Clinical Reports

Vomiting and aspiration pneumonitis with the laryngeal mask airway

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We report a case of severe aspiration pneumonitis in the dependent lung of a 74-yr-old man following Austin-Moore arthroplasty. A laryngeal mask airway provided a clear airway until anaesthesia became too light during manipulation of the fractured femoral head. Active vomiting occurred and gastric contents were "reflected" back into the trachea. Tracheal intubation and suction were immediately performed but the patient required postoperative ventilatory and inotropic support for three days.

On rapporte le cas d'une pneumonie d'aspiration sévère chez un homme âgé de 74 ans après arthroplastie de Austin-Moore. Un masque laryngé a fourni un bon contrôle des voies aériennes jusqu'à ce que l'anesthésie soit trop légère pour la manipulation de la fracture de l'artère fémoral. Des vomissements actifs sont survenus et le contenu gastrique fut aspiré dans la trachée. L'intubation trachéale et la suction furent immédiatement faites mais le patient a nécessité une ventilation postopératoire et un support inotrope pour trois jours.

The laryngeal mask airway has been commercially available since 1989. It is particularly useful in cases of difficult intubation,¹⁻² although it may be used routinely as a substitute for either the oropharyngeal airway or endotracheal tube for a wide variety of surgical procedures.³ The device is not recommended for patients who are thought to be at high risk for regurgitation of gastric

contents and pulmonary aspiration. We report a case of near-fatal pulmonary aspiration when vomiting occurred during surgery.

Case report

The patient was a 74-yr-old white male farmer who had fallen from his horse the afternoon before surgery. He suffered a fracture of the left femoral neck and was scheduled for an Austin-Moore arthroplasty the following morning at 0900 hr. He had a distant history of peptic ulcer disease with subsequent oesophageal dilatation, but no symptoms of reflux for more than 20 yr. He had suffered from Alzheimer's disease for the previous year and a half.

Following admission to hospital, morphine was administered for pain and dimenhydrinate for nausea. There was no oral intake after admission. At approximately 0200 hr the patient vomited large amounts of gastric contents, initially solid material and later clear bile.

General anaesthesia was induced at 0900 hr with thiopentone 300 mg and fentanyl 100 µg. A laryngeal mask airway size #4 was passed blindly into position. A good seal was obtained which allowed assisted ventilation without a leak until spontaneous respiration was re-established. Anaesthesia was maintained with nitrous oxide, oxygen and isoflurane. The patient was turned onto his right side and the airtight seal of the laryngeal mask airway was again confirmed. Surgery continued uneventfully until the femoral head was pulled from the acetabulum. At this time the patient took deep breaths and the SaO₂ on the pulse oximeter (Nellcor 100) decreased from 98% to 85%. Some broth-like fluid was observed at the corner of the patient's mouth.

It was decided to intubate the patient's trachea immediately. Intravenous succinylcholine was given and, as the laryngeal mask airway was removed, a large amount of gastric contents was observed in the anaesthetic circuit. The patient's trachea was intubated easily with a 9 mm cuffed orotracheal tube, a clean anaesthetic circuit was

Key words

EQUIPMENT: airway, laryngeal mask;

COMPLICATIONS: aspiration, pneumonia.

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attached, and positive pressure ventilation was commenced. Auscultation of the chest immediately after intubation did not reveal wheezing or decreased air entry. Oxygen saturation (FiO_2 0.5) gradually increased to 96%. Surgery proceeded to completion and the patient was transferred to the recovery room on his right side, trachea intubated, and breathing spontaneously, where he again vomited large amounts of gastric contents. Oxygen saturation again decreased below 85% and intermittent positive pressure ventilation was reinstituted. Chest x-ray taken showed a completely opaque right lung.

The patient was transferred to the Intensive Care Unit where his condition deteriorated. An FiO_2 of 1.0 and positive end-expiratory pressure were required to maintain oxygenation, and sympathomimetics for maintenance of cardiac output. Bronchoscopy did not reveal any particulate material. His condition remained critical for two days, following which steady improvement occurred. His trachea was extubated on the fourth day and he was discharged to the orthopaedic ward the following day.

Discussion

The laryngeal mask airway has found widespread use in the United Kingdom and, more recently, in Canada. It provides a clear airway in more than 90% of patients with either spontaneous or controlled ventilation.³ It does not, however, guarantee a protected airway against pulmonary aspiration of foreign material. In a series of 50 patients, the upper portion of the oesophagus could be seen in three of them when a fiberoptic bronchoscope was passed through the laryngeal mask airway.⁴ There is one report of aspiration of bilestained fluid during emergence from anaesthesia⁵ in which the authors suspected that regurgitation was caused by gastric distension during positive pressure ventilation. In another case⁶ the patient, who was breathing spontaneously in the supine position under light anaesthesia, regurgitated gastric fluid which entered the right lung. The author pointed out that the same problem could occur as anaesthesia lightens during emergence because the laryngeal mask with the cuff inflated prevents escape of fluid from the pharynx. This negates the advantage of the lateral position and our patient exemplified this hazard.

In our case anaesthesia was too light, the patient's vomiting reflex became active. The large bowl of the laryngeal mask prevented escape of the vomitus which was "reflected" into the trachea and into the dependent right lung. The situation is worse than vomiting under a strapped-on face mask because with a face mask the material can at least escape into the oral or nasal cavities. Therefore, if breathholding or other signs suggest that a patient is going to vomit, we recommend that the

laryngeal mask airway be removed instantly without waiting to deflate the rim.

Despite this complication we believe that the laryngeal mask airway, in appropriate cases, is a valuable addition to the equipment of the anaesthetist. Whatever method is used to maintain a clear airway during anaesthesia, be it face mask and oropharyngeal airway or tracheal intubation, accompanying risks are inevitable. The laryngeal mask airway is no exception.

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