enzyme induction resulting from either phenobarbital or diazepam seemed unlikely. Indeed, our clinical impression that succinylcholine-induced neuromuscular blockade was less in the presence of chronic phenobarbital therapy was not supported by increased plasma pseudocholinesterase activity.

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Malignant Acanthosis Nigricans and Anesthesia

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Acanthosis nigricans is characterized by symmetric verrucous hyperplasia of the skin, with hyperpigmentation.1–4 When the condition is severe, the skin develops a papillary quality. The distribution is predominantly in the body folds. If extensive involvement occurs, lesions may be seen on the lips, palate and buccal mucosa. This disease may be benign or malignant, the latter form being associated with a variety of malignant neoplasms, usually of the gastrointestinal tract. Since 1889, about 500 cases of acanthosis nigricans have been reported.5 Thus, although well known, it is still a rare syndrome, especially if only the cases with extensive oral mucous membrane involvement6 are considered. The following report describes a patient with the malignant form of the disease that posed a problem during induction of general anesthesia.

REPORT OF A CASE

A 74-year-old man had been in good health until a year before admission to the hospital, when he had noticed warty, dark, thick folds over the wrists, groin, and neck. These accentuated skin markings had increased during the six months prior to admission. At the same time he had had a significant weight loss and difficulty in swallowing, and lesions of the oral mucosa had developed.

On admission, the patient weighed 45 kg. He had classic cutaneous changes of acanthosis nigricans; the diagnosis was confirmed by histologic examination of a biopsy specimen. Most striking were the papillomatous lesions involving the gums, buccal mucosa, tongue, palate, and lips. The lesions caused difficulty and pain in swallowing, associated with accumulation and frequent expectation of blood-tinged salivary secretions. The patient had not experienced significant coughing or difficulty in breathing, however. Complete blood count, roentgenogram of the chest, EKG, sigmoidoscopy, liver biopsy, bone roentgenographic survey and barium enema studies disclosed no abnormality. Also, studies for endocrinopathy and blood chemistry were negative except for an abnormally high value for lactic dehydrogenase. Roentgenograms of the upper gastrointestinal tract were normal except for innumerable papillary masses in the mucosa of the pharynx and esophagus. When the biopsy specimen of a supraclavicular lymph node showed a muccin-producing adenocarcinoma, the diagnosis was changed to malignant acanthosis nigricans. The patient was scheduled for elective exploratory laparotomy to search for a resectable primary tumor.

On the morning of the operation, after premedication with diazepam, 10 mg, and atropine, 0.4 mg, im, anesthesia was induced with thiopental, 200 mg. The patient began to cough, and succinylcholine, 60 mg, was given to facilitate ventilation and orotracheal intubation. An oropharyngeal airway was inserted and the lungs were ventilated with pure oxygen. On removal of the anesthetic mask and oral airway, the lips, gums, tongue, and palate were found to be significantly bloody from sloughing of the papillomatous mucosa that had been in contact with the mask and airway (fig. 1). Attempted laryngoscopy revealed an unusual amount of secretions in the hypopharynx despite

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guineous oral secretions was necessary, the trachea was not extubated until 90 minutes after the patient’s arrival in the recovery unit, when an adequate return of protective reflexes was evident. The postoperative course was uneventful.

**Discussion**

Extensive involvement of the oral mucous membranes with lesions of acanthosis nigricans occurs predominantly in patients with the malignant form of the disease, which represents about 26 per cent of reported cases. The associated malignant tumor is intra-abdominal in more than 90 per cent of the cases, and is usually in the stomach. As in the case mentioned above, patients with the malignant form of the disease occasionally are treated by surgical exploration in search of a resectable primary carcinoma for palliative purposes. Following resection of the primary carcinoma, the muco-cutaneous changes of acanthosis nigricans may regress.

Experience with the present case suggests that in future considerations of the anesthetic management of such patients, priority should be given to a regional technique of anesthesia, and if an inhalation technique seems most desirable, then serious consideration should be given to awake intubation before induction of anesthesia. The anesthetist should maintain an index of suspicion as to the extent of oral abnormalities associated with malignant acanthosis nigricans and the possible adverse consequences of using a common, seemingly routine, method for induction of general anesthesia.

**References**