3</sup>

Table 1: Fasting recommendations for laparoscopic surgeries.

Ingested material	Minimum fasting period (hours)
Clear liquids	2
Breast milk	4
Infant formula/non-human milk	6
Light meal	6
Meal containing meat/ fried/ fatty food	8

These recommendations assume importance because laparoscopic patients are more vulnerable to aspiration compared to other patients because of the high intraabdominal pressure, changes in position with possible airway device displacements and increased incidence of nausea/vomiting due to the peritoneal stretching.

#### Premedication

- Anxiolysis is normally achieved using a benzodiazepine (tab Alprazolam/tab Diazepam) given night before surgery and/or on the morning of surgery. Intravenous Midazolam is usually given before surgery
- Post-operative nausea vomiting (PONV) prophylaxis is important because laparoscopic patients have a higher incidence of nausea in the postoperative period.

Study routinely give intravenous dexamethasone 8 mg i.v. given preoperatively in laparoscopic cholecystectomy which has Level IA recommendation. Addition of serotonin antagonist e.g. Ondensetron before extubation further reduces the incidence of PONV from 17% to 3% and so should be contemplated for routine use.<sup>4</sup>

In many centres Inj Metoclopramide and Inj. Ranitidine either alone or in combination are being routinely used as premedicant but they have been found to be of limited use in prevention of nausea and vomiting.

Adequate hydration and avoidance of nitrous oxide have shown to reduce the incidence of PONV in laparoscopic patients. Air is thus used in combination with an inhalational agent Isoflurane/Desflurane/Sevoflurane. When total intravenous anaesthesia (TIVA) is contemplated, intravenous propofol may be used for maintaining anaesthesia.

# Measures to counteract the adverse hemodynamic fluctuations

Intra-abdominal pressures above 12 mm Hg cause significant hemodynamic alterations. Measures to blunt the adverse effects include:

- fluid loading with 5-10 ml/kg of intravenous fluid before gas insufflation
- tilting the patient to a slight head-down position before peritoneal insufflation
- By preventing pooling of blood with intermittent sequential pneumatic compression device<sup>5</sup>
- wrapping the legs with elastic bandages

All these measures counter the adverse hemodynamic fluctuations of insufflation by increasing cardiac output by increasing the venous return. Pharmacological agents which are commonly used include:

- α2-adrenergic agonists, such as clonidine or dexmedetomidine
- β-blocking agents: which significantly reduce hemodynamic changes and anesthetic requirements in laparoscopic surgeries
- High doses of remifentanil almost completely prevent the hemodynamic changes of pneumoperitoneum. The agent however, is not routinely used in most centres.

# Planning postoperative analgesia

Pre-emptive analgesia i.e. administration of non-steroidal anti-inflammatory or COX II inhibitors before incision, intraoperative use of an anti-emetic e.g. Serotonin antagonists (ondansetron), pre-incisional use bupivacaine, administration of intraperitoneal bupivacaine on establishment of pneumoperitoneum and avoidance of drains, all have Grade A Class 1 recommendation for decreasing the postoperative pain in laparoscopic surgeries. In our prescription, we include an NSAID (ketorolac/diclofenac) and an opioid such as tramadol or morphine for postoperative analgesia as these controls the visceral stretch pain in an effective manner. Rescue analgesics must also be prescribed in case of breakthrough pain. We use intravenous fentanyl for the purpose.

- DVT prophylaxis based on the procedure and the patient's risk factors must be considered.
- Antibiotic prophylaxis as per the institute protocols.
   It should be contemplated in high risk patients.
- Patient Positioning Patient positioning depends on the site of surgery. These positions may be responsible for, or contribute to, the development of pathophysiologic changes or injury during laparoscopy. The American Society of Anaesthesiologist (ASA) practice advisory on the prevention of perioperative peripheral neuropathies recommends that when practical, the patient should

- be placed in the intended position before the procedure to see if it is comfortable. If the position is uncomfortable when the patient is awaking, it should be modified until it is comfortable.
- A standard has been advocated that requires a "time out" in the operating room, including proper identification of the patient, the surgery, and the surgical site before incision. These measures are demonstrated to improve patient outcomes and are important components of a modern approach to any surgical intervention.

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