Laryngeal granuloma is a complication typically associated with prolonged endotracheal intubation. We encountered a case wherein a laryngeal granuloma developed after short-term endotracheal intubation.

**Case Report**

The patient is a 66-year-old woman. She underwent a right nephrectomy for right renal tumor in November 1996. The patient was intubated at that time using 6.5-mm ID endotracheal tube under direct vision. Intubation was easy, and there were no obvious complications. General anesthesia, combined with epidural analgesia, was used. The patient was placed in the supine position, and the duration of anesthesia was 4.5 h. She was uneventfully extubated at the end of the case. After surgery, she had difficulty in vocalization and slight hoarseness without dyspnea. This lasted for 1 day, after which she was discharged. In February 1997, she visited the otorhinolaryngology department in our hospital because of continuous hoarseness. The cause of hoarseness was identified as a laryngeal granuloma (fig. 1), which was treated by inhalation of beclomethasone dipropionate. One month later, she suffered the abrupt onset of dyspnea and was brought emergently to the operating room. During a preoperative bronchoscopy, a pedunculated laryngogranuloma originating from the right vocal cord was observed (fig. 2). The granuloma flopped into the subglottic region with inhalation and out with exhalation. The emergency surgical removal was required. With intramuscular 0.5 mg atropine sulfate as a premedication, the patient was intubated awake with topical use of local anesthesia. The intubation was synchronized with exhalation to avoid the granuloma slipping into trachea (fig. 3). Then, 100 mg propofol and 6 mg vecuronium were infused intravenously. The patient underwent direct laryngoscopy and excision of mass without complication. She was administered 250 mg methylprednisolone succinate for the prevention of vocal cord edema. Extubation was performed after complete awakening from anesthesia. The patient had pharyngodynia and hoarseness for 2 days postoperatively, but she was discharged without complication.

**Discussion**

The earliest report of laryngeal granuloma was submitted by Clausen in 1932. Since that time, it is well known that prolonged endotracheal intubation may result in development of laryngeal granuloma. But laryngeal granuloma caused by short-term intubation has not been reported. We encountered a laryngeal granuloma growing by endotracheal intubation for 4.5 h. Furthermore, the otologist declares that patients suffering from laryngogranuloma visit the department every 2 months. The occurrence rate of laryngeal granuloma was reported to be ranging from 0.01% to 3.5%. There are many etiologic factors, e.g., the trauma of intubation, infection, the
use of oversized tube, excessive cuff pressure in the presence of nitrous oxide, the duration of intubation, and the positioning of endotracheal tube. Predisposing factors reinforce age, gender, anatomic character, fragility of the laryngotraheal mucosa, and hyperacidity with gastric reflex. Women are more likely to develop granulomas, as is a patient who is obese, has a short neck, or possesses other congenital anomalies involving the airway. Prevention primarily involves avoiding or eliminating the etiologic factors. To reduce the incidence of the postintubation complications, there are many means, e.g., atraumatic intubation under direct vision during laryngoscopy, use of smaller endotracheal tubes, attention to cuff pressure, prevention of excessive flexion or extension of the neck, and the use of muscle relaxants or adequate depth of anesthesia to avoid reflexive movements around the tube. Treatment consists of strict voice rest, cessation of smoking, corticosteroids, antibiotics, antacids, and surgical removal under direct laryngoscopy. However, some laryngeal granulomas are highly refractory to standard therapies. For these persistent or recurrent granulomas, repeated excision followed by low-dose irradiation may provide successful resolution. Most anesthesiologists recognize that hoarseness often is a postintubation complication. Few anesthesiologists, however, realize that developed postintubation laryngotracheal granuloma may cause dyspnea that leads to emergency surgical excision. The sign of growing granuloma is hoarseness. Difficult vocalization, dyspnea, and pharyngodynia appear a few weeks or a few months after surgery. Patients should be informed of the risk of laryngogranuloma and its signs and symptoms and should be instructed to visit an otorhinolaryngologist if they experience postintubation hoarseness for more than 1 week.

References