

Gastric Distension During Laparoscopic Cholecystectomy: Comparison between ETT and PLMA

A Chakraborty, G Kumar, P Bhattacharya

Citation

A Chakraborty, G Kumar, P Bhattacharya. *Gastric Distension During Laparoscopic Cholecystectomy: Comparison between ETT and PLMA*. The Internet Journal of Anesthesiology. 2006 Volume 13 Number 1.

Abstract

Gastric distension during laparoscopic cholecystectomy can lead to serious injury to the stomach during insertion of trocar. The incident of gastric distension was found lower in patients with ProSeal LMA than with endotracheal intubation.

INTRODUCTION

Gastric distension during general anesthesia is a common phenomenon, may be due to entrainment of air during mask ventilation before intubation or inadvertent esophageal intubation. Positive pressure ventilation may exploit leaks around the LMA cuff, leading to gastric distension and/or inadequate ventilation. The inflation of stomach has several consequences during upper abdominal laparoscopy. Perforation of the stomach may occur on insertion of a Verres needle and laparoscope and there is obscuration of view by distended stomach. Early recognition of the inflation can be overcome by preoperative placement of nasogastric tube. We decided to work out an anesthetic plan with least chance of gastric inflation during upper abdominal laparoscopy.

STUDY

Sixty ASA grade I patients undergoing laparoscopic cholecystectomy were randomly selected and divided into two groups (30 in each group). Patients with BMI >30 kg/m², known COPD, hiatus hernia or gastro-esophageal reflux were excluded. The patients in Group A (n=30) were induced with 1% propofol IV slowly till loss of verbal contact and vecuronium (0.1mg/kg) has been used as relaxant. Endotracheal intubation was done after 3 minutes of ventilation to achieve adequate relaxation. The Group B (n=30) patients were also induced by 1% propofol IV till loss of verbal contact and Pro-Seal LMA (PLMA) was placed to provide controlled ventilation. Vecuronium (0.05mg/kg) was given after the checking of proper placement of the PLMA. Obscuration of proper view and difficulty in manipulation of structures intraoperatively due to inflation of stomach were considered to be the deciding

factor for nasogastric tube placement and the incidents were noted.

The age and weight were not significantly different in the two groups but the incident of nasogastric tube insertions was significant. In Group A, 9 occasions (30%) of nasogastric tube insertion was required to deflate the stomach. In 4 occasions distension of stomach was obvious by epigastric fullness even before insertion of the laparoscope. But in PLMA group only one patient (3.3%) was needed the deflation of the stomach. No incident of aspiration or any displacement of PLMA was happened. The incidence of sore throat was found in 3 patients in group B but in two occasions in Group A.

Gastric perforation during insertion of laparoscope has been reported several times. Incidence of gastric inflation during endotracheal tube anesthesia and classic LMA anesthesia was found same² whereas least with PLMA insertion³. PLMA was found effective in positive pressure ventilation during gynecological laparoscopy without any risk of gastric inflation in obese and non-obese patients⁴. In our PLMA series, mask ventilation was not required as the placement of PLMA was done soon after induction with propofol. Beside it, requirement of anesthetic depth is less during PLMA insertion and Ryles tube insertion is easier through it than when endotracheal tube in situ. Negligible incident of gastric inflation with PLMA technique may insist anesthesiologists to use it as an airway device of choice during laparoscopic cholecystectomy.

References

1. Whitford JHW, Gunstone AJ. Gastric perforation: a hazard of laparoscopy under

general anaesthesia British Journal of Anaesthesia, 1972; 44: 97-99

2. Maltby JR, Beriault MT, Watson NC, Fick GH. Gastric distension and

ventilation during laparoscopic cholecystectomy: LMA-Classic vs. tracheal

intubation. Can J Anaesth. 2000 Jul;47(7):622-6.

3. Roth H, Genzwuerker HV, Rothhaas A, Finteis T, Schmeck J. The ProSeal

laryngeal mask airway and the laryngeal tube Suction for

ventilation in

gynaecological patients undergoing laparoscopic surgery. Eur J Anaesthesiol.

2005 Feb;22(2):117-22.

4. Maltby JR, Beriault MT, Watson NC, Liepert DJ, Fick GH. LMA-Classic and

LMA-ProSeal are effective alternatives to endotracheal intubation for gynecologic

laparoscopy. Can J Anaesth. 2003 Jan;50(1):71-7

Author Information

Arpan Chakraborty, MBBS

Junior Resident, Department of Anesthesiology, Institute of Medical Sciences, Bananas Hindu University

G. Praveen Kumar

Junior Resident, Department of Anesthesiology, Institute of Medical Sciences, Bananas Hindu University

Prithwis Bhattacharya, M.D.

Reader, Department of Anesthesiology, Institute of Medical Sciences, Bananas Hindu University