of fairly severe hepatitis on the second occasion, although it may have mitigated against the more severe damage that has been reported to result from anesthetic concentrations of methoxyflurane, with the associated mortality rate of 58 per cent.1 Of interest, too, was the evolution towards a predominantly cholestatic clinical and biochemical form of hepatitis. This does not appear to have been previously reported in cases of presumed anesthetic-associated hepatitis.

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REFERENCES


Bilateral Hypoglossal-nerve Palsy Following a Second Carotid Endarterectomy

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Surgical treatment of carotid-artery disease is common. When the dissection requires retraction of the hypoglossal nerve, hypoglossal-nerve palsy can occur. When an operation on the contralateral carotid artery takes place prior to full recovery from hypoglossal-nerve palsy, bilateral hypoglossal-nerve palsy can occur. This may subject the patient to difficulties with speaking, swallowing, and maintaining a patent airway in the supine position.

REPORT OF A CASE

A 50-year-old black man, 172 cm tall, weighing 84 kg, underwent a right carotid endarterectomy following a history of transient ischemic attacks and left-sided numbness with arteriographic evidence of right and left carotid occlusive disease. The only complication following this procedure was right hypoglossal-nerve palsy manifested by deviation of the tongue to the right.

Thirty days after the initial operation a left carotid endarterectomy was performed. The patient was in no distress. Medications were diazoxide and methylprednisolone for hypertension. Physical examination revealed a left carotid-artery bruit and deviation of the tongue to the right. EKG was consistent with left ventricular hypertrophy.

The patient was premedicated with morphine sulfate, 10 mg, and scopolamine, 0.4 mg, im. Anesthesia was induced with 350 mg thiopental, iv, and the trachea intubated following 100 mcg succinylcholine, iv. Anesthesia and muscle relaxation were maintained with nitrous oxide-oxygen, 2:1, fentanyl, and pancuronium bromide. Following completion of 70-minute surgical procedure, 100 per cent oxygen was administered and 3 mg prostigmine and 0.6 mg glycopyrrolate were given iv. The patient also received 0.2 mg naloxone, iv. Prior to removal of the endotracheal tube, the patient was breathing adequately, with a respiratory rate of 14/min. He appeared responsive, and the trachea was extubated. Although active, the patient had total respiratory obstruction without an oral airway. Additional prostigmine, 1 mg, with atropine, 0.4 mg, was given iv, and naloxone was administered iv (0.4 mg in divided doses), to reverse any residual muscle relaxation and narcosis. The patient continued to have airway obstruction and to fight to sit up. Physostigmine, 0.5 mg, was then given iv to reverse any possible scopolamine-induced delirium. The situation remained unchanged.

This fighting, delirious patient was finally allowed to sit up. Sitting, his airway cleared, he calmed down, and he became rational. It was then noticed that the patient had poor muscle control of his tongue, and speech was impaired. Thus a diagnosis of bilateral hypoglossal nerve...
palsy was entertained. The postoperative course was uncomplicated except for difficulty with eating, swallowing, and speech, and upper airway obstruction in the supine position. He adjusted well and was discharged five days after operation. Full recovery was expected.

DISCUSSION

Anesthetists should be aware of problems associated with bilateral hypoglossal-nerve palsy following bilateral carotid endarterectomies. Unilateral hypoglossal-nerve palsy, easily detected by ipsilateral deviation of the protruded tongue, causes minimal disability. Bilateral nerve palsy can cause airway obstruction, impairment of speech, and difficulty with eating. Damaged myelinated nerve may regain function no more rapidly than 2 mm per day. If possible, total recovery of unilateral hypoglossal-nerve palsy should be allowed prior to operation on the contralateral carotid artery.

REFERENCES


A New Method for Positioning Endotracheal Tubes

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Endotracheal intubation may be complicated by inadvertent insertion of the tube down to the level of the carina or even into a mainstem bronchus. Three methods are currently used to determine proper tube location: 1) a portable chest x-ray, which is expensive, inconvenient, and frequently not immediately available; 2) rapid inflation and deflation of the cuff with palpation in the suprasternal notch—not useful with low-pressure, large-volume, prestretched cuffs; 3) auscultation for breath sounds—notoriously inaccurate and of no value if the tube is at the carina. Described herein are basic features of a new method that is simple, safe, non-invasive, inexpensive, and should ensure proper tube localization.

METHODS

A sophisticated electromagnetic sensing technique allows detection of a special flexible circumferential foil marker band, approximately 3 mm wide, 25 microns thick, and weighing 50 mg. The band is fused into the endotracheal tube at the proximal cuff-tube junction without increasing the external diameter, narrowing the internal diameter, or changing the inherent properties of the tube (fig. 1). Prototype tubes with this modification were fabricated to our design by Portex Ltd. A simple, hand-held, pocket-sized, battery-powered, electronic detector was developed in our laboratories to sense the proximity of the marker bands.† The detection system is based on using a com-