Use of an endotracheal tube or LMA Flexible in nasal surgery

Nasal surgery includes short procedures such as reduction of nasal fractures and antral washouts, or longer procedures such as septoplasty, turbinate surgery, functional endoscopic sinus surgery and nasal polypectomy.

The ideal anaesthetic technique for nasal surgery will provide a secure airway with protection of the tracheo-bronchial tree from blood and debris. In order to optimize the surgical field and minimize blood loss, a haemodynamically stable anaesthetic is required, and often controlled hypotension is used.

Endotracheal tube

Traditionally, the endotracheal tube (ETT) has been used for the majority of ear, nose and throat procedures. The cuffed tube provides maximum protection of the airway from blood and debris. If securely fixed in situ, it is unlikely to become displaced intraoperatively, avoiding potential catastrophic consequences. The south-facing RAE (Ring, Adair, Elwyn) tube provides good surgical access. Intubation is a skill familiar to all anaesthetists, and requires no extra training. It does, however, usually involve the use of neuromuscular blockers.

A choice must be made between extubating the patient in a deep or light plane of anaesthesia. When extubating deep, the ETT is replaced with a Guedel airway before the airway reflexes are returned, leaving an unprotected airway. Light extubation is often used with intermittent positive pressure ventilation (IPPV), and involves the removal of the ETT once the airway reflexes are fully intact. A period of coughing or bucking often accompanies light extubation.

LMA Flexible

The LMA Flexible (fLMA) (Intavent Orthofix Ltd, Maidenhead, Berkshire) is becoming increasingly popular for nasal surgery. Since 1992 at the Royal National Throat, Nose and Ear Hospital, London, over 20 000 nasal procedures have been performed using the fLMA (Patel, 2006). There are significant advantages over the ETT in the induction, maintenance and emergence stages of anaesthesia.

Avoidance of laryngoscopy and tracheal intubation avoids dental trauma and oesophageal or endobronchial intubation. The physiological responses of intubation are avoided, as is the use of muscle relaxants.

During the procedure, there is tolerance of the fLMA at lighter levels of anaesthesia and with no requirement for muscle relaxants, spontaneous ventilation is straightforward. A well-positioned fLMA can be used for IPPV, usually in a head-up position for nasal procedures, to provide airway pressures below 20 cmH_2O.

Studies using methylene blue dye (John et al, 1991; Patel, 2006) and barium dye (Cork et al, 1994; Patel, 2006) have shown that with a correctly sized and sited fLMA, with an oropharyngeal leak pressure or seal greater than 15 cmH_2O, soiling of the tracheo-bronchial tree by upper airway secretions or debris does not occur. However, it will not protect against gastric regurgitation, worsened by stomach insufflation caused by a poorly sized or positioned fLMA.

The absence of laryngeal stimulation provides greater haemodynamic stability intraoperatively, reducing bleeding and providing an optimum surgical field.

It is in the recovery phase of anaesthesia that the fLMA has the greatest benefits. The fLMA is left in situ until the airway reflexes are returned. There is less coughing, bucking, straining, laryngospasm and airway obstruction. Aspiration of blood was shown to be much less common during emergence from nasal surgery with the fLMA than with the ETT (Rheineck Leyssius et al, 1994; Webster et al, 1999; Patel, 2006). There are significantly fewer hypoxic patients with the fLMA compared to the ETT (Webster et al, 1999; Patel, 2006).

The cardiovascular profile is again more stable on emergence with the fLMA than with the ETT.

The safe, efficient use of the fLMA in nasal surgery requires specific skills of the anaesthetist. The correct insertion technique needs to be mastered, and the optimum depth of anaesthesia for insertion needs to be reached. The anaesthetist must be able to identify malposition of the cuff and leaks in the seal, and must have practise in spontaneous, assisted and positive pressure ventilation. There must be cooperation from the surgeon, and an understanding from the recovery staff as to when and how to remove the fLMA.

Conclusions

The ETT is traditionally used for nasal surgery, to protect the tracheo-bronchial tree from contamination. The correctly sized and placed fLMA has been shown to provide adequate airway protection, while offering significant advantages in induction and maintenance of anaesthesia, and superior emergence characteristics. It does, however, require some skill and experience to use successfully, and in unskilled hands the ETT may be the default option. BJHM

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