Obstructive sleep apnoea syndrome: is this an overlooked cause of desaturation in the immediate postoperative period?

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Summary
We report the case of a 38-yr-old man who presented for an emergency mastoidectomy and suffered from severe upper airways obstruction in the postoperative period. Subsequent questioning revealed a history of heroic snoring and further investigations proved a diagnosis of obstructive sleep apnoea. (Br. J. Anaesth. 1997; 78: 442–443).

Key words

Patients with obstructive sleep apnoea are classically obese and complain of hypersomnolence and severe heroic snoring. Surgical treatment of these patients is becoming common place and their anaesthetic management is well defined. However, not all patients present a classical picture and we discuss a mode of presentation after anaesthesia in a previously undiagnosed patient.

Case report
A 38-yr-old man presented for anaesthesia for an emergency mastoid operation. Preoperative assessment showed him to be 183 cm in height, weighing 96 kg and of muscular build (body mass index 28). He had undergone previous uneventful general anaesthesia with a Cormack and Lehane view at laryngoscopy of grade 2, 4 yr previously. On examination of the oropharynx he had a Mallampati score of 2, good mouth opening and normal dentition. His general health was good although he admitted to smoking 30 cigarettes per day and was receiving cimetidine for sporadic dyspepsia. All investigations were normal.

Standard monitoring was applied in the anaesthetic room and a vein cannulated. The patient’s lungs were preoxygenated and rapid sequence induction with thiopentone 500 mg and suxamethonium 100 mg and cricoid pressure was carried out. Laryngoscopy proved difficult because of inability to lift the epiglottis from the posterior pharyngeal wall. Intubation was accomplished by passing the laryngoscope beyond the epiglottis as with a Magill blade. On return of neuromuscular function a dose of atracurium 50 mg was given and the patient’s lungs were ventilated using a Nuffield Penlon ventilator via a Bains breathing system with 1–2% isoflurane and 70% nitrous oxide in oxygen. End-tidal carbon dioxide partial pressure was maintained at 4.5 kPa. Analgesia was provided by morphine 10 mg i.v., and droperidol 1 mg was given for postoperative nausea and vomiting. Arterial pressure was maintained at 100 mm Hg systolic at the request of the surgeon. At the end of the procedure residual neuromuscular block was antagonized with neostigmine 2.5 mg and glycopyrronium 0.5 mg was given. The patient was allowed to wake up and the trachea extubated on his side when it was judged that full neuromuscular function had returned.

On extubation he became agitated and had noisy breathing resembling severe snoring with flaring of the nostrils and associated desaturation. At this point we decided it was important to examine the upper airway to exclude obstruction. Anaesthesia was again induced using isoflurane in 100% oxygen. On laryngoscopy there was no foreign body or swelling present in the upper airway and the epiglottis and larynx appeared normal. A nasal and oral airway were inserted and a normal respiratory pattern with good tidal volumes and an SpO2 of 100% were obtained. The patient was allowed to wake up. However, when the patient was awake enough to spit out the Airways he again developed severe upper airways obstruction and the trachea was reintubated rapidly using propofol 150 mg, suxamethonium 100 mg and atropine 0.6 mg. As there was found to be nothing obstructing the airway it was decided to allow the patient to wake up and self extubate in a sitting position. This was successfully achieved but the apparent upper airways obstruction recurred with a decrease in SpO2. The MIE anaesthetic face mask was applied tightly to the patient’s face with the Heidbrink valve partially closed. This manoeuvre improved the patient’s condition and consequently he was admitted to the intensive care unit for oxygen therapy with 5 cm H2O of CPAP. He was also given dexamethasone 16 mg to reduce soft tissue swelling from repeated

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Discussion

Obstructive sleep apnoea is a common but often undiagnosed condition that may affect 1% of the population. The major problem is that of episodic hypopnoea or apnoea during sleep, the cause of which usually results from partial or complete obstruction of the upper airway. The clinical features include loud snoring (95%), day-time sleepiness (90%), unrefreshing and restless sleep (40%), morning headache, nocturnal choking, reduced libido, morning drunkenness, ankle swelling and enuresis. The syndrome occurs in all ages but is most common in late middle age, the male population and the obese, although it is well recognized that the patient need not be obese or somnolent to have significant sleep fragmentation or airway obstruction.

Problems may occur during induction of anaesthesia, in particular difficult intubation and maintenance of the airway because of associated anatomical problems. Maintenance of anaesthesia requires controlled ventilation as spontaneous ventilation may lead to profound underventilation, acidosis, hypercapnia and hypoxia. Before extubation patients should be awake and extubation should be in the sitting or lateral position. After operation, loss of the upper airway may still occur as oedema in this region may accumulate. Patients may benefit from nasal CPAP at this point and the majority of these patients with a known diagnosis of obstructive sleep apnoea should be managed in the intensive care unit or the high dependency unit for a variable period.

Our patient was seen in the preoperative period and presented no clinical features of obstructive sleep apnoea. He was of muscular build, did not appear obese and assessment of his airway revealed no abnormal features suggestive of a difficult intubation. He was anaesthetized 4 yr previously when intubation had been carried out successfully and anaesthesia had been uneventful. During our anaesthetic, intubation had proved more difficult with the laryngeal inlet being obscured by the epiglottis and requiring two attempts at intubation. Maintenance of anaesthesia was uneventful but extubation and the subsequent period proved difficult with upper airway obstruction. During this period we considered the likely causes of this problem to be: obstruction at the lips, obstruction by the tongue, obstruction above the glottis by a foreign body, saliva, vomitus, blood or oedema and obstruction at the glottis. Repeat laryngoscopy excluded these causes and a clear airway was maintained while the patient was deeply anaesthetized with an airway in situ. The problem recurred when the airway was rejected by the patient. As we have stated the larynx was reintubated and then extubated with the patient fully awake in the sitting position and CPAP applied. At this point we considered a diagnosis of obstructive sleep apnoea and we feel that the initial difficulty with intubation had exacerbated his previously undiagnosed condition by causing minimal oedema of the upper airway, most likely the tongue. Subsequent investigation proved that this patient had obstructive sleep apnoea syndrome.

A diagnosis of obstructive sleep apnoea has often been made when these patients present for surgery, which may be of a corrective nature for their underlying diagnosis and as a consequence appropriate anaesthetic measures may be taken. Our patient was undiagnosed and appeared to have no features that would raise suspicion of obstructive sleep apnoea. However, on postoperative questioning he admitted to heroic snoring (a feature that occurs in 95% of cases), and had we obtained this history in our preoperative assessment our anaesthetic management would have been altered appropriately. This would have included minimizing the use of opioid analgesia (using NSAID and local anaesthetic infiltration), ensuring the patient was fully awake in the sitting position before extubation with a means of delivering CPAP if required and an appropriate safe environment for the patient in the postoperative period. We therefore agree with Dodds’ that the question “Do you snore” should be asked in all preoperative assessments.

References