Use of the laryngeal mask airway for laparoscopic procedures

THE DILEMMA

Can the LMA safely be used for laparoscopy?

LMA IS FINE

The first thing any anaesthetic trainee is taught is how to ventilate on a face mask: 'if you plan to paralyse, first make sure you can ventilate'. In the days when the laryngeal mask airway (LMA) was still a prototype in Archie Brain's garage, anaesthetists ventilated for short periods on a mask electively or for longer periods when intubation proved difficult.

Anaesthetists intubate to protect the airway from aspiration, because the airway is to be shared or because they wish to ventilate the patient. They may ventilate because the surgeon requires muscle relaxation or for anaesthetic convenience (e.g. control of O_2 and CO_2 tension, depth of anaesthesia). Most patients are intubated for 'convenience'.

When the LMA was first introduced it was emphasized that it did not protect against aspiration and was not recommended for IPPV. This was sensible and contributed to the LMA's rapid acceptance, particularly in the UK. We have now had 17 years' use of the LMA and an estimated 100 million uses worldwide. The morbidity is low compared with tracheal intubation and it is easy to ventilate patients using the LMA, so why are we having this debate at all?

The answer is the ever present fear of aspiration. Ever since Mendelson's 1946 description of 3 cases of acid aspiration (none of whom died) anaesthetists have gone to great lengths to secure the airway with a cuffed tracheal tube. How real is this risk in the elective patient without known risk factors? Englehardt and Webster (1999) suggest it is probably low. I submit that many patients are intubated only because they are going to be ventilated. Those without significant aspiration risk may be ventilated with an LMA. Skinner et al (1998) have shown the LMA to be as safe as intubation for day case laparoscopy. This has been my practice for several years, provided aspiration risk factors (especially heartburn) are absent.

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NOT UNTIL FURTHER EVIDENCE

Although aspiration of gastric contents under anaesthesia is perceived as a major risk to the patient, it is difficult to get an accurate idea of its true incidence and danger. Englehardt and Webster (1999) suggest the incidence of aspiration during anaesthesia is low, with low associated morbidity and mortality.

However, anaesthetists are increasingly anxious about using the LMA. Are the advantages of ease and speed of use, diminished anaesthetic requirements and fewer sore throats compromised by the possibility that airway protection may be less effective than with an endotracheal tube?

Verghese and Brimacombe (1996) concluded that using an LMA for gynaecological laparoscopy and laparotomy appeared safe, and that pulmonary aspiration with the LMA was uncommon.

However, this has been challenged, first by McCrory and McShane (1999), who showed that gastric contents can access both the oesophagus and mask during spontaneously breathing patients under anaesthesia by LMA, and second by a review of cases of aspiration from the Australian Anaesthetic Incident Monitoring Study (Kluger and Short, 1999). This showed that most cases, which occurred with either a face mask or LMA, were associated with an immediate major physiological disturbance. Death occurred in five patients.

Case reports of serious morbidity after aspiration during LMA anaesthesia (Nanji and Maltby, 1992) also suggest caution is still necessary, particularly when predisposing factors are present. These factors are morbid obesity, hiatus hernia, diabetes, impaired gastrointestinal transit time, increased intra-abdominal pressure, oesophageal disease, gastro-duodenal ulceration, lithotomy position, history of reflux and inadequate anaesthesia with coughing and straining.

Until the controversy is resolved endotracheal intubation seems a safer option for laparoscopic procedures under general anaesthesia and mandatory in patients with the above predisposing factors.

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