intubation stylet (medium). We then nicked the distal end of the bougie and gently threaded the metallic wire into the introducer, until the wire reached 2 cm from the angled tip (Fig. 6). The result is that the angulated tracheal end of the bougie remains soft and nontraumatic, but the rest of the bougie is stiff and adjustable for tracheal intubation. Because the introducer can be used multiple times, it is also cost-effective.

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“Kratschmer” Reflex During Rhinoplasty

To the Editor:

We report an unusual complication following nasal packing after rhinoplasty to illustrate the existence and importance of the primitive “Kratschmer” reflex (1). Kratschmer, in 1870 first described trigemino-cardiac and trigemino-respiratory reflexes in cats and rabbits (2,3). There are very few reports of Kratschmer reflex in the literature (4,5).

A 50-yr-old male ASA grade-I underwent rhinoplasty under general anesthesia. At the end of the procedure, as his nose was being packed with gauze, he developed sudden bradycardia and bronchospasm for which we gave atropine sulfate 0.6 mg IV. After symptomatic relief, we reversed the neuromuscular blockade and extubated the trachea. In a few minutes he developed severe respiratory distress due to persistent bronchospasm and pulmonary edema. We reintubated the patient’s trachea. In the absence of knowing about other predisposing factors for bronchospasm, we surmised that nasal packing lead to the Kratschmer reflex. We removed the nasal pack, and the patient was relieved of bronchospasm. Because of negative pressure pulmonary edema, he required mechanical ventilation for 24 h, after which he was weaned off the ventilator and tracheally extubated. There

Figure 4. Nick in the gum elastic bougie.

Figure 5. Threading the wire into tracheal tube introducer.

Figure 6. Gum elastic bougie with the metallic wire inside.
Letters to the Editor

were no further episodes of bradycardia or bronchospasm.

Stimulation of receptors in the trigeminal nerve distribution area results in reflex changes in autonomic, cardiovascular, and respiratory systems (6). Most of the reports of Kratschmer reflex described cardiovascular changes with potent stimuli, such as elevation of bone flap or osteotomies. Lang et al. (4) reported three cases of possible Kratschmer reflex in patients undergoing corrective facial osteotomies. The cardiovascular changes during cerebellopontine angle tumor resection suggest the presence of a central induction and efferent pathway of trigeminocardiac reflex in humans (7). Our case illustrates that moderate stimuli like nasal packing can evoke Kratschmer reflex. This patient developed bronchospasm and laryngospasm as originally described by Kratschmer in animals (2,6). In our case, atropine was effective in treating bradycardia but bronchospasm responded only partially.

Vigilance during procedures with a potential to provoke a trigeminocardiac/trigeminorespiratory reflex is essential. Prompt interventions like cessation of surgical stimulus, administration of atropine, local anesthetic infiltration, or blockade of the nerve may be helpful in attenuating or preventing the potentially fatal complications of Kratschmer reflex.

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Dental Cast Model as an Airway Management Planning Tool

To the Editor:

A 23-yr-old female was scheduled for Le Fort I osteotomy advancement, calvaria bone grafting, and rhinoplasty to repair a Class II malocclusion and persistent nasal deformity. She had undergone maxillo-mandibular fixation 5 yr previously for bilateral Le Fort II and nasal bone fracture. In preparation for surgery, plastic surgeons made a dental cast model to define the patient’s precise intraocclusional relationships (Fig. 1).

We explored options for airway management. Surgery did not permit nasal intubation. Invasive techniques such as tracheostomy (1) or submental intubation (2) carry too much risk of increased morbidity and postoperative scarring. Therefore, we decided upon transoral retro-molar intubation without osteotomy for surgery, plastic surgeons estimated the patient’s precise intraocclusional relationships (Fig. 1).

We performed oral endotracheal intubation and fixed the tube with wire ligature. After noticing the patient’s passive clenching of teeth, we checked the adequacy of ventilation and the airway pressures. Surgery proceeded uneventfully for 5 h and we extubated the trachea after ensuring we could maintain a patent airway. Preoperative use of a dental cast permitted us to proceed with a novel method of airway management.

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Figure 1. A dental cast model showing retro-molar space.